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Jan-Tobias Doerr

born on October 25th, 1986 in Oldenburg (Germany)

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LEARNING FROM 30 YEARS OF TRANSITION-

A RECONSTRUCTION OF SUSTAINABLE DEVELOPMENT IN BECKERICH AND
ITS IMPLICATIONS FOR LUXEMBOURGISH RURAL DEVELOPMENT

DISSERTATION DEFENSE COMMITTEE

Dr. Birte Nienaber, Chairperson of the committee
Associate professor, University of Luxembourg

Dr. Christian Schulz, Dissertation supervisor
Professor, University of Luxembourg

Dr. Ariane König
Research scientist, University of Luxembourg

Dr. Antje Bruns
Professor, University of Trier

Dr. Fabian Faller
Research scientist, University of Kiel

Supervisor:
Prof. Dr. Christian Schulz

Members of the supervisory committee
Dr. Ariane König
Dr. Gerald Taylor Aiken

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ZUSAMMENFASSUNG

Da diese Arbeit auf englischer Sprache verfasst ist, werden im Folgenden Kernaussagen für deutschsprachige LeserInnen vorgestellt. Ein kürzer Überblick liefert zunächst eine Gesamtschau. Daraufhin wird der Fall kurz vorgestellt und Forschungsfragen vor dem Hintergrund aktueller geographischer Debatten zu Graswurzel und Sozialen Innovationen, sowie der endogenen Regionalentwicklung abgeleitet. Als Nächstes werden zentrale theoretische Zugänge und Konzepte eingeführt und das Forschungsdesign beschrieben. Die Zusammenfassung schließt mit einer Diskussion von ausgewählten Befunden zur Regionalentwicklung in Réiden und zeigt Implikationen für die genannten wissenschaftlichen Diskussionen auf. Erkenntnisse für PraktikerInnen werden im Schlusskapitel dieser Arbeit vorgestellt.

ÜBERBLICK

Diese Arbeit entwickelt Elemente einer Theorie zu assoziativ demokratischer und nachhaltiger Entwicklung im ländlichen Raum anhand einer paradigmatischen Fallstudie. Der nunmehr 40 Jahre andauernde Transformationsprozess in der luxemburgischen Gemeinde Beckerich und dem umliegenden Kanton Réiden inspiriert zu Gedankenexperimenten mit Entwicklungsverständnissen, die sowohl Transformations- und EntwicklungspraktikerInnen als auch WissenschaftlerInnen helfen können den Herausforderungen unserer Zeit gerecht zu werden.

Der Fall wird durch das Zusammenspiel von vielfältigen Graswurzelinitiativen beschrieben, die unterschiedliche Politikfelder und Wirtschaftssektoren im Kanton transformieren. Das Forschungsdesign orientiert sich an zwei Aspekten: Zum einen werden die Leitbilder der Partizipation rekonstruiert. Hierbei wird untersucht wie divergent diese innerhalb der Initiativen sind, und wie Unterschiede zwischen Leitbildern ausgehandelt und angeglichen werden. Zweitens wird untersucht, inwiefern sich Graswurzelinitiativen in unterschiedlichen Politikfeldern am gleichen Ort zueinander verhalten. Dies erlaubt beispielsweise eine Diskussion darüber in wie fern die erfolgreiche Energiewende in Réiden Grundlagen für eine Agrarwende schafft.

In der vorliegenden Arbeit werden hierfür aktuelle sozial- und wirtschaftsgeographische Debatten über Probleme für die Entwicklung des ländlichen Raums und der Nachhaltigkeitstransformationen mit Ansätzen aus Nachbardisziplinen in Dialog gebracht. Den theoretischen Rahmen bildet die pragmatistische Handlungstheorie, wodurch lokale Graswurzelinitiativen, wie beispielsweise ein Ökosystem-Governance Projekt, die regionale Energie- und Agrarwende, sowie eine Regionalwährung als kreative und subpolitische Problemlösungsexperimente verstanden werden. Es wird angenommen, dass diese Initiativen sich an Paradigmen qualitativer und sozialer Freiheit orientieren, die heterogene Leitbilder verbinden

und orchestrieren, und in ihrer Gesamtheit zu einer neo-endogenen Entwicklungsstrategie führen. Regionalentwicklung und Nachhaltigkeitstransformation werden durch den Befähigungsansatz zusammengefasst.

Das Forschungsdesign verwendet quantitative und qualitative Methoden in der Bearbeitung von zwei Themenkomplexen anhand der vier genannten Graswurzelinitiativen im Kanton Réiden. Die Leitbilder werden mit der Q Methode rekonstruiert und können durch ein eigens hierfür entwickeltes Kategoriensystem zwischen den Initiativen verglichen werden. Das Zusammenspiel der Initiativen wird durch qualitative Inhaltsanalysen umfangreicher qualitativer Daten erforscht. Die zentralen empirischen Ergebnisse dieser Arbeit lassen sich in drei Aspekten zusammenfassen: Erstes wird eine Typologie von drei Leitbildern entwickelt. So wird in jeder Initiative ein *systemisch-idealstisches*, ein *regional-kooperatives* und ein *instrumentell-utilitaristisches* Leitbild festgestellt. Ein vorsichtiger Rückbezug der Leitbilder auf ihren TrägerInnen legt die hypothetische Vermutung nahe, dass sie sich in ihrer Vielfalt ergänzen, bzw. dass die Leitbilder komplementäre soziale Praktiken repräsentieren. Die unterschiedlichen Entwicklungsverständnisse und -bedürfnisse behindern nicht die Entstehung von Initiativen sondern sie ermöglichen und stabilisieren sie. Zweitens werden die Initiativen aktiv ineinander verwoben und es bestehen klare Parallelen in ihren Entwicklungsgeschichten. So werden sie von einer interdisziplinären Gruppe lokaler Aktivisten hervorgebracht und durchlaufen gleichartige Phasen der internen Organisation und institutionellen Einbettung im Kanton. Zudem werden die Initiativen vor allem durch Materialitäten und durch räumliche Zusammenlegung strategisch miteinander verbunden um sie zu stabilisieren und um Synergien zu erzeugen. Drittens lässt sich in Réiden ein Regionalisierungsprozess, bzw. eine bottom-up Rekonstruktion der kantonalen Meso-Ebene im zwei-Ebenen Systems Luxembourg feststellen. Dieser Prozess wird vor allem von zwei formalen Institutionen betriebener LEADER-Aktions- Gruppe und dem interkommunalen Syndikat- welche sich in der Hervorbringung und Begleitung der Initiativen ergänzen, und die die Handlungsräume der Initiativen auf die ursprünglichen Grenzen des Kantons definieren.

Ausgehend von den empirischen Befunden wird eine Theoretisierung der Entwicklung in Réiden vorgenommen und Elemente einer pragmatistischen Regionalentwicklungstheorie erarbeitet. Während die meisten praxeologischen Studien zu ähnlichen Forschungsfällen die Trägheit von Praktiken betonen, setzt diese Arbeit den Fokus auf kreative Aspekte kollektiven Handelns und konzentriert sich auf Situationen ihrer Kritisierbarkeit und Wandelbarkeit. Die Graswurzelinitiativen werden als Praktikenbündel beschrieben, die aus kollektiven Problemlösungen hervorgehen. Die Initiativen werden von systemischen Instrumenten begleitet. Dies sind formale regionale Institutionen, wie beispielsweise die LEADER Aktionsgruppe, in denen partikulare Probleme, Wünsche und Bedürfnisse der Menschen im Kanton zu kollektiven Lösungen geführt werden- den Graswurzelinitiativen. Die Wirkung der Initiativen wird als Bereitstellung vielfältiger

Konversionsfaktoren begriffen, welche die TeilnehmerInnen dazu befähigen Handlungsprobleme zu überwinden und individuelle Lebensformen zu erhalten und zu realisieren. Durch die Integrierung dieser Konzepte so soll ein Beitrag zur Überwindung des neoklassischen Paradigmas hin zu einem an Qualitäten ausgerichteten pluralistischen und humanistischem Regionalentwicklungsverständnis geleistet werden.

Ausgehend von den Forschungsergebnissen werden zudem Anregungen für Transitions-PraktierInnen ausgearbeitet. Hier wird für ein inklusives und liberales Transformationsverständnis geworben, das sich auf assoziatives pragmatisches Problemlösen anstatt normativistischen Diskurs konzentriert. Der 40-Jährige Transformationsprozess in Réiden zeigt, wie wichtig es ist kollektive Krisenerfahrungen und Handlungsprobleme als günstige Situationen für die Entwicklung kreativer Graswurzelexperimente wahrzunehmen. Dies wird erleichtert, wenn regionale Institutionen vorhanden sind, in denen Streit und Aushandlung in geschützten sozialen Räumen stattfinden können und die Zugang zu kollektiven regionalen Ressourcen erleichtern.

HINTERGUND DER ARBEIT UND FRAGESTELLUNGEN

Die sozio-ökonomische Entwicklung ländlicher und peripherer Räume und die Nachhaltigkeitstransformation sind zentrale Herausforderungen unserer Zeit (Hadjimichalis & Hudson 2014; Pike et al. 2007; Rahmstorf & Schellnhuber 2012; WBGU 2011). In geographischer Forschung überschneiden sich diese Themengebiete häufig, da einige Gesellschaftsbereiche, in denen Nachhaltigkeitstransformationen nötig sind, wie beispielsweise die Fürsorge für die Ökosphäre, sowie die Agrar- und Energiewirtschaft auch Kernbestandteile des Lebens in ländlichen Räumen sind. Darüber hinaus sind lokale und regionale Experimente in diesen Bereichen nicht nur Beiträge zur sozio-ökonomischen Entwicklung des ländlichen Raums (Cochrane 2011), oder der Nachhaltigkeitstransformation (Henfrey & Penha-Lopes 2015; Seyfang & Smith 2007), sondern sie ermöglichen auch Bildungsprozesse die die Befähigung für weitere Experimente fördern (Koller 2012; Wals 2009), anderen Orten als Vorbild dienen (Peck & Theodore 2010; Wright 2010), sowie die gesamtgesellschaftliche Akzeptanz für alternative Politik steigern können (Avelino et al. 2017; Bradbury & Middlemiss 2015; Dobson 2003; Devine-Wright 2005).

Die luxemburgische Gemeinde Beckerich und ihr Kanton Réiden sind ein paradigmatisches Beispiel für beide Debatten. In den 1980er und 1990er Jahren wurde hier als Reaktion auf den Niedergang der ländlichen Wirtschaft und den demographischen Wandel mit partizipativer Demokratie auf lokaler, und assoziativer Demokratie auf regionaler Ebene experimentiert. Hieraus entstanden eine Reihe von Initiativen, die bis heute aktiv sind und als sehr progressiv für den nationalen Kontext gelten können: Das erste Ökosystem-Governance Projekt des Landes zum

Schutze des Einzugsgebietes des Flusses Atert entstand in Réiden, die erfolgreichste und konsequenteste lokale Energiewende, sowie Luxemburgs erste und einzige Regionalwährung, die bald mit Hilfe von Distributed Ledger Technologie digitalisiert werden soll. Der transformative Geist scheint zwischen den Politikbereichen zu springen, wie die aktuellen Anwendungen von erlernten Strategien der Energiewende auf den regionalen Agrarsektor durch ein ambitioniertes und schnell wachsendes alternatives Nahrungsnetzwerk zeigen. In den vergangenen Jahren hat sich zudem das *Centre for Ecological Learning Luxembourg* (CELL), das Zentrum der nationalen Transition Bewegung in Beckerich angesiedelt.

Dieser Fall erlaubt, die transformativen Effekte von Graswurzelinitiativen auf eine neuartige Weise in zweierlei Hinsicht zu untersuchen. Erstens: Anstatt die Auswirkungen einer einzelnen isolierten Initiative auf ein sozio-technisches Regime oder ein soziales Feld zu untersuchen (siehe Haxeltine et al. 2016; Howaldt & Schwarz 2016), wird analysiert wie sie die gemeinschaftliche Befähigung weitere Initiativen im selben, oder in anderen Politikbereichen am gleichen Ort erweitert, oder einschränkt. Zweitens: Da Graswurzelinitiativen gesamte Wertschöpfungsketten und Governance-Systeme im Kanton betreffen, versammeln sie eine Vielzahl von Akteuren mit sehr unterschiedlichen Bedürfnissen und Bestrebungen. Réiden unterscheidet sich von anderen Forschungsfällen, wie beispielsweise den Ökodörfern in Frankreich und Deutschland, oder Totnes im Vereinigten Königreich. Diese können insofern als intentionale Gemeinschaften gelten, als dass sie zu einem großen Teil aus Akteuren bestehen, die mit der Absicht dorthin gezogen sind bestimmte Lebensstile und -formen zu verwirklichen (siehe Hausknost et al. 2018; Longhurst 2015). Im Vergleich zu diesen Fällen kann Réiden als natürliche Gemeinschaft gelten, die weniger von einer gemeinsamen Nachhaltigkeitsvision beseelt ist, als vielmehr von Prinzipien pragmatischer Nachbarschaftshilfe über soziale Milieus und politische Lager hinweg.

Das Forschungsdesign wird von zwei Forschungskomplexen strukturiert, die jeweils aus einer Hypothese und einer Leitfrage bestehen. Im ersten Forschungskomplex wird angenommen, dass die Graswurzelinitiativen miteinander verbunden sind und einander bedingen (durch Handelnde, Materialitäten, Handlungsverständnisse und -wissen, sowie Normen). Es wird gefragt, durch welche konkreten Elemente die Initiativen verbunden sind, und was der Charakter dieser Verbindungen ist. Im zweiten Forschungskomplex wird angenommen, dass die Graswurzelinitiativen in heterogenen Handlungskoalitionen mit diversen Leitbildern hervorgebracht werden. Folglich werden der Charakter und die Beziehungen dieser Leitbilder innerhalb und zwischen den Initiativen untersucht.

THEORETISCHER RAHMEN

Diese Arbeit integriert Ansätze aus der Sozialtheorie und Sozialpsychologie mit graphischen Konzepten aus den genannten Debatten. Da der Fall die Möglichkeit bietet das Wechselspiel zwischen Graswurzelinitiativen, Regionalentwicklung und sozialem Wandel auf eine neuartige Weise zu untersuchen, wird in der Arbeit mit verschiedenen theoretischen Zugängen experimentiert, die nach Kenntnis des Autors in der geographischen Forschung noch kaum Anwendung in empirischen Studien zu ähnlichen Phänomenen gefunden haben. Als theoretisches Fundament hierfür dient die neo-pragmatistische Handlungstheorie (Joas 1992, 1996).

Das Konzept der Graswurzelinitiativen wird in Anbetracht des Forschungsgegenstandes im Vergleich zum geographischen Diskurs angepasst. Im Gegensatz zu den meisten Studien zu *Grassroots Innovation* oder *Social Innovation* beschreibt der Begriff Graswurzelinitiative in dieser Arbeit keine singulären alleinstehenden Experimente, wie beispielsweise eine *Community Supported Agriculture*, oder eine Biogaskooperative (siehe Avelino et al. 2017; Braun-Thürmann & John 2010; Haxeltine et al. 2016; Howaldt & Schwarz 2016; Moulaert et al. 2013). Im Verständnis dieser Arbeit umfasst eine Graswurzelinitiative eine Vielzahl von Praktiken, die in ihrer Gesamtheit ein ganzes Politikfeld oder einen Wirtschaftssektor im Handlungsräum des Kantons regionalisieren und im Hinblick auf lokale Nachhaltigkeitsvorstellungen transformieren.

Handlung, Praktik und Lebensform

Diese Arbeit versucht die beschriebenen sozialen Phänomene aus handlungstheoretischer Perspektive zu fassen und operationalisiert Graswurzelinitiativen, sowie Lebensformen zunächst als Bündel von Praktiken. Hierdurch soll ein Mittelweg im dialektischen Verhältnis von Agency und Struktur gegangen werden. Diese Perspektive soll kollektive Assoziation anstatt individuellem Leadership, sowie dynamischer und kreativer Wandel der Verhältnisse anstatt institutionelle Determiniertheit betonen.

Es wird hierfür einem pragmatistischen Handlungsverständnis gefolgt. Eine Kernannahme dieser Tradition ist, dass Wissen sich in der Praxis beweisen muss; Erkenntnis folgt dem praktischen sich-zurechtfinden in der Welt. Die Welt ist aus pragmatistischer Perspektive kein Handlungsfeld, dass sich beliebig nach von außen an sie herangetragenen Wünschen und Zielen manipulieren lässt. Vielmehr gehen Wünsche, Ziele und auch Problemdefinitionen immer schon aus Handlungen hervor, bestehen nur in Handlungssituationen und sind damit immer Produkte von sozialer Interaktion.

Diese Arbeit bezieht sich auf die neo-pragmatistische Theorie, die sich auf kreative Momente des Handelns konzentriert (Joas 1992; 1996). So wird im Gegensatz zur Praxeologie nicht die Starre und Trägheit von Praktiken betont, sondern deren Kritisierbarkeit und Wandelbarkeit. Hiermit rücken vor allem Handlungsprobleme in den Fokus der Untersuchungen (siehe unten).

Die ontologischen Grundlagen für die empirische Forschung werden aus der Site Ontology abgeleitet (Schatzki 2003, 2015). Diese hilft besonders das Verhältnis von Leitbildern und sozialen Praktiken, sowie Praktiken und Praktikenbündel im Rahmen der Handlungstheorie konsistent zu erfassen (siehe unten). Die Graswurzelinitiativen werden als Bündel sozialer Praktiken und Materialitäten gedacht. Eine Praktik ist eine alltägliche Handlung, die oft gewohnheitsmäßig verläuft und mit Hilfe von implizitem Wissen und ohne bewusste Reflexion aufgeführt werden kann. Einzelne Akteure sind Träger verschiedener Praktiken und eignet sich daher als primärer Zugang für die empirischen Erhebungen (Reckwitz 2003).

Sowohl Graswurzelinitiativen als auch Lebensformen werden in dieser Arbeit als wirtschaftliche, respektive private biographische Bündel sozialer Praktiken verstanden. Die Graswurzelinitiative Regionalwährung beispielsweise besteht aus wirtschaftlichen Praktiken des Einkaufens, der Buchhaltung, oder der Vermarktung, welche unter anderem durch die materiellen Scheine oder digitale Infrastruktur der Währung verbunden sind. Diese diversen Praktiken stehen zwar in einem ko-konstitutiven und funktionalen Zusammenhang, dieser muss den einzelnen Handelnden aber nicht vollständig zugänglich sein.

Eine Lebensform hingegen beschreibt bestimmte Verhaltensmuster von Menschen die das private Lebensumfeld bestimmten und Biographien prägen (Jaeggi 2013). Sie sind träge Bündel oder Ensemble von Praktiken die normativ und funktional aufeinander bezogen sind, und ebenfalls nicht laufend bewusst abgestimmt und reflektiert werden müssen. Ein Beispiel für eine Lebensform ist die bäuerliche Kleinfamilie. Lebensform und Graswurzelinitiative werden in dieser Arbeit als ko-konstitutiv aufgefasst und ihr Zusammenspiel wird über den Befähigungsansatz beschrieben (siehe unten).

Handlungsprobleme und sozialer Wandel

Mit der pragmatistischen Perspektive werden Graswurzelinitiativen als kreative und kollektive Handlungen zur Problemlösung in einem regionalen Wirtschaftssektor oder Politikfeld verstanden (Dewey 2003; Joas 1996). Ein Problem ist beispielsweise eine Situation in der Praktiken und Routinen nicht mehr wie gewohnt ausgeführt, sondern unterbrochen werden, oder eine Situation in der eine situativ entstandene Wunschvorstellung nicht mit bestehendem Wissen verfolgt werden kann. Es muss also eine neue Handlung kreativ und experimentell entworfen werden. Bei erfolgreicher Bewältigung kann diese als Handlungsmuster wiederum absinken, zur Routine werden und auch neue lokale Institutionen hervorbringen (Joas 2012, 1996; Koller 2012; Shove and Walker 2007). Die Entstehung und beständige reflexive Entwicklung von Graswurzelinitiativen und der Wandel von Leitbildern durch Bildungseffekte in diesen Prozessen wird mit diesem Modell von Handlungszyklen beschrieben.

Entwicklung

Dieses Verständnis von sozialem Wandel auf mikro-Ebene wird verknüpft mit Theorien über makro-soziale Transformation. Mit Einsichten der Debatten zur reflexiven Moderne und des Real Utopias Project werden Handlungsprobleme als nicht-intendierte oder ungeachtete Nebeneffekte einer unter anderem auf Steigerung, Rationalisierung und funktioneller Differenzierung beruhenden Entwicklungslogik der ersten Moderne begriffen (Beck 1993; Wright 2010). Graswurzelinitiativen sind in diesem Zusammenhang situative, kontingente und subpolitische Experimente diese Nebeneffekte zu demokratisieren und Souveränität über sie zu gewinnen (Mason & Whitehead 2012).

Das Zusammenspiel und Wirken von einzelnen Handelnden und den Graswurzelinitiativen wird über Theorien qualitativer und sozialer Freiheit (Dierksmeier 2016), dem Befähigungsansatz (Sen 2001), und dem Lebensformkonzept (Jaeggi 2013) gefasst. Es wird angenommen, dass die Graswurzelinitiativen qualitative Werte hervorbringen und sich an ihnen orientieren, die es erlauben partikulare Wünsche und Bedürfnisse ihrer vielfältigen TeilnehmerInnen zusammenzuführen und in komplexen wirtschaftlichen Praktienbündeln zu orchestrieren. Die Initiativen können so vielfältige Konversionsfaktoren bereitstellen, die einzelne TeilnehmerInnen dazu befähigen Handlungsprobleme zu lösen und Lebensformen zu erhalten oder zu verwirklichen (Dierksmeier 2016; Jaeggi 2013; Pike et al. 2007; Sen 2001). Entwicklung wird in diesem Sinne als die Erweiterung individueller Freiheit etwas zu tun und zu sein verstanden, die in freiwilliger und assoziativer sozialer Bindung prozessiert wird (Dierksmeier 2016; Middlemiss & Parrish 2010; Sen 2001; Seyfang & Smith 2007).

Graswurzelinitiativen

Eine Graswurzelinitiative wird als ein subpolitisches und assoziativ demokratisches Bündel sozialer Praktiken verstanden, die in ihrem Zusammenwirken eine Wertschöpfungskette, oder ein Governance-System regionalisieren. Es werden hierfür interstitielle Strategien verfolgt. Dies bedeutet, dass sich Akteure aus der Zivilgesellschaft, Verwaltung und Privatwirtschaft vor dem Hintergrund kollektiver Krisenerfahrungen zu Handlungskoalitionen zusammenschließen und diese gemeinsam durch das Experimentieren mit neuen Praktiken überwinden. Hierdurch entstehen neue Praktikenbündel und lokale Institutionen. Die Initiativen rekrutieren Akteure mit vielfältigen Leitbildern, die durch ihre Teilnahme Zugang zu Konversionsfaktoren bekommen, die sie befähigen individuelle Handlungsprobleme zu lösen. Eine Graswurzelinitiative produziert und orientiert sich an qualitativen Entwicklungszielen, beispielweise unterschiedlicher Ausformungen des Nachhaltigkeitsgedankens, die die vielfältigen partikularen Leitbilder der Akteure zu verbinden vermögen.

Befähigungen und Konversationsfaktoren

Eine Befähigung wird als die real existierende Möglichkeit verstanden in einem konkreten Handlungskontext (site) etwas zu tun oder zu sein. Eine solche Möglichkeit besteht, wenn in einem lokalen Kontext die notwendigen Konversionsfaktoren vorhanden sind, die einzelne PraktikerInnen je nach individueller Präferenz wahrnehmen können. Graswurzelinitiativen produzieren Konversionsfaktoren, die keine einzelne Teilnehmerin allein herstellen oder erlangen kann.

Konversionsfaktoren werden in vier Dimensionen konzeptualisiert, nämlich als kulturelle, organisatorische, persönliche und infrastrukturelle Konversionsfaktoren. Hierbei wird angenommen, dass kulturellen Konversionsfaktoren eine besondere Rolle zukommt, da sie die Befähigung umfasst partikulare Leitbilder zu verbinden.

Leitbilder

Innerhalb von Graswurzelinitiativen existieren Leitbilder sowohl auf Ebene der einzelnen TeilnehmerInnen, als auch auf Ebene der Handlungsgemeinschaft. Sie bestehen aus Handlungswissen, Regeln, Zielvorstellungen und allgemeinen Einverständnissen von Angelegenheiten die für die Initiativen von grundlegender Bedeutung sind (zum Beispiel Klimawandel für Praktiken der lokalen Energiewende). Graswurzelinitiativen versammeln eine Vielzahl der Leitbilder ihrer TeilnehmerInnen. Diese verfügen über eine gewisse Ähnlichkeit- oder Kongruenz- um gemeinschaftliche Handlungen zu ermöglichen. Kongruenzen bestehen vor allem aus Handlungsregeln und allgemeinen Einverständnissen, und sie können durch kollektive Krisenerfahrungen begünstigt werden.

Die individuellen Leitbilder befinden sich stets im Wandel, da gemeinschaftliche Handlungen oft im Ungewissen entworfen werden und Gegenstand von Bildungsprozessen sind. Es wird angenommen, dass ein Leitbild operant ist; es existiert ausschließlich in der Handlung.

Um Leitbilder empirisch zu erforschen und in ihrer Beschaffenheit zu charakterisieren wird in dieser Arbeit ein Kategoriensystem entwickelt. Dies erlaubt die Rekonstruktion sowohl individueller als auch kollektiver Leitbilder, und deren Vergleich innerhalb und zwischen Graswurzelinitiativen mit einem mixed-method Ansatz. Ein Leitbild besteht aus vier Kategorien: (ökonomische, ökologische, kulturelle und soziale) Zukunftsprojektionen, (externe und interne) Faktoren der Gemeinschafts(de-)synchronisierung, selbstreferentielle Motive, sowie Handlungswissen.

FORSCHUNGSDESIGN

Das Forschungsdesign folgt dem konstruktivistischen Forschungsparadigma und es untersucht die beiden Forschungskomplexe (siehe oben) mit einer vergleichenden Studie von vier ausgewählten Graswurzelinitiativen im Kanton Réiden: Das Ökosystem-governance Programm

Contrat Rivière Atert, die regionale Energieberatungsagentur *Energieatelier*, die Regionalwährung *Beki*, und das alternative Nahrungsnetzwerk *SoLaWa*. Das Forschungsdesign ist in sechs Arbeitspakete gegliedert, wobei jedes auf die Ergebnisse des vorherigen aufbaut.

Im Zentrum des Forschungsdesigns steht die Q Methode. Dies ist ein mixed-method-Ansatz zur Erforschung von Leitbildern innerhalb von Handlungskoalitionen. Innerhalb jeder Initiative werden zwischen 9 und 15 individuelle Leitbilder von TeilnehmerInnen entlang eines abduktiv für den Fall entwickelten Kategoriensystems rekonstruiert (Q Test). Die kollektiven Leitbilder werden mit Hilfe einer Faktorenanalyse der individuellen Leitbilder ermittelt. Die Aufnahmen der einzelnen Q Tests liefern die qualitativen Daten, über die mit qualitativer Inhaltsanalyse die kulturellen, organisatorischen, persönlichen und infrastrukturellen Konversionsfaktoren der Initiativen ermittelt werden. Auf dieser Grundlage werden die Befähigungen, welche die Initiativen ermöglichen, vergleichend untersucht.

Die Ergebnisse sind Gegenstand unterschiedlicher Validierungsmethoden. Besonders hervorzuheben ist hierbei die kommunikative Validierung als abschließender informeller Workshop mit Protagonisten aus den Initiativen und den systemischen Instrumenten. Dieser liefert wichtiges Feedback zu zentralen Befunden, das die Theoretisierung der Regionalentwicklung in Réiden unterstützt. Der Workshop dient außerdem der Verbreitung der Ergebnisse dieses Forschungsprojektes.

AUSGEWÄHLTE BEFUNDE

Im Folgenden werden drei Befunde über den Fall vorgestellt. Diese umfassen den Charakter und das Verhältnis von Leitbildern der Partizipation in den Initiativen, sowie Muster in den Entwicklungsgeschichten von Graswurzelinitiativen und die Strategien ihrer Umsetzung in Réiden. Darüber hinaus konstatiert diese Arbeit die (Wieder-) Entstehung der kantonalen Meso-Ebene im Zwei-Ebenen System Luxemburgs.

Innerhalb jeder Graswurzelinitiative wurden drei Leitbilder identifiziert. Statistische Indikatoren zeigen, dass diese nie divergent, aber in einigen Fällen zusammenhangslos sind. Eines der Leitbilder repräsentiert zumeist die Ansichten von zwei Dritteln der TeilnehmerInnen. Der Vergleich der Leitbilder zwischen den vier Initiativen ergibt ein Muster: In jeder Initiative repräsentiert ein *systemisch-altruistisches Leitbild* die Ansichten von privaten TeilnehmerInnen. Diese Perspektive versteht die Initiative vor allem als lokale Antwort auf globale Nachhaltigkeits- und Gerechtigkeitsfragen, die den Menschen dabei hilft in ihrer unmittelbaren Lebenswelt verantwortungsvoller zu handeln. Eine zweites *instrumentell-utilitaristisches Leitbild* versteht die Initiative als Dienstleister zur Unterstützung der bestehenden eigenen Routinen. Dieses Leitbild repräsentiert zumeist die Ansichten von Akteuren aus der Verwaltung, von Unternehmen und der

Landwirtschaft. Diese zeigen zwar ein Bewusstsein für globale Herausforderungen, glauben aber, dass bestehende Routinen den lokalen Erscheinungsformen hiervon intrinsisch begegnen, und dass keine neuen Handlungen entworfen werden müssen. Ein *regional-kooperatives Leitbild* scheint zwischen den anderen beiden zu vermitteln. Diese Perspektive repräsentiert zumeist die Ansichten der Angestellten der formalen Organisationen, die die Initiativen koordinieren. Diese Arbeit kann die Leitbilder nicht an bestimmte soziale Praktiken innerhalb der Initiativen rückbinden, da hierfür ausführliche ethnographische Studien notwendig wären. Im Rahmen einer riskanten Hypothese kann jedoch angenommen werden, dass sich die Leitbilder funktionell ergänzen und bestimmte Abschnitte der regionalisierten Wertschöpfungsketten betreffen.

Die zweite Erkenntnis dieser Arbeit betrifft die Befähigung (*community capability*) zur der Hervorbringung von Graswurzelinitiativen in Beckerich und Réiden. Ergebnisse dieser Arbeit weisen darauf hin, dass die Initiativen ohne konkrete kollektive Visionen entworfen werden. Es konnten kaum erlernte Organisationspraktiken von Initiativen in Réiden nachgewiesen werden, vor allem nicht in Entwicklungsphasen, die der Professionalisierung und Formalisierung der Initiativen vorausgehen. TeilnehmerInnen beschreiben ihre Strategie als "Chaosprinzip", wobei sie auf "Schwarmintelligenz" vertrauen würden. Der Erfolg der Initiativen wird stattdessen von den systemischen Instrumenten gewährleistet. In ihnen haben sich über die Jahre lokale Nachhaltigkeitsnormen als selbstverständliche Kriterien für Diskussionen über gemeinsame Probleme und die Entwicklung von Graswurzelinitiativen entwickelt. Die Studie identifiziert zudem einige Faktoren, die die Entwicklung von Graswurzelinitiativen in Réiden behindern. Zum Einen bedürfen die vier Dimensionen der Konversionsfaktoren eines steten Ausgleiches. Eine sehr hohe Attraktivität einer Initiative oder eine schnell wachsende Infrastruktur kann die persönlichen und organisatorischen Konversionsfaktoren überlasten und zu starken internen Spannungen führen. Derartige Stressmomente können zweitens dazu führen, dass einzelne Protagonisten Wissen und Routinen monopolisieren, was selbstverstärkende Prozesse der Fragmentierung innerhalb der Handlungsgkoalition auslösen kann. Drittens ist die kontinuierliche Kritik der kollektiven Leitbilder und ihrer Anpassung an neue Handlungssituationen großer Bedeutung, um die Bereitstellung der von Konversionsfaktoren zu gewährleisten, sie neu auszurichten, und so freiwillige Kooperationen aufrecht zu erhalten.

Eine dritte Erkenntnis dieser Arbeit betrifft speziell die sozialgeographische Forschung, sowie die Transformationspraxis in Luxemburg. Der Kanton ist heute im zwei-Ebenen System Luxemburgs weitestgehend ohne politische Bedeutung. Die Forschungsergebnisse dieser Arbeit weisen hingegen darauf hin, dass in Réiden diese Meso-Ebene für sozio-ökonomische Governance rekonstruiert wird. Die Graswurzelinitiativen werden in den systemischen Instrumenten entworfen und von ihnen begleitet. Eine besondere Rolle spielen hierbei die lokale Aktionsgruppe des LEADER Programms und das inter-kommunale Syndikat, welches der Bereitstellung

gemeinschaftlicher Infrastruktur und kultureller Einrichtungen dient. Seit 2014 sind die Grenzen der Aktionsgruppe und des Syndikats weitestgehend kongruent, da die selben Gemeinden in beiden Institutionen freiwillig Mitglied sind. Die Leistungen von Initiativen, die durch das LEADER Programm und das Syndikat ko-finanziert werden, stehen nur innerhalb der Mitgliedsgemeinden zur Verfügung. Daher kann konstatiert werden, dass diese Institutionen über die Graswurzelinitiativen eine territorial definierte Regionalisierung betreiben, die sich normativ an Prinzipien der neo-endogenen Entwicklung des ländlichen Raums, sowie der sozio-ökologischen und -ökonomischen Resilienz und Suffizienz orientiert.

SUMMARY

The first section of this summary gives a brief an overview of the general line of reasoning of this thesis. The second section introduces the research case and discusses the research questions in face of geographic literature on grassroots and social innovation, as well as neo-endogenous rural development. The third section presents theoretical approaches and concepts. Subsequently, the research design is introduced. This summary concludes with a display of selected findings and implications for the indicated scientific debates. Insights for transition practitioners are discussed in the final chapter of this thesis.

OVERVIEW

This thesis identifies elements of a theory of associative democratic and sustainable rural development as it examines a paradigmatic case study. The 40-year transition process in the commune Beckerich and its surrounding canton Réiden inspires thought experiments on alternatives to the neoclassic mainstream that may hold relevance for scientists and practitioners of rural development and sustainability transitions.

The case is conceptualized as the interplay of several grassroots initiatives that aim at transforming economic sectors and policy fields in the canton: An eco-system governance project, a low-carbon transition, a regional currency and an alternative food network. The research design revolves around two aspects of this development: First, it reconstructs *Leitbilder* of participation, which are ensembles of collectively held beliefs, goals and purposes that act as lodestars for grassroots engagement. The research design characterizes *Leitbilder* within selected grassroots initiatives, examines their relations and compares them across initiatives. Second, the research project explores how grassroots initiatives that transform different economies in the same place relate to each other. This allows characterizing the overall development and explore case-specific dynamics, for example relations between the regional agriculture and low-carbon transitions.

This thesis brings recent debates from social and economic geography on development problems of rural areas and sustainability transitions in dialogue with approaches from neighbouring disciplines. Pragmatist action theory lends the foundations to this eclectic approach. Grassroots initiatives are understood as creative experiments of collective problem-solving that are oriented towards paradigms of qualitative and social freedom, which allow the alignment and orchestration of diverse heterogenous *Leitbilder*, and that in their entirety promote neo-endogenous development. The theoretical approach of this thesis converges concepts of regional and sustainable development with the capability approach, the central development paradigm of this thesis.

The research design applies qualitative and quantitative methods to a sample of four grassroots initiatives in the canton and it is structured by two research complexes. *Leitbilder* of participation

are reconstructed with Q method. The Leitbilder are constructed along a category framework that captures different aspects of participation and allows for comparison of Leitbilder across initiatives. The interplay of grassroots initiatives is examined via qualitative content analysis on an extensive qualitative data set.

Empirical findings revolve around three different aspects of the rural development in Réiden. First, this research project develops a typology of Leitbilder of grassroots participation in Réiden. The interpretative comparison of findings across initiatives argues that in each one exists a *systemic-idealistic*, a *regional-cooperative* and an *instrumental-utilitarian* Leitbild. Relating these Leitbilder to their carriers allows the careful and tentative hypothesis that the Leitbilder represent and inform complementary social practices within the initiatives. The diversity of understandings and expectations of grassroots engagement does not impede the emergence of initiatives, but it enables and stabilises them. Second, the study identifies relations among grassroots initiatives and strong parallels in their development over time. Most initiatives in Réiden are brought forward by a group of the same activists, and they are guided by similar transformative strategies. The initiatives are purposefully integrated in order to stabilize them and to create synergies among them. Third, this study identifies a regionalisation process in Réiden. Over past decades, the meso-level of the canton, which has become politically irrelevant in the two-tiered governance system of Luxembourg, is being reconstructed bottom-up. This process is mainly driven by two formal institutions that complement each other in the design and support of initiatives: The local action group of the LEADER program and the inter-communal syndicate. As all initiatives are either initiated and/ or financed by either of these institutions, and the services that initiatives provide only apply within the territory of member-communes, the space of grassroots practices is defined by the borders of the canton.

This thesis theorises on the rural development in Réiden based on these empiric findings, and outlines elements of a pragmatist development and transition theory. Whereas most praxeological studies o similar cases focus on the inertia of social practices, the focus on creative collective action in this thesis sets the attention on situations in which social practices become subject to critique, reflection and change. Grassroots initiatives are conceptualized as *practice-arrangement-bundles* that emerge from continuous processes of collective problem-solving. The initiatives are guided by the formal institutions mentioned above, referred to as *systemic instruments*. These provide protective social spaces where diverse needs and aspirations can be discussed freely and are led to collective experiments- the grassroots initiatives. An initiative's impact and purpose is conceptualized as the provision of diverse conversion factors that enable practitioners to overcome problems and to sustain or realize desired life-forms. By integrating these concepts, this thesis attempts to contribute to a pluralistic and humanistic understanding of regional development, and to overcome the neoclassic development paradigm.

Finally, this thesis deduces suggestions for transition practice from the case. Key elements are an inclusive and liberal understanding of transitions that concentrates on pragmatic associative problem-solving, instead of normative discourse. The case of Réiden showcases the potentials of collective crisis experiences as windows of opportunity for transformative collective action. These can be harnessed when regional institutions are in place that provide protective spaces for free deliberation and conflict and that bundle and re-align local resources for collective action.

ON THE RESEARCH CASE AND THE RESEARCH INTEREST

The socio-economic development of rural areas and sustainability transformations are central challenges of our time (Hadjimichalis & Hudson 2014; Pike et al. 2007; Rahmstorf & Schellnhuber 2012; WBGU 2011). These debates are closely interlinked in geographic research since arenas of sustainability transition such as agriculture, energy, the governance of socio-ecological systems are also key aspects of rural life. Furthermore, local or regional experiments in these domains do not only contribute to rural development (Cochrane 2011), or sustainability transition (Henfrey & Penha-Lopes 2015; Seyfang & Smith 2007), but they may also trigger social learning process that extend the capability for further experiments (Koller 2012; Wals 2009), serve as inspiration for initiatives in other places (Peck & Theodore 2010; Wright 2010), and promote political momentum for alternative politics on higher levels of government (Avelino et al. 2017; Bradbury & Middlemiss 2015; Dobson 2003; Devine-Wright 2005).

The Luxembourgish commune Beckerich and its surrounding canton Réiden are a paradigmatic case to both debates. Here, experiments with participatory governance and associative democracy date back to the 1980s. These lay the foundations for the emergence of grassroots initiatives that are highly progressive for the national context: The canton is site of the country's eco-system governance program, the most comprehensive low-carbon transition, and the first complementary currency. Recently, the development of a comprehensive alternative food network suggests a "spilling over" of the transformative spirit to the agricultural sector, while the *Centre for Ecological Learning Luxembourg* (CELL), the hub of the national Transition Movement, has located in Beckerich.

This case allows examining the transformative effects of grassroots initiatives in a way that is different to current geographic debates. First, instead of looking at how a singular initiative in a specific policy domain or economic sector affects a socio-technical regime or social field (see Haxeltine et al. 2016; Howaldt & Schwarz 2016), it perceives of an initiative's effect as the extension or restriction of the capability to bring forth further initiatives in other policy domains in the same place. Second, since a grassroots initiative addresses an entire supply chain, or governance system in the canton, they assemble practitioners with diverse needs and aspirations. This makes Réiden

different to often researched cases such as Eco-villages in France and Germany, or Totnes in the UK. These can be regarded as intentional communities in the sense that they attract people who aspire specific life-forms and-styles (see Hausknost et al. 2018; Longhurst 2015). In comparison, Beckerich and Réiden can be considered natural communities where initiatives are pursued by a collective sustainable or spiritual vision, but where collective engagement takes the character of neighbourhood help across political camps and social milieus.

The research design revolves around two research complexes, each consisting of a hypothesis and a guiding research question. The first research complex hypothesizes that the initiatives are inter-linked and prefigure each other (through practitioners, materialities, understandings, norms and practices). It asks: Through which elements are the initiatives linked and what is the character of these links? The second research complex hypothesizes that the initiatives are brought forward by heterogeneous practitioners holding different *Leitbilder* and that it is consequently not a shared sustainability vision that allows the initiatives to emerge, but the pragmatic alignment of diverse *Leitbilder*. This research complex asks: What are the *Leitbilder* within grassroots initiatives, how diverse are they, and what are their relations?

THEORETICAL APPROACH

This thesis integrates insights from sociology and social psychology with geographic concepts introduced above. Since the case offers a novel way of examining the interplay of grassroots initiatives, rural development and social change, this thesis experiments with various theoretical approaches that have to the author's best knowledge yet found little reception in empirical works on similar phenomena in geographic research. Neo-pragmatist action theory serves as a foundation for these thought-experiments (Joas 1992, 1996).

The grassroots initiative concept is adapted to the research case. Studies on *grassroots* or *social innovation* tend to focus on singular or insular experiments, such as one community supported agriculture project or one biogas-cooperative (see Avelino et al. 2017; Braun-Thürmann & John 2010; Haxeltine et al. 2016; Howaldt & Schwarz 2016; Moulaert et al. 2013). In contrast, the grassroots initiative concept in this thesis describes a variety of practices that as a whole regionalise an entire policy domain or economic sector in the canton and that transform it according to local sustainability ambitions.

Concepts of action, social practice and life-form

This research project builds on action theory and it operationalizes grassroots initiatives and life-forms as bundles of social practices. This mid-way to the agency - structure dialectics allows emphasizing collective association over individual leadership and focuses on dynamic, contingent

and creative change instead of institutional determination. Therefore, this thesis follows the social theory of pragmatism. A central assumption of this tradition is that knowledge must be validated in practice and that insight emerges from the world as experienced in practice. In pragmatist philosophy, the world is not merely a site for action that can be manipulated according to our individual desires. Rather, desires, aspirations and problem-perceptions are consequences of previous actions, they exist only in action-situations and they are always the result of social interaction.

The neo-pragmatism of Hans Joas (1992, 1996) attends to the creative moments that are innate to all types of action. Unlike other approaches to social action, such as praxeology, this theory allows perceiving of practices as being subject to critique and change, instead of over-emphasizing their inertia. A central theme of this theory are action-problems (see below).

The ontological foundations for the operationalisation of concepts for field work draws on *site ontology* (Schatzki 2003, 2015). This approach is particularly instructive for examining the relations between diverse social practices, and social practices and Leitbilder in a consistent manner. Grassroots initiatives are approached as bundles of social practices and materialities. A social practice is a regular action guided by implicit knowledge that is carried out habitually and without conscious reflection. A single person is a carrier of various practices and therefore suitable as a data source for research on social practices (Reckwitz 2003).

Grassroots initiatives and life-forms are both regarded as bundles of social practices. Whereas the former describes a bundle of diverse economic practitioner-groups carrying out functionally interdependent practices without necessarily having an understanding of all practices of an initiative, the latter describes a private and biographic formation. For example, the regional currency consists of practices of accounting, shopping and procurement that are co-dependent, but the consumer does not have to conduct or be knowledgeable about the practice of accounting. A life-form on the other hand describes patterns of practices that determine the life-worlds and biographies of private individuals (Jaeggi 2013). These practices are also functionally and normatively interrelated and the individual practitioner does not have to consciously adjust or reflect on them continuously. An example for a life-form may be a nuclear farming family. Life-form and grassroots initiative are regarded as co-constitutive in this thesis and their interplay is described with the capability approach (see below).

Action problems and social change

Taking the pragmatist perspective, grassroots initiatives are understood as creative collective actions of problem-solving in a regional economic sector or policy field (Dewey 2003; Joas 1996). A problem is for example a situation in which practices and routines cannot be performed as usual, or a situation in which an aspiration that has emerged in action cannot be pursued with existing actionable knowledge. Therefore, a new action has to be explored in a creative experiment. If this

experiment proves to be successful, the action can become latent and become a new routine and may also create new local institutions (Joas 2012, 1996; Koller 2012; Shove and Walker 2007). The emergence and continuous reflexive re-development of grassroots initiatives and the change of Leitbilder through (in some cases transformative) social learning is described with this model of action-cycles.

Development

This micro-understanding of social change is contextualized and linked to social theories addressing processes of macro-transformation. This thesis builds on insights from debates on reflexive modernity and the *Real Utopias Project* in perceiving of action-problems as unintended or disregarded side-effects that are a consequence of first modernity's development logics based on purposeless growth and expansion, rationalisation and functional differentiation (Beck 1993; Wright 2010). In this context, grassroots initiatives are situatively contingent subpolitical experiments to regain sovereignty over these side-effects and to democratise them (Mason & Whitehead 2012). The interplay and effects of individual practitioners and grassroots initiatives is conceptualized with theories of qualitative and social freedom (Dierksmeier 2016), the capability approach (Sen 2001) and the theory of life-forms (Jaeggi 2013). This thesis assumes that grassroots initiatives reproduce qualitative values that serve their orientation. These qualitative values align the diverse needs and aspirations of their practitioners and orchestrate the diverse bundles of economic practices accordingly. The initiatives can thus produce manifold and diverse conversion factors that enable individual practitioners to overcome action-problems and to maintain or achieve desired life-forms (Dierksmeier 2016; Jaeggi 2013; Pike et al. 2007; Sen 2001). Development is therefore understood as the expansion of the individual freedom to do and to be something and this expansion is processed in associative and voluntary social relations (Dierksmeier 2016; Middlemiss & Parrish 2010; Sen 2001; Seyfang & Smith 2007).

Grassroots initiatives

A subpolitical and associative democratic bundle of social practices that in their interplay regionalise a value chain or a governance system. It pursues interstitial strategies, as it assembles stakeholders from civil society, local government and the private sector in face of collective crisis experiences. These are overcome in collective experimentation with new social practices. In this way, an initiative produces new practice bundles and local institutions. An initiative attracts stakeholders with diverse Leitbilder, because their participation enables them to use conversion factors for overcoming individual action problems. A grassroots initiative produces and is guided by qualitative development norms, for example locally specified sustainability principles, that are able to align the diverse particular Leitbilder of practitioners.

Capabilities and conversion factors

A capability is the real existing opportunity to achieve a certain functioning to be or to do something in a concrete action situation. Such an opportunity exists when several conversion factors are available in a given site that individuals can enact according to their individual preferences. Grassroots initiatives produce conversion factors that none of the participants could acquire or produce by themselves.

Conversion factors are conceptualized in four dimensions: Cultural, organisational, personal, and infrastructural conversion factors. Following social practice theory, the cultural conversion factor is considered a meta-factor, as it refers to the capacity to align diverse *Leitbilder*.

Leitbilder

Within a grassroots initiative, *Leitbilder* exist on the level of the individual practitioner and the practice community. They comprise of actionable knowledge, rules, ambitions and general understandings of matters germane to a social practice (such as climate change for local low-carbon transition practices). Grassroots initiatives assemble a variety of diverse *Leitbilder* of their individuals, which are assumed to have a certain degree of congruence to allow for collective action. These congruences are condensed forms of overarching rules and general understandings that are often related to a common problem framing, or crisis experience that requires collective action.

People's individual *Leitbilder* are subject to constant change, as collective actions are often taken in uncertainty and subject to social learning processes. Therefore, a *Leitbild* that guides someone's participation in a grassroots initiative is only fully present in action, hence operant.

In order to reconstruct *Leitbilder* empirically and to characterize them, this thesis develops a *Leitbild*-category framework. This allows examining both individual and collective *Leitbilder* within and across initiatives with a mixed-method approach. A *Leitbild* consists of four categories: (economic, ecological, social and cultural) Future projections, (external and internal) factors of group (de-) synchronization, self-referential motifs and actionable knowledge.

RESEARCH DESIGN

The research design follows the constructivist research paradigm and it addresses the research complexes introduced above in a comparative study on four selected grassroots initiatives from the canton: The eco-system governance program *Contrat Rivière Atert*, the low-carbon transition network *Energieatelier*, the regional currency *Beki*, and the alternative food network *SoLaWa*. The research design is structured in six work packages, with each building on the findings of the previous.

Q methodology is at the heart of the research design. This is a mixed-method approach that allows analysing Leitbilder as operant subjectivities in practice coalitions. Within each initiative between 9 and 15 such subjectivities are reconstructed (Q test) along a category framework that is tailored to the case abductively. Collective Leitbilder are developed with factor analyses on the individual Q tests in each initiative. The recordings of the Q tests render rich qualitative data that is coded for the four conversion factors in a qualitative content analysis. This allows exploring the capabilities provided by a grassroots initiative in a comparative manner.

The results are subject to different validation methods. Particularly relevant is a concluding informal validation workshop with protagonists of the four initiatives and the systemic instruments. This workshop provides essential feedback on central findings of this thesis and informs theorisations about the rural development in Beckerich and Réiden. The workshop also serves to disseminate findings of this research project.

SELECTED FINDINGS

The following presents three selected findings of this study. These concern the character and relations of Leitbilder of participation in the grassroots initiatives, and patterns in the development of initiatives over time. Furthermore, findings suggest a re-emergence of the meso-level of the canton in the two-tiered government system of Luxembourg for the case of Réiden.

Three Leitbilder are identified within each grassroots initiative. Statistics suggest that these are never divergent, but that they can be unrelated. One Leitbild usually represents two-thirds of all participants' views. When comparing the Leitbilder across the four initiatives, a pattern emerges: Within each initiative, a *systemic-altruistic* perspective relates to the engagement of private participants as consumers and volunteers. This perspective perceives of the engagement as a response to sustainability and social justice problems and participants see it as a means to live more responsibly. A second *instrumental-utilitarian* perspective understands the initiative to be a service provider that helps facilitating their individual tasks and routines. This perspective mainly represents the views of entrepreneurs, farmers and members of government agencies. The perspective shows awareness of systemic challenges, but believes that existing routines would help mitigating the local manifestations of this problem intrinsically. A *regional-cooperative* *Leitbild* seems to mediate between the other two. This perspective tends to represent the views of employees of the initiatives' managing institutions. This study is not able to relate the identified Leitbilder to existing social practices within the initiatives, because this would require extensive ethnographic studies within each initiative. However, it proposes the chancy hypothesis that the three Leitbilder complement each other functionally, and that they relate to social practices of different sections of the regional supply chains, and governance systems.

The second finding concerns the analysis of the community capability to bring forth grassroots initiatives in Beckerich and Réiden. Findings suggest that initiatives emerge in the absence of concrete visions. This study could not identify practices of organising initiatives internally, particularly not in the early phases of an initiative's development that precede its formalisation and professionalisation. Participants describe their approach as "swarmintelligence" guided by the "chaos principle". However, the successful development and the tangible impacts of initiatives are ensured by the systemic instruments. This study finds that sustainability norms have over the years become latent in these institutions and that the collective problem-framing and tentative design of grassroots initiatives that occurs here is guided by these norms. The study also identified several inhibiting, or obstructive factors of grassroots initiatives. For one, the four conversion factor dimensions require constant balancing. A very high attractiveness of an initiative and fast growth of infrastructural conversion factors may strain organisational conversion factors and create discord among the practice coalition. Second, in moments of stress, protagonists tend to monopolize knowledge and responsibilities, which may lead to self-enforcing process of fragmentation of the practice coalition. Third, a regular readjustment and re-formulation of Leitbilder and social practices seems crucial to maintain and adjust the provision of conversion factors. This ensures voluntary collaboration among practitioners and prevents the initiative to fall dormant.

A third finding concerns geographic research and transition practice in Luxembourg. The canton does not have political relevance in the two-tiered system of government in Luxembourg. However, findings of this research project suggest the reconstruction of a new meso-level of socio-economic governance in Réiden. The grassroots initiatives are guided by systemic instruments, particularly the action group of the LEADER program and the intercommunal syndicate, which co-finances a range of civic activities and provides collective public services in the canton. As of 2014, the territories of the action group and the syndicate are congruent in the sense that they comprise of the same member-communes, and that these are the communes of the canton Réiden. Since the services of an initiative that is co-financed by these instruments only apply within member-communes, the site of a grassroots initiative's practices is territorially defined by the borders of the canton Réiden. In this sense, the two systemic instruments pursue a territorially defined regionalisation that is normatively oriented towards principles of neo-endogenous rural development, as well as socio-ecological and -economic resilience and sufficiency.

"I'm perfectly aware of having continuously made shifts both in the things that have interested me and in what I have already thought. (...) (T)he books I write constitute an experience for me that I'd like to be as rich as possible. An experience is something that you come out of changed. If I had to write a book to communicate what I have already thought, I'd never have the courage to begin it. I write precisely because I don't know yet what to think about a subject that attracts my interest. (...) When I write, I do it above all to change myself and not to think the same thing as before."

(Foucault 1981, p. 26-27)

1. INTRODUCTION

This thesis engages with two timely phenomena, rural development and sustainability transitions. The paradigmatic research case holds lessons for both debates and allows exploring their intersections. Over the past 40 years, the Luxembourgish commune Beckerich and its surrounding canton Réiden have brought forward a range of grassroots initiatives that are highly progressive for their national context, and that represent sustainability experiments in policy domains where socio-ecological transformation is urgent: Eco-system governance, energy, agriculture, finance, and education. The initiatives are collective responses to local problems in these domains and they promote rural development in Réiden.

The case inspires to focus on the role of democratic deliberation and collective associative action in rural development and sustainability transitions: Re-establishing sovereignty over rural economies of primary goods and governance systems by democratizing their positive and negative externalities requires a re-politicisation of the orientation of these systems. Grassroots experiments are not only local problem engagements, but they are also arenas of social, and at times transformative learning. Further, such cases convey elements of a development paradigm that promotes voluntary associative action over individualism, draws on systems thinking instead of functional differentiation, and values qualities of human flourishing over their quantities. Naturally, single initiatives have little effect on macro structures of the political economy. They may, however, allow bringing practices and strategies of a desirable future into the present.

Geographic has a scientific social responsibility to inform rural development and sustainability transitions. Development and power struggles respond to and manifest in space. The discipline's attention to global-local relations and sensitivity to contextual contingencies may help to identify patterns of examples that work (and not work) for a more sustainable and socially just future. It is the spirit of this thesis to critically examine a case that shows promising development trajectories regarding both debates.

1.1 A STUDY AT THE INTERSECTION OF SUSTAINABILITY TRANSITION AND RURAL DEVELOPMENT

Geographic studies on sustainability transitions and rural development show several commonalities: Often, they criticize the dominant neoclassic economic development model, emphasize the importance of qualitative development norms and suggest strategies of resilience and sufficiency (amongst others). Further, research examines similar case studies, for example low-carbon transitions. Notably, both debates highlight the importance of grassroots initiatives such as those in Réiden in experimenting with new social practices and development norms. Further, studies examine

these initiatives as arenas for social learning. The following argues for the need of sustainability transitions and rural development- and thus for the relevance of this research project as part of these debates.

The need for sustainability transitions

It is a scientific fact that the western development model of industrialized capitalism leads us as societies to use resources faster than they can replenish and to produce contaminants in qualities and quantities that cannot be absorbed by natural sinks (Heinberg 2010; Steffen et al. 2015; also Rahmstorf & Schellnhuber 2012). Every day we consume opportunities for human flourishing in the future. Put broadly, sustainability refers to a form of development that enables human flourishing within these boundaries so that future generations' capabilities are not impeded but expanded. Inter- and intra-generational social justice are integral to sustainable development. However, unlike other social justice issues sustainability transformations cannot be endlessly postponed. They are not action-options that can be realized at convenience. The ecosphere sets absolute and non-negotiable boundaries for human flourishing. We know with scientific certainty about the catastrophic consequences of our actions today (IPCC 2014; Rahmstorf & Schellnhuber 2012). The ethical foundations of our societies will be shaken many times more severely in face of justice issues than they are already today (Randers 2012). An undesirable future presses upon the present (Beck 1993).

This requires a fundamental transformation of human-ecological relations and a new understanding of human development. Green-growth, or a de-coupling of economic growth from environmental pressures has not and may very likely not contain the economy enough to remain within the planetary boundaries (Christoff 1996; Parrique et al. 2019). It may even worsen social inequalities and injustices (Heinberg 2010; Randers 2012).

Achieving the sustainable development goals (SDGs) requires a great socio-ecological transformation (Schneidewind 2018; WBGU 2011), perhaps as comprehensive as the transformation from feudal agrarianism to industrialized capitalism (Polanyi 2013). Scientific discourse develops transition strategies for social sectors, or subsystems, such as agriculture (Dendoncker & Crouzat 2018), energy (Quaschning 2016, Becker und Kunze 2014), ecosystem-governance (Folke et al. 2004; Ostrom 2009), or finance (Douthwaite 1999; Lietaer & Dunne 2013). A common denominator in these debates is the transition towards sufficiency-oriented, less extractivist, and more decentralized economies. Furthermore, these approaches re-politicize the development norms in their sectors; they re-define the qualities that are measured by quantitative indicators (Beck 1993; Dierksmeier 2016; Ostrom 1990; Wright 2010). However, this is not an argument for deriving absolute development norms from science and imposing them on communities, because this would undermine the humanist and liberal principles of our societies that allow us to have free discourse

in the first place, but to critically engage in development discourse informed by instructive empirical knowledge (Ostrom 1990; Leggewie & Welzer 2010).

Development problems of European rural regions

There is no standardized definition of rurality. In the European context the entire country of Luxembourg is regarded neither as urban, nor rural, but as an intermediate (NUTS-3) region. In geographic literature, rural space is generally characterized by an overall agrarian land-use, economies of predominantly small-sized businesses, and low population density (for example less than 300 inhabitants per 1 km²). In many cases, rural areas are peripheral regarding the accessibility of urban centres (an often-used proxy here is a 45 min. car drive), or regarding their significance in overall economic and cultural life. Geographic theory attributes several "functions" to rural space, such as stewardship of biodiversity, provision of fresh water, production of agricultural goods, and recreation. (Dijkstra & Poelman 2011; Chilla et al. 2016)

European rural spaces are faced with a range of problems. For example, extensive industrialized agriculture produces a variety of negative environmental side-effects, such as biodiversity loss, soil erosion, and groundwater pollution (Dendoncker & Crouzat 2018; Marsden et al. 2002). Sub-urbanization processes may create pressures on land-use and cause cultural conflicts (Chilla et al. 2016; Creamer et al. 2018). Further, the over-reliance of the primary sector creates a high exposure to global economic volatilities¹ (Martin 2011). Particularly peripheral rural areas suffer from population decline because of demographic change and outmigration of youngsters in search of employment. This may lead to self-reinforcing process of dismantling of public services and infrastructure (Pike et al. 2007), particularly in places affected by government debt crises and austerity logics (Hadjimichalis 2011). Along with socio-economic stagnation often goes a cultural stigmatization of peripheral rural areas, and these processes can be re-enforcing (Hadjimichalis 2019). In cases, this contributes to a local emergence of anti-democratic and fascist social movements and political parties¹.

Besides these place-specific phenomena, living conditions across regions, and particularly in rural areas is highly uneven across Europe (OECD 2018). Although the socio-economic disparities of regions within countries slowly begin to lessen after the financial crisis, disparities across EU member states remain high, and may likely worsen by global mega-trends, such as digitalization and climate change (ibid.). The goal of territorial convergence for EU cohesion policy has been adjusted to the goal of achieving equal living conditions. This raises issues of spatial justice, while nationalist movements question the supranational institutions' legitimacy to influence European spatial development all together (ARL 2014).

¹ <https://www.idz-jena.de/wsddet/wsd5-9/> (last accessed October 2019)

To promote equal living conditions, the EU provides a range of instruments for local and regional development, most important for this thesis local community-led development methods such as the LEADER program implemented under the national and regional rural development programs of each member state, and co-financed by the European Agricultural Fund for Rural Development (EAFRD). These programs promote setting in value local resources to address local needs and exchanging practices and strategies with other places. In this sense, they pursue an neo-endogenous development paradigm.

Regional development describes the normatively oriented change and improvement of the socio-economic situation in a subnational spatial unit (Chilla et al. 2016, p. 56). There is not one best, or standard model of regional development (see Pike et al. 2010). However, there are vibrant debates in the geographic science community that the ongoing and deepening problems in various rural regions in Europe are symptoms of an ideological crisis of regional development theories and practice (Hadjimichalis & Hudson 2014; Pike et al. 2007; Pike & Pollard 2011; Martin 2011). A central argument of this debate is that the neoclassic development paradigm would produce overly positivist approaches that overemphasize standardized quantitative indicators such as FDI or job growth, which have little explanatory value for assessing the potential for well-being in regions long-term, unless they are combined with more context-specific qualitative components. Therefore, critical voices in the geographic community hold that development theory and practice should "promote (...) an appreciation of politics, power relations and practice in multi-level, multi-agent and devolving systems of government and governance. It raises the normative dimensions of value judgments about the kinds of local and regional development we should be pursuing and the adaption of frameworks in the light of foundational concerns such as accountability, democracy, equity, internationalism and solidarity" (Pike et al. 2010, p. 4). This thesis examines the emergence of such qualities in and for regional development.

Grassroots engagements for debates on sustainability transitions and rural development

It becomes clear that the introduced debates on sustainability transition and rural development share a range of objectives and strategies. Some of the social sectors that require urgent sustainability transition, such as agriculture, energy and eco-system governance are central aspects of rural life. Both debates argue that in order to address the identified problems, we need to move beyond the neoclassic paradigm and re-politicize development to re-direct our economies. They highlight the importance of qualitative development norms, particularly accountability, transparency, solidarity and social justice. Finally, both debates highlight the importance for local grassroots initiatives in the experimentation of these norms (see for example Cochrane 2011; Helfrich & Bollier 2015; Henfrey & Penha Lopez 2015; Wals 2009).

The cases of such studies are often phenomena of sustainability transitions and rural development alike: Rural agricultural cooperatives, promoting small-scale family farms are often tied to biodynamic, or perma-cultural objectives. Low-carbon transitions create new local revenue streams and help communes engage with climate change. Complementary currencies unite the objectives of overcoming the ecologically destructive growth imperative while using locally generated economic value for stimulating desired economic activity. Eco-system governance may improve regional biodiversity and groundwater quality, while having positive effects on tourism. Essentially, these initiatives are experiments of re-gaining sovereignty over supply chains and governance systems and of spatially re-embedding and re-democratizing those systems' negative and positive externalities, and they foster socio-economic and socio-ecological resilience.

Research indicates that such initiatives are often brought forward in voluntary associative democratic groups of stakeholders from the private and public sector, as well as civil society (see Wright 2010). Therefore, grassroots initiatives must negotiate and align diverse needs and aspirations, or Leitbilder (de Haan et al. 2001). Long-term participation not only helps participants to achieve these Leitbilder, but it also creates social learning effects that may expand the local capability for such collective actions in the future and contribute to the overall emergence of new development norms (Koller 2012; Wals 2009). Further, the initiatives may render positive examples that inspire communities in other places (Peck & Theodore 2010; Wright 2010; Welzer & Leggewie 2010). Citizens may also experience self-efficacy and become politically active beyond their community (Devine-Wright 2012; Dobson 2003).

Grassroots initiatives and social change

The macro-currents that re-produce the ecological catastrophe and polarize European spatial development require changes of social structures on a scale that a grassroots initiative cannot address. Nonetheless, it may create social practices that allow for a more socially just and environmentally benign life, experiment with new development norms, and prove wrong the neoliberal assertion that there is no alternative to the way we organize our economies. Consequently, there exists a vibrant debate on the transformative effects of grassroots, or social innovation in geography and adjacent disciplines (for example Moulaert et al. 2013; Haxeltine et al. 2016; Howaldt & Schwarz 2016; Oosterlynck et al. 2013).

This thesis addresses the transformative potentials of grassroots initiatives differently to these debates. Instead of examining how a single initiative affects a socio-technical regime or social field in a given site, or how it relates to similar initiatives in other places, this thesis looks at how several initiatives in different policy domains in the same place relate to one-another over time. This perspective perceives of the transformative effects of an initiative as the expansion, or obstruction of a community's capability to bring forth initiatives in the same, or adjacent policy domains. For

example, this study will examine how lessons from the low-carbon transition are transferred to the agricultural transition. The research case offers a unique opportunity for experimenting with such a perspective: In few other places in Europe have grassroots experiments for rural development such a long tradition and address so diverse arenas of sustainability transitions alike. The 40-year process of rural development in Beckerich and Réiden is therefore a highly relevant case for geographic debates on sustainability transitions and rural development alike.

1.2 THE CASE AND RESEARCH COMPLEXES OF THIS THESIS

The Luxembourgish commune Beckerich, located in the rural west of the Grand Duchy in the canton Réiden, has over the past 40 years brought forward several grassroots initiatives that have influenced national policy making and gained the commune international recognition. Building on local and regional institutions for participatory governance established in the 1980's and 1990's, citizens have brought forward the country's first eco-system governance program and accomplished the most longstanding and comprehensive low-carbon transition. Recently, the transformative spirit seems to "spill over" into other policy domains, as the development of a comprehensive alternative food network and a regional currency, soon to be linked to distributed ledger technology, indicate. Further, the *Centre for Ecological Learning* (CELL), the hub the national transition network, has located in Beckerich. These initiatives emerge in the richest democratic nation state in the world, which imports nearly all its energy and food-stuff supplies, has among the highest ecological footprints worldwide, and is a hub of Europe's financial industry (see chapters 2 and 7). Beckerich and the wider canton differ from frequently researched cases of such as Eco-villages in France and Germany, or Totnes in the UK. These places bring forth highly progressive sustainability experiments in part because they are intentional communities of people sharing a common sustainability vision. In comparison, the villages in Réiden can be considered natural communities of people who happen to be neighbours. Neither can the initiatives be considered leisure activities of an affluent part of society. The outset of this rural transformation lies in a dire situation of economic and demographic decline that lasted until the end of the 1980's, and all of the initiatives have been stimulated by concrete local development problems or collective moments of crisis. They are local problem-engagements that are guided sustainability norms to promote rural development.

This research project builds on findings of a preceding exploratory master's thesis conducted by the author (Doerr 2014). It concentrates on two aspects of this development: The relationships between grassroots initiatives in different policy domains, and the diversity of *Leitbilder* of participants within the initiatives. The first aspect examines the assumption that knowledge, practices and materialities created in one initiative condition the opportunities for experiments in the same, or

adjacent policy domains. The second aspect looks at the various motivations, experiences, and aspirations of participants of initiatives. Unlike many other case studies, an initiative in this thesis is not a singular effort within a policy domain in a given site, such as a biogas-cooperative. They are attempts to regionalise entire supply chains and governance system, such as creating energy - positive communes. The initiatives need to align and orchestrate a variety of Leitbilder to satisfy each participant's expectations. Without this diversity, they could not exist. Therefore, this thesis characterizes the Leitbilder within grassroots initiatives, and develops hypotheses of their relations across initiatives.

The research project is structured in two research complexes (RC). These are sets of hypotheses and guiding questions that address the two prompts of research derived from the master's thesis. Each of these is addressed with a specific conceptual and methodology and applied to a sample of four grassroots initiatives in the canton: The collaborative eco-system governance program, the low-carbon transition, the regional currency, and the alternative food network. The criteria for selection will be introduced in the following chapter 2.

RC1 hypothesizes that the diverse grassroots initiatives in different sectors are linked and prefigure one another (through people, materialities, understandings, norms, activities etc.). Understanding these links is key to understanding the entire transition. It asks: Through which elements are the initiatives linked (understandings, people, materialities, activities) and what is the character of these links (constitution, prefiguration, causation)?

RC2 hypothesizes that the initiatives are brought forward by heterogeneous actor groups, holding different motivations for participation, referred to as Leitbilder. It is not the intentionality of the group that allows the transition to occur, but the capability to align at times divergent interests in practice. It asks: What are the social perspectives within the grassroots initiatives? How diverse are they? Are there patterns in the constellation of social perspectives among the initiatives?

In the spirit of Foucault's quote given above, these RC stimulate free and creative reflection on drivers and inhibitors of the rural development. They will lead to unexpected findings that will be accommodated within the conceptual framework and integrated in the theorization of the case. The case will also inspire theoretical debates, for example about the conceptualizing grassroots initiatives' transformative impact with the capability approach, the relation between pragmatist action theory to recent studies on social and transformative learning, and the operationalization of the mental domain in social practice theory for field work by means of the concept of operant subjectivity. These thought experiments have the purpose to contribute to the above-introduced scientific debates, and to derive lessons for practitioners of rural sustainability transitions.

1.3 THE STRUCTURE OF THIS THESIS

This thesis is structured in nine chapters. The following chapter 2 introduces the research case and develops the research complexes of this thesis. It gives a free introduction on the political economy in Luxembourg, drawing on geographic research publications and public media discourses. The history of the development in the canton Réiden and Beckerich are briefly discussed, and key findings from the master's thesis are introduced. The research complexes are developed from questions and paradoxes that emerged from this project. Chapter 2 closes with a discussion of the research strategy, which suggests analysing four different grassroots initiatives in the canton.

Chapter 3 draws the theoretical backdrop of this work as it introduces theories of social change. These range from macro-social transformation, to local community engagements and the micro-scale of personal interaction and learning. Section 3.1 draws on the theory of *reflexive modernity* and the *Real Utopias Project* to describe the macro structures and process of societal transitions and to characterize engagements like those in the canton Réiden as *interstitial subpolitics* pursuing *associative democracy*. Section 3.2 gives a brief introduction to philosophies of social and human development, to then present the *capability approach* as a philosophy of *qualitative freedom* that guides the understanding of rural development in this thesis. Section 3.3 turns the attention to the question of how grassroots initiatives emerge practically. It introduces the argument of *pragmatist action theory* that the catalyst for local democracy is a collective problem experience that requires cooperative action. With *symbolic interactionism*, it elucidates how such problems-understandings are communicated between members of a community. Pragmatism and symbolic interactionism are also the first encounter with *social practice theory* in this thesis. The chapter closes with a presentation of theories that help explaining cognitive and interactive process of action in uncertainty and the cultural effects of such problem engagements: Section 3.4 introduces *transformative and social learning theories*, which to a considerable extend build on assumptions of pragmatism and symbolic interactionism. Some of these theories will not become of the conceptual approach, or the wider research design. However, each of them will be needed for the theorization of the case and for the indication of trajectories for further research.

After this review of insights from sociology and social psychology, chapter 4 turns to geographic mid-range theories to develop the three key research concepts of this thesis: *Grassroots initiatives*, *community capabilities* and *Leitbilder*. Section 4.1 discusses different understandings of space with regards to the requirements of the case. Section 4.2 presents paradigms that elucidate different logics determining *rural development*, notably *exogenous* and *(neo-) endogenous rural development*. Section 4.3 discusses selected concepts of the transition studies and argues that the *grassroots initiative* concept combines the emancipatory thrust of *social innovation* research with the attention to materiality of *socio-technical approaches*. Section 4.4 defines the conceptualization of the initiatives of the case as *grassroots initiatives* that are drivers and markers of the overall *neo-*

endogenous rural development strategy in Réiden. Section 4.4 presents *Leitbildanalysis* and *community capabilities* as the analytical lenses to address the two research complexes.

Chapter 5 builds the ontological foundations of this work. It links the conceptual approach to different aspects of *site ontology*. As the two research complexes address very different ontological realms, notably the initiatives as *social practices*, and the *Leitbilder* as the cognitive realm that guides these practices, this chapter is structured in two steps. Section 5.2 will conceptualize grassroots initiatives as *practice-arrangement bundles*, and section 5.3 will address the cognitive realm with the concept of *mental states* and *operant subjectivity*.

Chapter 6 introduces the research design of this thesis. Section 6.1 sets out by presenting the positionality of the researcher and it argues for the constructivist research paradigm of this thesis. Section 6.2 depicts how concepts, ontology and methods link to another. Various methods of data gathering, processing, analysis and validation are introduced in the methods toolbox in section 6.3. Furthermore, this section introduces *Q methodology*, which is at the heart of the research design. The chapter contains a brief explication of the research process and closes with a critical reflection on the research design.

Chapter 7 contains the analysis of the four grassroots initiatives. Each initiative will be discussed in a subsection along the analytical categories *In-Sites*, *Leitbilder*, *Social Perspectives*, and *Community Capabilities*. This chapter is by far the largest of this thesis. Each section contains a review of relevant case-specific concepts for each initiative. It also presents the underlying data, such as the coded statements of the *Leitbildanalysis* and statistical indicators of the factor analyses of the *Q* studies. This is necessary, because each analytical category builds on the author, and moving these aspects to the Annex would impede the explanatory value of the data and impede the logical narrative of the analyses.

Chapter 8 synthesizes the findings made in the four initiatives to answer the two research questions. Furthermore, it discusses the relevance of findings for geographic debates on sustainability transitions and rural development and suggests trajectories for further inquiry. Section 8.3 gives a theoretical reflection of key aspects of the case. The chapter closes with a thought experiment on the future of the rural development,

The concluding chapter 9 summarizes the key findings of this thesis and the contributions to selected scientific debates. It closes with discussion the lessons of the case for practitioners of rural sustainability transitions.

2. TRANSITIONS IN BECKERICH AND CANTON RÉIDEN

This chapter introduces the research case. Section 2.1 gives a background understanding of the national political economy in Luxembourg in a deliberately pointed manner to accentuate the peculiarities of the development in Réiden and to emphasize how the landscape conditions of the sustainability experiments. Section 2.2 tells the story of the historical developments in Beckerich and Réiden since the 1980's in five stages. Furthermore, it introduces key protagonists, initiatives, and institutions and indicates the role of Beckerich in the wider regional development. Section 2.3 develops the research complexes from prompts for research identified in the preceding Master's thesis. This chapter builds on data of this thesis, as well as social scientific literature on Luxembourg and exploratory interviews with protagonists of the development.

2.1 TRANSITION (RESEARCH) IN LUXEMBOURG

The Grand Duchy of Luxembourg is a peculiar arena for doing and researching local sustainability initiatives. On one hand, in the country of extreme financial wealth, coupled with a tremendously high environmental impact, transition is as inevitable as it is politically unfeasible. On the other hand, the small state known for "short pathways" between business and administration also holds special opportunities for social scientists, as societal phenomena may appear as under a burning glass. Additionally, Luxembourg is a multicultural and multilingual setting where ideas and strategies for grassroots initiatives from different places mix and merge.

This section introduces aspects of the Luxembourgish political economy as a backdrop against which the contours of the developments in Réiden will become clearer. It does not seek to essentialise, or present political determinants, but to give context to the policy domains in which sustainability transitions are deemed most necessary (see for example in the WBGU 2011), and which will be explored in-depth in the analysis of the four grassroots initiatives in chapter 7. The section further introduces literature on the small-state's decision-making culture, financial potencies and dependencies, and the role of communes and cantons in the two-tier government system. The section closes with a brief discussion of civil society associations relevant to the developments within the canton of Réiden.

2.1.1 A peculiar context for (researching) transitions

To realize more sustainable futures for distant others and future generations, life-forms in the most financially wealthy and affluent societies have to change fundamentally. Given the well-documented government inertia, grassroots initiatives experiment with new sustainable futures on the local level. Luxembourg may be a paradoxically ideal arena for researching transitions, since few

other places house the demons that sustainability-oriented grassroots initiatives aim to exorcise from their communities as prevalent as the Grand Duchy: It is a hub of global finance, where excessive materialism prevails in the age of European austerity, and leads to an extremely negative environmental footprint. The country is strongly dependent on imports of basic goods like energy and food. Furthermore, in Luxembourg's fast-growing, but transitory and international citizenry, political participation is already a privilege for a minority of citizens in several communes. In the following, key characteristics of the Luxembourgish context are introduced along these transition arenas.

(Inter-) Dependence on the international financial industry

In the 20th century, the national economy of the small state underwent an unparalleled tertiarisation. The transformation from an agricultural and steel-producing industry to an international hub of financial services and EU institutions was accompanied by high economic growth rates, and a volatile increase in population and cross-border workers (Schulz 2009).

Today, the country of about 600.000 inhabitants has the highest GDP of all OECD countries², and can be considered the richest liberal democracy in the world. Around 70% of Luxembourgish economic activity is generated by the financial service industry (Chilla and Schulz 2015); with about € 4.280.000 billion net assets being managed in Luxembourg- more than twice the GDP of Italy³. The sector's political influence is produced and maintained by close relations between agents of the private sector and the country's administration (see ICIJ 2018). The experience of high vulnerability and exposure to international economic volatilities in the aftermath of the financial crisis, and the increasingly bad international reputation after the LuxLeaks revelations, have recently stimulated efforts to diversify the economy. The *Sharing Economy* has in this regard been identified as a key approach to ensure the wealth of the country in the future, achieved by what a workgroup of macro-economist and government consultant Jeremy Rifkin termed the *3rd industrial revolution* (TIR Consulting Group LLC 2016).

As the government generously redistributes the generated income, Luxembourg has the highest average wages in the EU, and the increase of property prices have made many Luxembourgers wealthy. With regards to planning conflicts in attempts to control the negative externalities of this growth, Carr (2014, p. 1836)portrays a citizenry in conflict: Many people have "reaped immense individual and collective profits from the political economic system regardless of whether they have ideologically supported it (...)." An interviewee from Réiden described the situation as follows: "We Luxembourgers are living in socialism- paid for by financial capitalism⁴." This quote is supported

² <https://data.oecd.org/gdp/gross-domestic-product-gdp.htm> (last accessed October 2018). This number is distortive, as it includes the values generated by the substantial amount of cross-border workers.

³ <http://www.alfi.lu/statistics-figures/luxembourg> (last accessed October 2018)

⁴ German: „Wir Luxemburger leben ja im Sozialismus, finanziert vom Turbokapitalismus der Finanzindustrie.“

by figures from the Chambre de Commerce (2012). It states that of all residents of the country, 51 % of persons hold the Luxembourgish citizenship. Of this share, half are retired or unemployed, and another 40% work in the public sector (also Affolderbach and Carr 2016). Thus, only around 10% of Luxembourgish nationals living in the country work in the private sector, which generates the financial wealth the government redistributes. When Transition Network activist Norry Schneider (2017) warns of Luxembourg becoming a 20/80 society, these numbers would suggest that this is already a reality.

This economic context makes for a specific playing field for grassroots initiatives. On one hand, the extreme wealth creates certain inertia among citizens and the government towards change. Several interviewees stated that the individual wealth and a general materialistic culture are the main reasons why it was difficult to encourage people to participate in local initiatives or become politically active. A green municipal deputy from Luxembourg city described the political situation as follows: "In the warm rain of the financial centre, government and opposition are losing interest in the structural problems of the country⁵" (Mathias 2013, p. 33). On the other hand, protagonists of this political economy can be remarkably sensitive to critique. Several interviewees stated that certain local grassroots initiatives experience push-back from high-ranking administration, if their initiatives are regarded as critical or 'counter-ideological'. The process of the "Rifkin Report" (TIR Consulting Group LLC 2016), supposedly laying the roadmap for the country's development towards a sharing economy⁶, has laid bare how civil society initiatives are integrated when participation is required, but excluded when final decisions are made⁶.

A high ecological impact

The financial wealth of the country is accompanied by a tremendous negative impact on the environment. Luxembourgish citizens have on average the second highest ecological footprint in the world, ranking 139th out of 140 countries⁷. This number is distorted by the high number of "fuel-tourists" attracted by cheap gas prices, from which the government benefits handsomely. For example, income from gas stations provided about 25 % of tax revenue in times of financial crisis (Schulz 2009). Luxembourg has the highest car-ownership rate, the highest energy consumption rate, and the lowest share of renewables in the EU (ibid.).

Nature protection legislation is often bypassed as the high economic growth rates require increasing land consumption (Carr, Hesse, and Schulz 2010; Conzemius 2012). On the level of communes, spatial development, often driven by private developers, leaves little possibilities for citizen

⁵ German: „Im warmen Regen des Finanzplatzes verlieren Regierungen und Opposition das Interesse an den strukturellen Problemen des Landes.“

⁶ Several interviewees stated that they were excluded from workshops after they had criticized different aspects of the political economy. This inclusion of civil society representatives in workshops and roundtables to "tick the box" of public participation is seems a common strategy of administration, as experiences in the policy fields housing, energy, and finance suggest.

⁷ <http://happyplanetindex.org/countries/luxembourg> (last accessed December 2018)

participation (Chilla and Schulz 2015; Hesse 2015). Especially in the cities, citizens' initiatives are growing increasingly frustrated with paternalistic and technocratic approaches towards developing neighbourhoods strategically as architecture for investors, rather than as spaces that nurture being in community⁸.

Participation and democratic deficits

This unsustainable development path may worsen with the country's rapid population increase. Should Luxembourg continue with the current rates of economic growth, which is pursued to maintain the high standard of living and the social security system, Eurostat projects a population increase of around 60% by 2050⁹. Generally, integration in Luxembourg has been very successful starting with the first waves of migrants who came from the European (Catholic) south in hope of finding work in the steel industry (Lorig 2008). In recent decades, however, work migration patterns have changed towards the service industry. A large part of this new generation of migrants, working in the financial sector or the EU institutions, is transient. Today, Luxembourg City has the shortest average time of residency of all EU capitals of around 6 years. This is a tremendous challenge for the political and cultural integration of its citizenry.

Today, around half of the country's population does not hold a Luxembourgish passport. This rate is about 70% of citizens in the capital. Given the fact that in 2015 a referendum to grant non-Luxembourgish citizens voting rights was rejected by a margin of 80%, this may lead to a democratic schism: In the national elections in 2018, only 24.764 out of 116.328 inhabitants in the capital city were eligible to vote¹⁰. Especially on the municipal level, this creates increasing tensions, as citizens have little democratic opportunities to participate in the development of their neighbourhoods¹¹. In Luxembourg, unlike surrounding countries like the Netherlands, one has to be resident for five years to participate in municipal elections. Grassroots initiatives may have various functions in this context: They offer arenas for cultural integration and political participation, and for people to engage directly within their immediate life-worlds in a meaningful way (see chapter 4).

To conclude, key themes inherent to the general political agenda of sustainability activism are particularly prevalent in Luxembourg: The political economy is strongly dependent upon the global financial industry, the citizenry behaves highly unsustainably, and there is a lack of participation in national and municipal politics. As will be shown below, however, other features such as the short ways to administration, the generous redistribution of financial resources to civil society initiatives,

⁸ This claim is based on three years of facilitating neighborhood initiatives in different areas of Luxembourg.

⁹ <https://ec.europa.eu/eurostat/tgm/table.do?tab=table&init=1&language=en&pcode=tps00002&plugin=1> (last accessed December 2018)

¹⁰ Statec.lu (2018): Electoral participation by constituency and municipality (Unofficial results)

¹¹ Voting in Luxembourg is mandatory. Naturally, not everyone with the right, or obligation to vote would become politicized and engaged, perhaps people would occasionally identify with and reflect about the government of the country they live in.

and the high exposure to international flows of knowledge are also used as an advantage for sustainability initiatives.

2.1.2 Communes in the small state and governance culture

The local arena for grassroots initiatives in Luxembourg is introduced in two segments. The first outlines communes' role in the two-tiered government system in Luxembourg. The second segment discusses aspects of the political culture drawn from research on spatial planning. This disciplinarily angle is particularly informative, as the development challenges of a country transpire and manifest in deliberations on the use of the limited resource space.

The role of communes in the two-tiered system of government

The commune is the lowest unit in the vertical integration of government. Communal politics describes the civic participation and self-regulation of citizens in their local places of residence and is therefore an essential arena for political opinion forming (Thibaut 2005). Whereas in neighbouring countries various administrative levels exist between the national government and the communes, such as *Landkreise* and *Länder* in Germany, or *Départements* in France, the relationship is more direct in the two-tiered system of Luxembourg. Here, the canton is not a political, but solely an administrative level, for example in the judiciary and the police system, and it supports the organization of elections. The canton in Luxembourg does not have executive or legislative competences as the respective levels of government in France, Germany, or Switzerland. This is a very important aspect to understanding the research case, as here the meso-level appears to re-emerge bottom up, as regional institutions play a central role in political decision-making, and socio-economic development (see also Faller 2015a).

This leaves communes with more administrative responsibilities and higher financial needs, whilst being under stronger control from national administration than communes in the neighbouring countries (Müller 2008). In the only monograph in German language on the Luxembourgish political system, Müller (2008) highlights that communes, national government and higher-order administration are in a constant struggle of competences. As will be shown in the following section 2.2, this is particularly relevant for understanding the development in the canton Réiden. A strong government control in communal policymaking is partly enforced by financial dependencies. The directness of state supervision leaves the communes little room for experimental solutions, as they may become precedent cases (ibid.). In order to push local projects, mayors depend on good relationships with national administration to acquire funding (ibid., 148). This analysis has been confirmed by interviewees with long-standing experiences in municipal politics in Luxembourg. Conversely, communes have a strong influence in national politics, since many mayors are members of parliament (*Députés-maires*). This allows mayors to carry their interests into the national

arena, for example by forcing government representatives to public hearings. The assessment of the two levels of government struggling for power and competences as given by Müller (2008) needs however questioning in the light of case-studies on spatial planning practices in Luxembourg (Affolderbach and Carr 2016; Carr 2014). Research suggests that in practice, stakeholders would "blend scales" regarding to their interest and power relations and mobilize a variety of allies from different levels and sectors according to need (ibid.).

The formal political structure in many small rural municipalities in Luxembourg is that of *Majorzgemeinden*. This term refers to municipalities comprising of less than 3.000 citizens. Unlike larger municipalities, members of the municipal council are elected directly every five years in Majorzgemeinden, without being listed by political parties. The council then elects the mayor and a number of aldermen. Müller (2008) states that the only option for citizens to directly influence municipal politics is a consultative referendum. For the canton Réiden this is not correct, however, as here several commune councils discuss legislative and budgetary projects proposed by permanent, issue-based consultative commissions of citizens.



Picture 1: The Luxembourgish cantons.
(Source: commons.wikimedia.org)

A detailed account of sources and copyright is given in the picture index.

Changing the Majorzsystem, as well as merging communes, is an on-going subject in Luxembourg, with some arguing that it would facilitate national politics, and others that it would increase the influence of national parties in local politics. Interviewees raised concern that merging small communes would enforce the influence of the Christian-Democratic CSV, as the party's chances of winning would be higher if people were elected through party lists (*Proporzgemeinden*), rather than directly. Resisting the merging of municipalities was a prevalent theme in the interviews and many stated that the inter-communal syndicate and the LEADER office were protecting communes from merging, as these institutions ensured their capacity of fulfilling the principle of subsidiarity.

Governance culture

Small states tend to have a specific governance culture that is often overlooked in social science literature (Grydehøj 2011). Researchers characterize Luxembourg as a neo-corporatist system with strong hierarchies, limited human resources, and informal bargaining (Affolderbach and Carr 2016; Chilla and Schulz 2015).

The Grand-Duchy is described as a consensus democracy, because of the importance of bilateral arrangements and personal relations (Chilla and Schulz 2015; Lorig 2008). Public institutions are widely accepted, and generally not expected to change, whilst critical public discourse is comparably weak (Lorig 2008b). The privatization of all public broadcast systems except for the radio station 100,7 since the 1980's is arguably detrimental to a vibrant and critical public sphere (Abrahamian 2017). Altogether, this makes for a delicate playing field not only for activists, but also for researchers, who have to find ways to address grievances while considering influential persons' sensitivities. The short ways can open doors to quickly, but controversial comments may also make entire corridors inaccessible for the future.

The limited pool of human resources, or, put bluntly, the amount of capable people required to run a nation state, leads to political constellations of stakeholders wearing several hats at the same time (Affolderbach and Carr 2016; Becker 2015). Regarding spatial planning, research suggests that this tends to lead to conflations of interests, as the lines between civil society, the state, and private sector are blurred. On the municipal level, development is described as private property driven. Power is often given to individual interests (Carr and Affolderbach 2014; Hesse 2015). Especially the implementation of policies for a more sustainable spatial development therefore often ends in a stalemate (Carr 2014; Carr, Hesse, and Schulz 2010). Considering that national government strongly draws on international policy flows, it seems "as an ideal hotbed of cross-national flows and exchanges of ideas and policies. (...) Despite efforts to bring in policies from abroad, and vast discussions in and across various discursive spheres, local Luxembourg governance structures (however) derail or prevent implementation processes." (Carr 2014, p. 1828).

Returning to the relationship between national government and the municipal level, Hesse (2015), drawing on Foucault, describes the *gouvernmentality* in Luxembourg as technocratic and seeking outmost control. The personalization of knowledge at high-level administration and in private actors would enforce the *government dirigisme*. The former president of the environmental organization *Natur & Èmwelt*, Conzemius (2012), mirrors this finding for environmental politicians, as he bemoans that relevant politicians would often act individually and not create arenas for creative and cooperative environmental politics on the national level. Recently, citizen participation has become increasingly utilized in spatial planning, especially during the course of the implementing new planning directives. Experiences with these processes, however, suggest that the workgroups

often do not represent the affected citizenry, but rather well-established interest groups (Becker and Christmann 2017; Carr, Hesse, and Schulz 2010).

Regarding the development challenges outlined in the previous section, the public debates on the fundamental development trajectories of the country, such as questioning the 4% growth premise maintained by the government are becoming louder. Local forms of organizing around the manifestations of these problems on the commune-level may in this regard help with creating spaces of resonance for individuals to become engaged in a meaningful way, to organize, and perhaps to amplify the discourse to the extent of eventually changing the national mainstream.

The previous subsections indicate that the Luxembourgish government system and culture are consolidating the status quo, rather than enforcing change (also Becker 2015; Carr 2014; Christmann and Hesse 2016). On the other hand, these structures can also be used to the advantage of sustainability activism, should a critical mass learn how to use the blending of scales purposefully. The fact that the green party has been able to enter the government twice in a row, recently endowed with crucial ministerial positions in the fields of transportation, housing, and energy may be an indicator for a change in the political mainstream.

2.1.3 Civil society sustainability initiatives in Luxembourg

To the author's best knowledge, academic research on sustainability-oriented civil society initiatives in Luxembourg does not exist, and this work cannot provide a comprehensive account of this landscape. This section gives a brief introduction to key national associations that are relevant to the developments in Réiden. The relationship between several actors and initiatives in the canton and these associations can be seen as co-constitutive. Knowledge and experiences from the canton influence the agendas of the associations, while these conversely provide networks for the exchange of knowledge and leverage lessons on the national level.

As Carr (2014) argues, the general government culture of Luxembourg may hinder the implementation of sustainability-oriented spatial planning policies in the country. Civil society associations, however, serve as hubs for the translation of international currents of knowledge and ideas into the Luxembourgish context, informing local activism beneath, and besides this culture. The civil society scene in Luxembourg is peculiar, as discourses from various European countries are linked and integrated in this highly international and multilingual setting. Further, the small scale allows for very direct exchanges of ideas crosscutting different domains and levels of activism. In the following, the two associations *Mouvement Écologique* (MECO), and the *Transition Network*¹² will be briefly introduced¹³. Other associations that may have been influential as well, such as *Natur &*

¹² The transition movement, or transition town movement, is a social movement of local resilience-oriented initiatives that occurs around the world. The Transition Network is the UK branch of the Transition movement. CELL is the association and the hub representing the Transition movement nationally in Luxembourg.

¹³ The author has been member of both organisations and a large part of the below account is based on personal experience.

Émwelt, Action Solidarité Tiers Monde (ASTM), and Greenpeace, are not introduced here for the sake of brevity.

MECO and Transition Network can be regarded as complementing one another in the struggle for a more sustainable development in Luxembourg. They show ideological similarities, but pursue them with different strategies. The more established and institutionalized MECO has for decades lobbied for more participatory municipal decision-making. The diverse and practice-oriented grassroots initiatives, loosely connected in the national Transition Network, can be understood as realizing these opportunities. Both associations push sustainability-related and post-growth discourses into the national mainstream, while being funded substantially by the government.

Mouvement Écologique

As this thesis is finalized, MECO celebrates its 50th anniversary¹⁴, and it can today be considered the most established and influential environmental organization in Luxembourg. In the past decades the movement has addressed an array of subjects ranging from nature protection, to organizing anti-nuclear protests, regulations regarding heavy industry, infrastructure, and the development of public infrastructure such as the (re-) establishment of the tram in Luxembourg city. It also actively promotes the import and development of new sustainability-related knowledge by inviting renowned international activists and scholars to Luxembourg for public debates. Today, a large part of MECO's work concentrates on issues surrounding the new spatial planning policies in Luxembourg, and, as the consequences of the tremendous economic growth increasingly determine this field, introduces the post-growth debate into the national discourse.

On the premises of MECO, Oekozenter in Luxembourg City, several other associations have their offices, making it a national hub for sustainability related initiatives. The movement has close ties to political parties and administration, especially to the green party *déi Greng*. Although several popular figures of the party have been associated with the organization, members from both sides insist on their independence from one another.

Several activists in Réiden, especially those who were engaged in the 1980's and 90's, stated to have been affiliated with MECO. Camille Gira highlighted in an interview, that he was politically socialized in the association, and got acquainted with environmental politics and strategies of local participation through his engagement in MECO. Vice versa, key figures from the canton Réiden are contributing with their experiences and knowledge to the workgroups of the movement (see Doerr 2014; Gira 2001; 2003).

MECO offers commentary and critique to national politics, and influences municipal policy making through local action groups, organized in five regional chapters. The activities of MECO are widely received and reported in the Luxembourgish media, making it an influential national institution not

¹⁴ For a brief review of the association's history, see <http://www rtl lu/1276111 html> (last accessed December 2018)

only for critique, but also offering constructive alternatives to political debates. Over the years, the association has been successful in various initiatives, such as nature protection regulations, the introduction of modes and strategies for local participation, and, perhaps most famously, the project of establishing a tram in Luxembourg City. As the president, Blanche Weber, states (*ibid*, p. 48): "In first instance we are active on the domains of political trajectories and structures. We aim to change the general conditions by influencing legal regulations, restrictions, allowances, and generally new political offers¹⁵."

Regarding its inclusive and participatory potential however, it can be argued that the organization's representative capacity may be waning. Whereas most publications are in German, French, and increasingly in Luxembourgish, MECO insists on Luxembourgish to be spoken in its workshops and meetings. With regards to the issues of internationalization and the emerging democratic schism between a Luxembourgish citizenry predominantly employed in the public sector and an international citizenry often not having the right for political participation, MECO's contribution to political and cultural integration is rather indirect. However, with its close relations to mainstream politics and leverage in the public debates, MECO can be seen as creating opportunities that other associations can then take up on.

Transition Luxembourg

An association that fashions these political spaces opened by MECO, is *Transition Network Luxembourg*. One of its public representatives, Norry Schneider (2016; 2017) describes it as a *commons movement* of diverse local initiatives realizing post-fossil and localized economies, and overall more resilient communities. It follows the philosophy of: "There are enough talents in our neighbourhood!" It is a network of several decentralized grassroots initiatives all over the country, addressing subjects related to the solidarity economy and commoning with a permaculture philosophy. The activities range from activities around urban gardening, energy cooperatives, cooperative housing, a seed bank, agroforestry, to the construction of an earth-ship building in Réiden, and to spiritual transition (Fox and Schneider 2012). Some of these, such as the first and only national cooperative housing initiative *AdHoc*, are also closely affiliated with MECO. Several initiatives in the canton Réiden are regularly represented at the core group meetings of the Transition Network. The network is loosely organized by the Centre of Ecological Learning Luxembourg (CELL) initiated by anthropologist Katy Fox in 2011 in Beckerich, with the aim to "(...) design appropriate systems for change-makers and grassroots groups (...) interested in bioregional resilience, in order to empower, nurture, and catalyse connections between living beings and the places they inhabit (CELL 2017)".

¹⁵ German: „Wir (...) sind in erster linienpolitisch-strukturell aktiv. Wir versuchen die Rahmenbedingungen zu verändern, sei es durch gesetzliche Regelungen, Auflagen, Beihilfen oder neue Angebote.“

CELL experiments with sociocracy, a form of social organization based on the principles of equality and non-coercive consensus development in iterative cycles of deliberation. Members of the network help each other in creating their own initiatives, for example by giving legal advice, exchange experiences in navigating the Luxembourgish political landscape, and identifying funding opportunities. The latter point may be of particular relevance for this thesis, as the funding opportunities for these initiatives have significantly increased since the first time déi Greng came into government in 2012. Camille Gira has been an important figure for the movement, as he supported the development of CELL in Beckerich. He also supported opportunities for grassroots initiatives in his role as state secretary, such as the awareness raising campaign of screening the movie *Demain* in various communes across the country. In an interview for this thesis Gira stated that he felt the Transition Network's philosophy to be very similar to his visions for Beckerich and the canton Réiden.

Apart from the practical local problem-solving, the Transition Network provides arenas of encounter, where through a common shared activity people may discover potentials for other synergies. There are no language restrictions in local initiatives; conversations and debates may switch seamlessly between Luxembourgish, French, German, or English. In this way, the initiatives fulfil an important integrative function in Luxembourg. An example here are urban gardens, or the community café *Mesa* in Esch-sur-Alzette, becoming "Lebensgewebe" for people to exchange ideas, learn, or simply to be in community (Schneider 2016).

2.1.4 Synthesis

The negative externalities of the Luxembourgish political economy require a fundamental shift to more sufficiency-oriented everyday practices of its citizenry, while a peculiar small state governance culture makes it difficult for grassroots initiatives to experiment with such alternatives. Nonetheless, the recent increase of grassroots initiatives, and the success of the green party in current elections indicate a critical and constructive mentality in parts of the society. Whether this is enough to affect the political economy is another question that remains to be seen.

Experiences and practices from Beckerich and the canton Réiden are a central component to this development. Today, several prominent initiatives are set in Réiden, or are inspired by experiences from here. The following introduces the history of this development.

2.2 PROGRESSIVE POLICIES SPREADING FROM BECKERICH INTO THE CANTON AND BEYOND

This section introduces the research case and lays the foundations for the research questions developed in section 2.3. It gives an overview of the development in Réiden since the 1980's, introduces key figures and institutions that will become relevant later in this thesis, and portrays selected grassroots initiatives that are emblematic for this development. Although based to a large extend on interview material and the Master's thesis that prefigured this research project (Doerr 2014), this section is not a scientific historic account¹⁶.

The small commune Beckerich¹⁷ is widely acknowledged as a flagship case for sustainability transitions in Luxembourg. Under the public lead of the young and charismatic politician Camille Gira, the commune opened its political structures to enforce citizen participation in the 1980's, and gained public acclaim for its energy transition in the 1990's and 2000's. Recently, a range of initiatives addressing different fields of the community emerged in Beckerich, such the country's first regional currency *Beki*, the ambitious cooperative agriculture program *SoLaWa*¹⁸, and the national Transition Network hub *CELL*.



Picture 2: The landscape in canton Réiden. (Source: Author's own)

¹⁶ This section reviewed by key figures of development in Réiden.

¹⁷ The German wording of the commune will be used throughout this thesis, instead of the Luxembourgish *Bierkerich*. The commune Beckerich comprises of eight villages, Beckerich being one of them. In this thesis, the term *commune Beckerich*, or *Beckerich* refers to the political unit of the eight villages.

¹⁸ Acronym for *Solidaresch Landwirtschaft Atert*.

A closer look at these recent initiatives reveals, however, that the focus on Beckerich may be too narrow to assess how the transition comes about. For example, transforming agricultural and financial systems requires changes in entire supply chains that rarely exist in a single commune. Further, Beckerich may be the hotbed and incubator for many projects, but the governance and budgetary realization often occurs in regional arenas like the inter-communal syndicate *de Réidener Kanton* and the local action group *Attert-Wark* (LAG) of the LEADER program. An analysis of the transition therefore requires balancing between the commune Beckerich and the canton level.

2.2.1 Basic facts of Beckerich and the canton Réiden

The canton Réiden¹⁹ is located in the rural west of the country, at the border to the Belgian province Luxembourg. The nearest larger towns are Arlon, about 18km far way, and Luxembourg City (30km). The canton is part of the administrative district Diekirch, and in the heart of the INTERREG IV-A project the *Greater Region Saar-Lor-Lux*. Since 2014, the area of the LAG of for the LEADER program is congruent with the borders of the canton (plus the commune Merztig).

The canton Réiden is comprised of 10 communes, with overall 18.664 inhabitants in 2018²⁰. After a population decline throughout the 1960's and the 1980's, the population has increased steadily ever since. The largest town and administrative centre of the canton is Réiden with 2.824 inhabitants, before Beckerich with 2.518, and behind Rambrouch, the most remote commune, with the largest area and overall population size of 4.326 in 2018. Population patterns of the canton differ from the national average, as the population is about 75% Luxembourgish nationals, with a low part of temporary residents. The unemployment rate in is about 5%²¹, with most jobs in services (ca. 2.400) and agriculture (ca. 1.100) (de Réidener Kanton 2014). However, around 75% of employed people commute out of the canton for work. The women's employment rate has gradually increased over the past decades and reached 43% in 2011 (ibid.).

With regards to the general political culture, most interviewees described the citizenry of the rural canton to be mainly conservative and as politically affiliated with CSV. However, as all communes but Rambrouch are *Majorzgemeinden*, meaning that members of the community council are elected without being listed by parties, politics are rather based on individual's personalities than party affiliations. Regarding social infrastructure, the canton has an active scene of associations and citizen movements, most of them extending over commune borders and co-financed by the communes and the syndicate. Following the EU-program's guidelines, associations hold the majority in the LEADER committee, which is very important for the socio-political life in the canton. Basic

¹⁹ The Luxembourgish term Réiden is used in this thesis, because it is the official name of the intercommunal syndicate. The French term is Redange, and the German Redingen.

²⁰ For all demographic figures in this paragraph, see https://statistiques.public.lu/stat/TableViewer/tableView.aspx?ReportId=12861&F_Language=fra&MainTheme=2&FltrName=1 (last accessed December 2018)

²¹ See https://statistiques.public.lu/stat/TableViewer/tableView.aspx?ReportId=12950&F_Language=fra&MainTheme=2&FltrName=3 (last accessed December 2018)

infrastructure and public services are provided, as the canton has an inclusion oriented Lycée since 2004, as well as elderly homes, several cultural centres, and a music school. These factors, together with the comparatively low housing prices and the close proximity to the city make the canton a popular area for young families.

As will be further discussed below, several elements of national infrastructure are absent in the canton. It is not connected to the national highway or train system, so in many communes the only means to reach the city by public transport is a regional bus connection that runs once an hour. Further, the canton is not connected to national high-voltage and gas grids (de Réidener Kanton 2014).

Today the canton Réiden is a model region for sustainable energy transition in Luxembourg. It is site of the first biogas-cooperative in the country and covers about 30% of its entire electricity consumption by its own production from renewable sources. There are 16 citizen-owned PV plants, 2 wind-turbines, and five biogas plants in the canton (*ibid.*; [Faller 2015a](#)). Further wind-turbines are currently planned, which would lead to a net-balance of energy production and consumption. Beckerich can be regarded as the most politically and technologically progressive of all communes. All municipalities are part of the *KlimaPakt*. The energy transition in the canton, and especially in Beckerich will be introduced in more detail in the following section.

2.2.2 A history of the rural development in five stages

Renowned across Europe as a good practice of rural energy transition (see for example *Le Monde* 2008), Beckerich hosts several hundred policy-tourists per year on its *Energy Tours*. Several interviewees however stated that often policy makers from other places would rather import the absolute figures and technical achievements than the underlying participatory mechanisms that have enabled them in Beckerich. In many cases this would lead to essential parts of policies being lost on the way, and ultimately to failure in their adoption in other places²².

Doerr (2014) set out to identify the underlying social structures and intentionalities that enabled the transition. Based on interviews with protagonists and observers of the transition, the local development was conceptualized in five stages of development: The introduction of participatory governance, inter-communal association, provision of basic infrastructure, energy transition, and diffusion of the transformative spirit ([see Carr and Doerr 2014; Doerr 2014](#)).

An interview with Camille Gira in 2014, then secretary of state for sustainable development, had been particularly informative for this conceptualization of the development. Having been asked to visualize the development or draw the way he saw the transition in Beckerich, he had drawn an exponential curve. He segregated the graph in several segments, representing stages similar to

²² The policy mobilities perspective is not taken as an analytical concept for this work, but it informs the perceptions of how ideas and knowledge are imported and applied in the canton, as well as how they are emitted, and diffuse to other places. See Tenemos and McCann (2013) and Peck and Theodore (2010).

those in the introduction below. Pointing to the section before the steep rise of the curve, he argued that most people active in community politics would forsake their efforts at this point, because they do not see that the foundations that have already been built here were the hardest part of the journey. He argued that his role of a leader was only required until this point, and that after that his role was more to bring people together and “have activists’ backs” in public debates (see also Carr and Doerr 2014). From this point on, he argued, the sustainable development path would be “locked-in”, an assumption that several interviewees confirmed.

Three key aspects of this narrative influenced the development of research questions, and the conceptual design of the case: The segmentation of the development in stages, the *string of pearls narrative*, the instance of practice groups of activists, and the hypothesis of a *lock-in towards progressiveness*. The relevance of this narrative will be discussed in more detail in section 2.3. The following will give a short overview of the development in Beckerich and the canton Réiden in the five stages²³. Special emphasis lays on the early stages²⁵, as they are constitutive to the more progressive, issue-based initiatives that are analysed in this thesis. Subsequently, local narratives describing the development are introduced as the foundation of the development of research complexes in section 2.3.

Naturally, the conceptualization in stages is misleading, as the described phenomena are on-going processes that morph, intertwine, or cease over time. The order of the stages does thus not indicate a hierarchy, or a chronological order where one event begins after another ends. It is an attempt to structure the occurrence of events according to the time of their emergence in a meaningful narrative.

Baseline situation in the early 1980's

The canton Réiden, also referred to as the “wild west” of Luxembourg, has traditionally been the least developed of the country (Pauly 2003). Industrialization arrived in the canton with the narrow-gauge railway *Atert-Linie* at the end of the 19th century, which connected the rural area to the production sites of the steel industry of the Minett region in the South and allowed modest industry to develop around its stops.



Picture 3: Camille Gira as secretary of state in 2014.
(Source: SIP/ Yves Kortoum)

²³ The following accounts have been sent for review to different people from the canton Réiden. The reviewers insisted on the importance of Camille Gira, which is why the account centres around his personal involvement in the development.

Many men from the canton were employed in the Minett and commuted to work by train. However, a large number migrated there directly, leading to a population decrease in the mid-20th century. The demise of the steel industry in Luxembourg, and the closing of the Aert-Linie in 1969, fostered further economic decline of the region, and left it somewhat cut-off from the rest of the country. Further, the national government withdrew several administrative

units from the canton, which contributed to job loss and reduction of financial resources (de Réidener Kanton 2014). The economic decline was accompanied with a loss in architectural heritage and patrimony (Gira 2003). Many private house owners maintained and restored their properties with plastic elements, chose untypical paintings for their houses, while communes became increasingly car-friendly and offered little spaces for gatherings and events.

In order to protect the architectural heritage, a group of local activists formed in the late 1970's around the initiative of local historian Nic Bosseler. The *Geschichtsfreunde Beckerich*, among them the young Camille Gira, collected photographs of local architectural patrimony and encouraged

house-owners and communes to consider their heritage in planning and construction (Gira 2003). Further, the group organized manifestations and workgroups around infrastructural plans of the national government that would harm their perceived landscape aesthetics. Camille Gira and other activists of the time remember the *Geschichtsfreunde Beckerich*, and the common initiatives to preserve their natural heritage, and patrimony as key experiences of political awakening and a point of crystallization for like-minded young people of the region (Doerr 2014; Gira 2001).



Picture 4: The "Jhangeli" train on the Aert-Linie railway in 1953.
(Source: Phototèque de la Ville Luxembourg)



Picture 5: The path of Aert-Linie today. (Source: Author's own)

Institutionalization of participatory governance

In 1982, the then 24-year old Gira became member of the community council in his hometown Beckerich and was elected alderman in his first term. As member of MECO, he became acquainted with participatory local governance approaches as a form of sustainability politics. This engagement lead to a successful proposal to open communal politics in Beckerich for citizen participation. It was decided that at the beginning of each legislative period, all interested citizens would hold an assembly to decide about the most pressing themes for the following years (such as migrant integration, mobility, economic development, or social housing). Workgroups of citizens with at least one council member are then set up to develop ideas that are introduced to the community council. The number of commissions change between legislatives periods; in an interview in 2001 Gira stated 80 citizens were working in twelve commissions in the small commune (Gira 2001). Interviewees suggested that this gave new dynamism to local politics in various ways. First, it broke with the traditional way of decision-making that has been described as "regular meetings of old white men", making citizens more engaged in the periods between the elections. Second, members of the groups function as political amplifiers in the community as they would share their experiences with their families and friends. Finally, these commissions are composed of diverse groups of citizens with different professional backgrounds, problems and needs, and views of the community. Interviewees argued that these commissions are arenas where people argue, learn about each other's problems, and create synergies to develop common solutions adequate to the local context. As will be discussed later, many initiatives today emerged from discussions in these commissions in Beckerich. Here, the *ComEcoRura*²⁴ seems to be a particular hotbed for the development of new policies and initiatives in Beckerich and the canton. It comprises of farmers, entrepreneurs, local politicians, and others, meeting regularly to discuss strategies for a better



Picture 6: The village Beckerich. (Source: commons.wikimedia.org)

development of the local economy. Even though other Majorzgemeinden in the canton Réiden and in Luxembourg have copied the concept of the commissions, interviewees indicated that at least in the canton the only place they are well integrated, and dynamic is Beckerich.

Regional association

In the 1980's, communes in the canton faced a variety of development challenges. To prevent emigration and attract young families, public services needed to be improved, while communal budgets were tight. Interviewees stated that the situation in the canton was unique in Luxembourg, as other rural and remote cantons would have nature reserves that ensured a steady stream of income. The communes in the canton Réiden however, were reportedly very much on their own, and had to take development in their own hand. In retrospective, interviewees suggested this was a blessing, because people may not have created synergies, had the financial situation been more fortunate. Two institutions of inter-communal cooperation are particularly relevant for the development in the canton: inter-communal syndicate *de Réidener Kanton* and the local action group (LAG) of the LEADER program *Attert-Wark*. This section introduces their complementary influences in the regional development.

To address common needs, the inter-communal syndicate *de Réidener Kanton* was established in 1990. Under the lead of the young mayor from Préizerdaul, Emile Calmes, five municipalities committed to join part of their budgets to establish needed infrastructure that they could not provide individually. Throughout the 1990's other communes joined, and since 2000 the area of the syndicate is congruent to the area of the canton. Over time, the syndicate became a forum for the development of a variety of public services and infrastructure, as will be discussed in the following section. (see also Calmes 2003; de Réidener Kanton 2014)

Emil Calmes, who was president of the syndicate between 1990 and 2010, characterized the syndicate in an interview as a practical example of the principle of subsidiarity, since it enabled communes to manage public services by themselves without the intervention of higher levels of government. The canton could therefore resist several attempts by the national government to merge communes, or intervene in the regional development, since communes could prove to efficiently address needs by themselves, and speak with a common voice, Calmes argued. The inter-communal syndicate *de Réidener Kanton* is unique in the Luxembourgish political landscape and provides financial support for most initiatives that are analysed in this thesis.

Another factor crucial for the regional development is the LEADER²⁴ program. It is part of the EU Rural Development Program (RDP), specifically the EAFRD²⁵ that intends to stimulate economic activity in rural areas. Local Actions Groups (LAGs), associations of local government, private

²⁴ French acronym for *Liaison Entre Actions de Développement de l'Economie Rurale* see also de Réidener Kanton (2015) and Ministere d'Agriculture (2011)

²⁵ English Acronym doe European Fund for Rural Development

sector, and civil society, develop joint strategies to harness and develop local potentials to address local needs. The program intends to foster local cooperation and network building to stimulate integrated and cross-sectorial innovation. Project financing is not continuous. Rather, it is seen as a catalyst to jump-start projects that need to be transferred into a self-sustaining economic model. In the case of the canton, the financing is often used to conduct feasibility studies and projects transferred to communal, or syndicate budgets, or are privately run as a cooperative²⁶.

In 2000, communes of the canton Réiden and canton Wiltz participated as one LAG in the LEADER+ program. However, since many communes in the canton Wiltz are subject to strict nature protection laws, the potentials and needs of communes were found too diverse for a common program. Therefore, for the current founding period 2014-2020, the group split, and the current LAG Attert-Wark, named after the two rivers of the region, is now congruent with the syndicate's borders, plus the commune Mertzig in the east. Following the program's guidelines, the LAG is composed of more civil society than public actors, allowing for a different perspective in regional development than the syndicate. (de Réidener Kanton 2014; 2015)

Several interviewees stressed the importance of the LAG for the development of initiatives in the canton. The access to capital for experimentation with ideas that might be too risky to be paid through the communal budgets would give freedom to be creative. The composition of the LAG would further allow a more diverse view on problems and challenges. Participants stated that the sustainability is by now a transversal value to all initiatives that has become an inherent part of the working culture.

The syndicate and the LAG are crucial to understand the regional development, as they complement each other in facilitating and managing the emergence of grassroots initiatives. The syndicate, consisting of representatives of the member-communes, can be regarded as the arena where cooperation was learned, and which created positive experiences of common action by providing public services that directly improved people's life-worlds. The LAG, comprising of commune representatives and civil society actors, is an arena where more creative and risky initiatives can be developed and experimented with. Several initiatives in the canton, such as Maison de l'Eau and Beki receive initial financing from the LEADER budget and are then transferred to the syndicate's budget if deemed successful. As of 2014, the area of the syndicate and the LAG are nearly congruent. Therefore, it can be argued that the communes have built a new intermediate governance level bottom-up to address common needs by themselves without government intervention. The desperate socio-economic situation in the early 1980's has in this regard been ascribed as a catalyst for cooperation.

²⁶ see also de Réidener Kanton (2015) and Ministere d'Agriculture (2011)

Provision of common infrastructure

Several interviewees who were politically engaged in the 1980 and 1990's stated that the reconstruction and conservation of public and private spaces, as well as the development of public services provided the foundation for more community-oriented and progressive policies to emerge. It was stated that positive experiences with cooperation within as well as among communes increased the trust in key persons and in cooperation as an efficient and empowering form of problem solving, instead of applying for government money. For the case of Beckerich, the reconstruction of communal patrimony is seen as a key factor to the wider transition, as it re-ignited a sense of belonging and cultural identity. The research and lobbying of associations like Geschichtsfreunde Beckerich increased the public awareness of the loss of regional patrimony. Subsequently, commune administrations were encouraged to consider cultural heritage in the restoration and development of public spaces. Similarly, house owners were encouraged to use natural, regional materials for the renovations. Interviewees emphasized that these measures re-ignited a sense of belonging and cultural identity in the canton. In Beckerich, the development of a mineral water plant in the mid-1980's enabled much of these efforts, as it improved the commune's budget significantly.



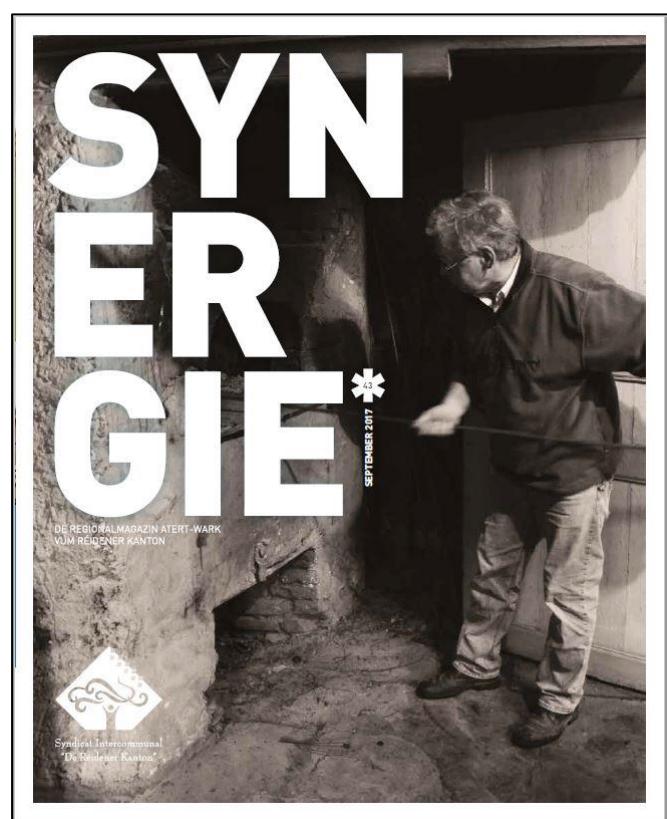
Picture 7: The cultural centre d'Millen in Beckerich, an example of restored patrimony. (Source: d'Millen a.s.b.l.)

As stated above, the syndicate De Réidener Kanton enabled the provision of a range of public services that improved the life-worlds of many citizens directly, created jobs in the canton, and increased its attractiveness especially for young families. Projects ranged from economic development, to social and cultural infrastructure, and to public transport. Examples are the construction and management of a nursing home, the development two zones for economic activity, a music-school, youth job integration programs, a public swimming pool, the Energieatelier, and the school Atert-Lycée. The government finances the latter project, but the idea has been developed in the syndicate.

Camille Gira stated that the reconstruction of physical infrastructure and public services put the commune Beckerich in a position that was more about shaping the future instead of consolidating the past. Interviewees argued, that these initiatives are the foundations for the following energy projects: They re-ignited a sense of belonging and cultural identification with the region, stakeholders learned to cooperate and solve common problems together, and local leaders gained the recognition and trust of citizens in their ability and vision. Therefore, it can be argued that the energy transition would not have been possible had basic need not been satisfied before. The social capital developed in communal and inter-communal arenas of cooperative decision-making, interviewees stated, allowed tackling these more complex policies. (see also Gira 2001, 2003; Pauly 2003)

Energy transition

The energy transition in Beckerich is considered as the centre of the overall regional development. It has been subject to academic research (Faller 2015a, b; Carr and Doerr 2014; Doerr 2014), gained public acclaim by being awarded the *European Award for Rural Development* (1996) and the *Eurosolar European Prize* (2008), and has been recognized in international media (Le Monde 2008). The character of the energy transition in Beckerich will be examined in detail in section 7.3, and this section focuses on the role of the energy transition in the wider local and regional



Picture 8: Cover of the canton's monthly magazine Synergie. (Source: Intercommunal Syndicat de Reidener Kanton)

development. Therefore, only essential aspects of the transition will be briefly introduced here, with regards to their significance in the wider regional sustainable development in Beckerich and the canton.

In 1990, Camille Gira was elected mayor in Beckerich after turmoil in the community council. He ran for office on the agenda for a green new deal for the commune, putting energy policies at the heart of his proposal for socio-economic development. Beckerich joined the inter-communal syndicate in 1991, and Gira, together with the president Emile Calmes, used the syndicate to push the topic on the political agenda. The *Komm spuer mat!*²⁷ campaign raised awareness of domestic energy consumption, and was the prelude to the establishment of the NPO *Energieatelier*, a free-of-charge consultancy that advised private households and companies of the canton in energy practices and energy-efficient restoration opportunities. The public campaign gained momentum when the national government planned a high-voltage grid in the canton to satisfy the expected increase of energy demand. Many citizens were opposing the grid for aesthetic reasons and therefore became more receptive to energy saving and renewable energy production.

In 1995, Beckerich joined the *Klimapakt*, a network of communes committed to safe energy and switch to renewables and committed to half CO₂ emissions by 2010. The commune commissioned a study, the *Energiekonzept*, on the renewable energy potentials, which was conducted amongst others by Paul Kauten. Under the motto *Mir hunn Energie!*²⁸ the commune subsequently harnessed synergies between citizens, the private, and public sector to develop a comprehensive energy transition. In 2016, production sites in Beckerich generated 107% of its annual electricity consumption out of renewables, 88% of heat of public buildings is provided by the district heating grid, to which further 200 households are currently connected (Klimapakt 2017). Further, the drinking water consumption of the commune is 20% below national average (ibid.).

In Beckerich, the cooperatively run biogas plant was realized by a multi-stakeholder agreement that ensured the long-term profitability of the plant: The commune committed to buy the heat generated by the plant, while the electricity would be sold directly to the grid. Plans to buy the local electricity grid were rejected by the national government that was generally opposing renewable energy policies in the late 1990's (see Faller 2015 a, b). A district-heating grid continuously expanded, first connecting public facilities, and later extending to public households. Heat-demand grew so rapidly that the commune another plant for heat generation run on woodchips in 2004. Recently, the commune has adjusted its strategy, now aiming to become an energy-positive commune (see EnergiePark Réiden s.a. 2012). A small cluster of renewable energy companies emerged in Beckerich. The *Energiepark Réiden* s.a. is a developer of larger renewable energy plants such as wind parks, as well as technology for energy efficient housing. Its manager is active in several other initiatives, as will be discussed later.

²⁷ English: Let's save (energy)!

Finally, Beckerich has brought forward several national flagship projects in energy-efficient and user-oriented construction. Several buildings in the commune, such as the offices of Energiepark, the sports-centre, and a kindergarten have set nation-wide standards for sustainable construction. The leading architect of these buildings, grew up in the canton and has developed the plans in participatory processes with citizens.

The energy transition in Beckerich plays a pivotal role in the wider transition, as it created capacities on which more initiatives can build (Doerr 2014). The transition stimulated economic activity in the commune, and in the entire canton through a variety of spin-off activities like a eco-construction cluster, and several cooperatively run energy production sites. It created financial gains for farmers, private households and prospectively for the commune²². More importantly for the wider development, however, it's bottom-up character accommodated social learning a social learning process (Doerr 2014; see also section 3.4). The master thesis concluded the most relevant aspects of this learning process to be the recognition of new, or alternative forms of knowledge, an awareness on endogenous strategies for economic development, the local emergence of new forms of interdisciplinary social organization and project management, and trust in key stakeholders. The latter points will be discussed in more detail in the following sections.



Picture 9: Site of the country's first cooperative-run biogas plant in Beckerich. (Source: d'Millen a.s.b.l.)

Diffusion of transformative spirit

The distinction of a time before and a time after the energy transition is more of a conceptual measure than true to the actual chronological developments in the canton. Also, the "branching out" of initiatives in different fields of community cannot be solely ascribed to the social learning process of the energy transition, as it coincides with the beginning of participation in the LEADER program in Réiden. An example for a highly important initiative that is neglected in this portrayal of the local development is the emergence of the country's first eco-system governance program, *Contrat Rivière Atert*, in the mid 1990's.

However, a review of the media coverage on the canton and several interviews do indicate an increase in number of initiatives that address different fields of community after the mid-2000's, when significant technical interventions of the energy transition were completed. Whereas the early 1980's saw changes in policy-making and administration, followed by energy transition, in the mid 2000's sustainability interventions in agriculture, regional financing and solidary economy, as well as environmental education followed.

The community supported agriculture cooperative (CSA) SoLaWa, managing the alternative food network SoLaWa²², as well as the regional currency Beki, managed by the NPO de Kär (the core), are subjects of in-depth analysis in the sections 7.5 and 7.4, while *CELL* is introduced in section 2.1.3. Therefore, the initiatives are not portrayed in detail in this section. Rather, I will briefly discuss their qualitative commonalities and differences regarding the previous phases of transition, as these are part of the prompts for this research project.

These more recent initiatives do not only have in common that they are sustainability interventions in different policy domains such as local economies of energy and agriculture, finance, or education and human-ecological relations. They are also carried by a new generation of protagonists, some of them having deliberately migrated to the canton because of its progressive reputation. These people are strongly interconnected and describe themselves as a large group of friends. This is very important, because, as will be elaborated in depths later in this thesis, the initiatives are strongly interlinked through these people, who are wearing several hats in several initiatives. The "first generation" of activists does promote these efforts with advice and know-how, and facilitates relations to public agencies, but it can be argued that the practical doing of initiatives has been handed over to more and new shoulders. Several interviewees who were already actively engaged since the 1980's supported this analysis.

The initiatives are also integrated in a practical sense. BEKI is for example encouraged as a form of payment by the CSA project SoLaWa and is intended to provide a loan scheme for spin-offs in agriculture. The upcoming platform *Gringgo* will function as an online-based yellow pages for sustainable products and services in the canton.

A further point of commonality is that the recent initiatives extend beyond the commune Beckerich. The regional currency and the CSA require economies on a regional scale, and the 2.400 inhabitant commune is arguably not large enough for the scope of the projects. CELL is the hub of the national transition town network. It pursues projects in the canton, such as the *Earthship* project set on the state land of the Atert-Lycée, agroforestry, and offers workshops to citizens of the canton, but it also is the centre of a national network of initiatives.

To conclude, several projects recently emerged in Beckerich that address different fields of community and extend across the canton. These are brought forward by a new generation of activists and draw on the support of the inter-communal syndicate and the LEADER program.

Failed projects and opposition

Reports and studies about the developments in Beckerich and the canton mainly focus on successful initiatives. Similar to most scientific studies on comparative cases reviewed in chapter 7, the popular debate around the developments in Beckerich and Réiden rarely addressees failed initiatives. However, perhaps it is here where the limits of possibility, or the prerequisites of success are shown. When asked about such failed initiatives in Beckerich and the canton, interviewees mentioned two incidents: An attempted land reform in Beckerich, and a wind-park. Both failed because of strong popular opposition.

The land reform was a project mainly pursued by Camille Gira in the 1990's to encourage land-owners to swap properties to create more coherent parcels. This would have facilitated hiking paths and bicycle lanes and increased the commune's access for organic matter, such as dead wood from forest areas for the planned woodchip and biogas facilities. Interviewees stated that the project did not go through because of farmers' reluctance to change lands that had been in family possession for generations.

The wind-park project reportedly failed because of NIMBY issues²⁸. Interviewees suggested that the project had been designed in an un-participatory manner and that affected groups were not included on in the process. Political pressure of the citizenry mounted to a point where politicians discarded the project. Currently, a wind-park is planned again, and several interviewees were confident that it would go through this time. This will be further discussed in the analysis of the low-carbon transition in the canton in section 7.3.

When asked about opposition to the developments outlined above, interviewees suggested that the strongest opposition would be within the individual communes on the level of the canton, particularly among members of the syndicate. This, however, would rarely have to do with the respective policy-proposals as such, but more with a reluctance to cooperate out of principle. It was stated that the several successful projects brought forward by Emile Calmes and particularly

²⁸ See: gegenwind.lu

Camille Gira created envy among politicians. Often, policies would have been presented in such a detailed and thought-through manner, that there was little room for others to object reasonably. However, over time this would have created a feeling of being dominated. Interviewees who are active in more recent initiatives stated that since Calmes and Gira had left their positions in the canton, several initiatives connected to them, especially the Beki, were under scrutiny. Several interviewees stated that the public figure Gira was unpopular among farmers, because of environmental protection policies they felt were undermining their sovereignty on their properties.

2.2.3 Relevant political organizations on the local and regional scale

The above sections introduced three arenas of collective decision-making that are crucial in the development of public infrastructure and grassroots initiatives in the canton: the consultative deliberative commissions, the inter-communal syndicate, and the LAG of the LEADER program. This section introduces these institutions in-depth, while others, as the Klimapakt, are not included here, because they only affect individual, but not all initiatives.

The three institutions are closely interrelated and complement each other in the (re-) production of initiatives in the canton. In several cases, such as the Beki or SoLaWa, the concept of the initiative emerges in the KomEcoRura in Beckerich. This commission for the development of the rural economy functions as a local think-tank where diverse stakeholders develop solutions for local problems, such as the economic decline and social alienation of many farmers in the case of SoLaWa. The projects are then introduced to the LAG, where LEADER resources can be sought to make feasibility studies and jump-start the project. The required co-financing often comes from the commune Beckerich. If the project is deemed successful and beneficial for the canton, it is transferred to the budget of the syndicate. The presidencies of the syndicate and LAG therefore are crucial strategic positions for the regional development. Until recently, Camille Gira and Emile Calmes have worked as a tandem as presidents of the LAG and the syndicate respectively. Both have left the positions, which are now taken up by Gerard Anzia and Thierry Lagoda, who hold the presidency and vice-presidency of both institutions.

Deliberative commissions

In the early 1980's Beckerich introduced the deliberative commissions that would act as advisory bodies to the community council. These commissions are arenas of collective vision development and have been the nucleus of various initiatives in Beckerich and the canton. A commission is a forum where diverse stakeholders of the municipality can come together and develop collective solutions for local problems. Further, the commissions' function as amplifiers for a local discourse, as members of the commissions would discuss subjects with family and friends.

At the beginning of each legislative period, all citizens of Beckerich can join town hall assemblies, where the most important themes for the upcoming five-year-periods are discussed and chosen

(internet connection, migrant integration, childcare etc.). A number of themes are selected, and workgroups of citizens build to develop visions that would be presented to the community council. In each workgroup is at least one member of the council to ensure constant communication between the bodies. Camille Gira stated in an interview from 2001 that about 60 citizens were working in 12 different commissions.

The inter-communal syndicate de Réidener Canton

De Réidener Kanton is an inter-communal syndicate that consists of the 10 municipalities of the canton. It was established in March 1990 by five municipalities, and as of the last accession of Useldange in 2000 covers the administrative area of the canton (de Réidener Kanton 2014). It realizes the principle subsidiarity, as it empowers communes to provide public services and infrastructure in the canton that no member can provide alone, without being directly reliant on government subsidies or intervention (Calmes 2003). The goals of the syndicate are to increase the attractiveness of the canton by increasing the quality of life, to maintain and support economic activities, respecting environmental protection as transversal value, and to include public and private associations as much as possible (ibid.).

Every commune contributes between 5 to 10% of its budget to a common syndicate budget, and the shares of revenues and expenses are distributed proportionally to the members' population. The decision-making body of the syndicate is a committee of 22 members. Each commune is represented according to size, with the largest communes Rambrouch and Beckereich having three representatives, Préizerdaul two, and Ell and Wahl one representative. Two members of the executive body, the syndicate's bureau are also members of the committee (de Réidener Kanton 2018).

Emile Calmes has been president of the syndicate between 1990 and 2010, followed by Camille Gira between 2010 and 2013. The current president is the



Picture 10: The syndicate is located in the representative building of Reiden municipality.
(Source: Syndicat Intercommunal de Reidener Kanton)

mayor of Beckerich, Thierry Lagoda, with Gerard Anzia, a former green MP and community council member of Useldange being vice-president. The council decides on the budget positions, e.g. the projects to be financed. For individual projects, such as the nursing home or the Energieatelier, government funds are accessed. The national government does not contribute directly to the syndicate's budget.

Local Action Group Atert-Wark (LEADER)

In order to apply for LEADER funds, regional public-private partnerships develop strategies and concrete projects to address local needs by harnessing local synergies in seven-year funding periods. LEADER funds co-finances projects and thus allow for policy experimentation that might not occur if the individual projects were competing with ordinary budget positions of communes. It further encourages knowledge exchanges between European regions.

Since the funding period 2014-2020 the LAG has split with the previous partner canton Wiltz and is now almost congruent to the canton and the syndicate. Atert and Wark are names of two rivers in the area. At the beginning of each funding period, the LAG conducts a SWOT analysis of region and develops strategies to address specific needs in the area's population, economic development, energy, social infrastructure, leisure and tourism, and nature and landscape. This analysis is basis for a development strategy based that is into concrete projects. (see [de Réidener Kanton 2015](#)). These strategies and workshops are developed in inclusive workshops of commune representatives, around 20 associations of the region, and representatives from higher national administration. Professional external moderators facilitate the workshops. For every seven-year funding period, the LAG develops a program to be implemented. In this program, specific initiatives are proposed in detail, including their estimated costs, included stakeholders, output, etc. Luxemburg today has five LEADER regions, while covering not the entire country. As in other countries as well, the funds are delegated to the ministry of agriculture and from there redistributed to the LAG and individual projects (Ministère d'Agriculture 2011). This, as will be shown later, does give the national government and administration options to intervene in projects.

The LAG is governed by a committee, or governing board. Following the guidelines of the EU, more than half of the committee members are from the private sector or civil society associations. The executive committee consists of three people, two of which, Gerard Anzia (president), and Thierry Lagoda (vice-president), hold the same positions in the inter-communal syndicate. The LAG has a *Chef de File administrative et financier*, which is endowed with the task of administrating the projects, representation the LAG, and managing the LAG contact point. In the canton Réiden, this function is given to the syndicate, as the goals and strategies are similar.

Among the projects envisaged for the current period are: SoLaWa, further development and electrification the regional currency Beki, a regional mobility concept, a job integration program, a

development of a digital centre of local history, and a regional marketing platform to increase the visibility of goods and services produced in the canton.

2.2.4 Individual leadership, communities of practice, and the silent majority

It may have become clear by now that the nature of the case and the ambition of the research project pose difficult ontological questions. The outlines of these are drawn in this section, as we go into the development of the research complexes. The ontological approach will be gradually developed throughout this thesis, notably in the introduction of site ontology (chapter 5), and the constructivist research paradigm (chapter 6).

The above-presented account of regional development offers intriguing research opportunities for different ontological lenses. An agency perspective may help explore the interplay of different stakeholders' pursuit of interests and mobilization of resources. It would feed into the narrative ascribing much of the achievements to the individual leadership of Camille Gira and the complementary engagement of a variety of actors as Emile Calmes, Paul Kauten, Albert Goedert, and several more. A view on formal and informal institutions could be informative in describing the development as the emergence and reproduction of norms, knowledge, and visions. Several interviewees have highlighted the transversal implementation of sustainability-values in the syndicate and the LAG. These could be perceived as formalized institutions that re-produce a specific vision for the regional development and knowledge on how this vision may be pursued. A structural approach may for example be constructive in exploring how the governance culture in Luxembourg enables or hinders the transition in Réiden, or how actors in the canton develop their own institutions to expand to capacities of pursuing their interests.

In exploratory interviews, participants were asked to describe the social conditions that enabled the entire development, as well as individual initiatives. Nearly all interviewees emphasized that the individual leadership of Camille Gira was the key factor for the transition. Many described him the "horse that pulled the cart", as the person who could create public consent for ideas and projects. However, these ideas and projects were developed in multi-stakeholder networks and organization such as the deliberative commissions and the LAG. It can be assumed that the role of these arenas, increased over time, and that more people have become engaged local politics than before.

When asked if he saw a change of values in Beckerich, such as post-materialistic attitudes, Gira described the situation: "I would not overestimate this. To gradually change a community of 2.300 people, you do not need 51% behind you; that is not necessary. (...) What you need is a solid core-group. I would say that in Beckerich we have 100-150 such people, who are somehow involved, in committees, or workgroups, associations, and so on. For the rest, you need a silent majority that grants you the opportunity to experiment with innovative projects over and over again. That's how

it worked²⁹.” Further, Gira argued that his role had changed over the years, from an initiator who designs and proposes policies, to a facilitator who brings people together, as a steward of synergies.

Not one ontological lens briefly considered here does justice to the entire transition, but highlights certain aspects and neglects others. This has two main reasons: For one, the degree of involvement in the transition initiative can be imagined as concentric circles around initiatives in different fields of the community. An initiative as the Beki can be imaged as arriving in Beckerich as an idea, a nucleus around which an engaged core group emerges. The initiative is managed by an NPO of 96 member-businesses, who are not actively involved in the management, but participate in workshops and assemblies. Further, there are the clients and employees of these businesses, without whom the initiative would not work and produce its desired effects. Finally, there is a silent majority that accepts the initiative by financed by a common budget of the inter-communal syndicate. The second reason is that the role of individuals and organizations change over time. An ontological lens that may be appropriate in to address a research question in one phase of the development, may be unsuitable in another. Individual leadership, as the development of Camille Gira’s role indicates, may have become less important, as the transition is increasingly distributed to more shoulders.

To conclude, the actor constellations and transition institutions have changed over time and vary among initiatives. A research project that wants to examine how transition is done in the canton, needs to be aware of the impact ontological choices have on the explanatory power of the resulting analysis. The ontology will therefore gradually emerge through the following chapters, while the exploratory findings presented above suggest looking at different degrees of constellations of people doing things together, rather than focusing on individuals’ agency.

2.2.5 Synthesis

Against the backdrop of the highly unsustainable political economy of Luxembourg, the development in the canton Réiden, and especially in Beckerich, seems remarkable: In the world’s richest democracy, deeply entangled with global finance, a regional currency emerges; in the country with the second highest ecological footprint worldwide and the lowest rate of renewables in Europe, communes achieve net balance of energy consumption out of local renewables and aim at becoming “positive energy communes”; in a country that imports 98% of its foodstuff, a comprehensive cooperative agriculture scheme emerges; and in the country where governmentality is

²⁹ German: „Ich würde das nicht überbewerten (den Postmaterialismus in der Gemeinde. Anm.). (...) Um eine Gemeinschaft von 2.300 Leuten nach vorne zu bringen, brauchen sie keine 51% hinter sich, das ist nicht nötig. Sie brauchen (...) einen harten Kern. Ich schätze jetzt in Beckerich, 100 bis 150 Leute würd ich mal sagen. (...) Die irgendwie beteiligt sind, über Ausschüsse, über die Leute, die für die Gemeinde arbeiten, auf dem Gemeinderat und in Vereinen und so weiter. Und für den Rest brauchen sie eine schweigende Mehrheit, die ihnen die Chance gibt, immer wieder neue und innovative Projekte auf den Weg zu bringen. So hat das funktioniert“

described as neo-corporatist, technocratic and nepotistic, new forms of participatory local governance are practiced since nearly 40 years.

The initiatives introduced above have measurable local impact, as will be elaborated further in chapter 7: The water quality of the Atert has improved, the CO₂ emissions have been highly reduced, the local production of renewable energy has increased, the turnover of Beki raises steadily, and SoLaWa diversifies very fast.

The rural development affects national politics. Several initiatives, such as the implementation of consultative commissions, the ecosystem governance program, and the Energieatelier are copied by other communes or taken as best practices by the national government. Camille Gira's personal raise to state secretary is another indicator of this, as is the establishment of the national transition network hub Cell.

Certainly, the Luxembourgish governance culture has contributed to the developments in the canton: On one hand, the communes and citizens had to cooperate to satisfy their needs for public services in the early 1980's, on the other, several initiatives are reactions to attempted government intervention in the canton or perceived shortcomings of the Luxembourgish political economy. Several interviewees highlighted the importance of the syndicate and the LAG in addressing local needs with local resources, and in protecting them from top-down interventions.

The above-appraisal of the rural development in Réiden centres on the contextual conditions through which several sustainability-oriented grassroots initiatives emerge. It does however not elucidate the politics of doing the initiatives, e.g. the strategies and practices of deliberation, or project management. Compared to other places with a similar comprehensiveness and density of transition initiatives, like Totnes in the UK for example, Beckerich and the canton do not show an overall green or alternative culture. When driving through canton, it seems an utterly average conservative rural area. How does it happen then, that its citizens get behind policies and initiatives that, at their time of emergence, are often perceived as heretic by national administration and government? How does a young green mayor recruit conservative farmers to participate in risky and innovative projects that are cutting edge in European rural development? And how did it happen that the transformative spirit diffuses in other economic sectors, places, and the citizenry?

2.3 EXPLORATORY FINDINGS AND RESEARCH QUESTIONS

This section marks the beginning of the research design in this thesis. The previous introduced the research case by discussing the national backdrop and gave an overview of the rural development over the past 40 years. This section develops the research questions that guide the research design.

It argues for the relevance of the case with regarding geographic debates on sustainability transitions, rural development, as well as sustainable development in Luxembourg (section 2.3.1). The terms physiognomy and physiology of oral history refer to the structure and the mechanisms in the accounts of the rural development introduced in the above section 2.3.2. Section 2.3.3, finally, develops the research questions of this thesis, while section 2.4 lays out basic requirements for the research design and presents for grassroots initiatives to be analysed in-depth for answering these questions. As this section breaks with the narrative of this chapter and introduces the personal thoughts and interests of the researcher about the case (see chapter 6.1 for positionality of the researcher), this section is partly written in first-person.

2.3.1 Relevance of the case for recent scientific debates

The case of Réiden is highly relevant to the assertion made in section 2.1 that a sustainable society will not be achieved until the wealthiest citizens have (re-) learned to live more sufficiently, and that many promising new initiatives in this field come from rural grassroots engagements fostering socio-economic and ecological resilience. In the context of sustainability transitions the case is insightful, because not only are the initiatives brought forward here experiments for transforming (basic) economic sectors and policy domains, but they do so by preserving and expanding democratic institutions. The rural development in Réiden can thus be understood as a sustainability transformation that does not sacrifice liberal values, but the initiatives are and attempt to preserve and expand them through transformation. The case therefore speaks to at least three debates in geography: It is a success story of rural development (see also chapter 4.2), it is a unique case of studying interrelated sustainability initiatives (see chapter 4.3), and it strongly influences the political landscape in Luxembourg, particularly regarded local governance and sustainability transformation. In this regard, answering the questions at the end of the previous section may not only improve our understanding on the developments in Beckerich, but also inform the on-going discussion of the great transformation western industrialized societies have to perform in general.

Two aspects of the rural development in Réiden seem particularly relevant with regards to the discourse on local sustainability transitions in geographic research²⁴. First, the case is as a unique opportunity to explore a long-lasting transition process in the same place, by a citizenry that does not seem to be a homogenous sustainability-oriented community, like they may be in eco-villages (respective case studies are discussed throughout chapter 7). Second, transition here does not manifest as a process that “scales-up” and diffuses to other places, or higher levels the political economy, but as a process that “branches out” into different policy domains or economic sectors with the same place. This will be elaborated on further in the following section.

2.3.2 On the physiology and physiognomy of the rural development in oral history

The case is not well documented, and grey literature is scarce. The basic condition for this research project therefore to gain insights from people's personal accounts. Therefore, I decide to use analytical concepts that help structuring and elucidating the information given to me, and not approach it with ready-made conceptual stencils (see chapter 6 for a discussion of the research paradigm).

For this, I need firm foundations in two aspects. One hand, I need to choose an ontology that is adequate for the way people structure their memory of the development in order to build an analysis that would be truthful to their accounts. On the other hand, I need to understand what the qualitative drivers of the transition are. As indicated above, I assume that merely looking at institutions, organizations, and individual agency would not elucidate the quality of the development, as they do not help to understand how and why people enroll in the initiatives that are provided by these entities.

Therefore, at the outset of this research, I will in the following review the data gathered presented and analyzed in Doerr (2014) and several exploratory interviews conducted at the beginning of this research project. The results lead to the development of the working hypotheses and questions that are introduced as research complexes in the following section 2.3.3.

In the following, I will present the findings of this exploratory phase that guide me to the research complexes. I use the term *Physiognomy* to introduce findings that refer to the structure of people's memories, e.g. how the transition is presented to me. *Physiology* of the transition assembles references to the qualitative drivers of the transition, which are often more implicit in people's narratives. The two research complexes that guide and structure of this research project are developed from these discussions of the physiology and physiognomy of the local narratives about the regional development.

On the physiognomy of the transition in oral history

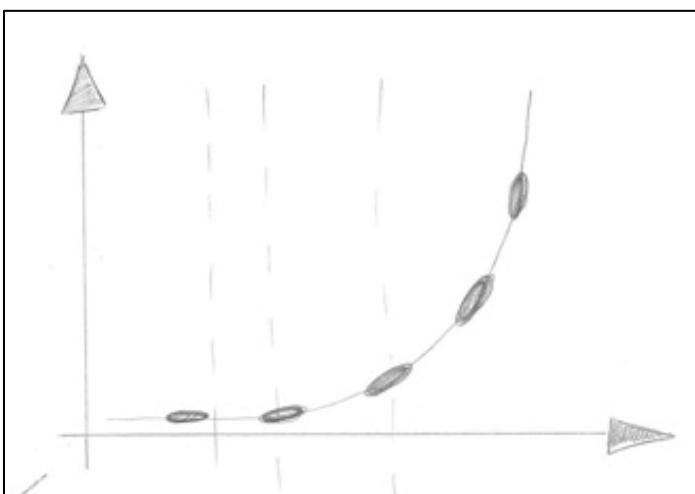
Physiognomy refers to the practice of deducing from something's outer appearance to its character. In this regard, two aspects particularly caught my eyes as I went through the transcripts of exploratory interviews and reviewed Doerr (2014): A) the portrayal of the transition as a sequence of initiatives, and B) the assumption of a diffusion and exponential development of the transition. Both are briefly discussed below.

When asked interviewees to share their memories on the transition, they often structured their narratives around sustainability interventions in distinct policy domains, or fields of the community. Similar to the introduction of the history of the transition, these narratives begin with describing the changes in policymaking, followed by the energy transition, the regional currency, and the alternative food network. Even though these initiatives are running synchronically, the character of

most interviewees' narratives is that of a sequence of initiatives, ordering by their order of conception. I refer to this as a *string of pearls narrative*. This finding is crucial for the ontology chosen for this case: Instead of looking at individuals' agency, the diffusion of values, or institutions, or enabling and disabling structures, I decided to focus in initiatives of people "doing things together", and examine the development through the relations of these initiatives.

Several protagonists of the early phases of the development suggest the transition to grow increasingly comprehensive and progressive. Sustainability has become a common transversal value in local politics that would not be questioned anymore, and the increase in number and variety of the initiatives. The exponential curve drawn by Camille Gira, suggesting a *lock-in towards progressiveness*, is a visualization of this assessment. This narrative suggests prefigurative and cumulative effects among the *string of pearls* that would continuously increase the communities' capability to produce further sustainability interventions.

As a consequence, the physiognomy of the rural development can be described as several initiatives in different fields of the community, or policy domains, prefiguring and partially constituting each other, so that their overall number and effect increases. The transformation can therefore be imagined as an expansion of sustainability interventions in different fields of community, or policy domains, over time (see picture 13 on the following page). As will be discussed in chapter 4, research on similar initiatives as those presented above often examines their impact in terms of the changes it stimulates in people's behaviour, and the way they affect local, and higher-order institutions.²⁵ To my best knowledge, this is mostly due to the fact that these research projects tend to look at singular cases in distinct places. The research case at hand offers an intriguing opportunity in this regard. None of the initiatives mentioned above, such as agriculture coops, community energy projects, or regional currencies are unique to the canton. However, there is very little research on how such interventions in different policy domains interact with each other. In this regard, the case offers a special opportunity to assess at the effect and impact of such initiatives: By examining how an intervention in one policy domain, or economic sector prefigures, and co-constitutes interventions in others. This idea informs one research complex of this thesis.



Picture 11: Replica of Gira's visualization of the *string-of-pearls narrative*.
(Source: Author's own)

On the physiology of the transition in oral history

Physiology refers to the functions and mechanisms of a system; in the context of the rural development in Réiden it captures how the transformation is done politically. To address this aspect, I held six exploratory interviews with key protagonists in the canton. I asked them about their motivations, project management methods, and strategies of enrolling people. The latter point is especially important for the more recent initiatives Beki and SoLaWa, since a large number of people and economic actors have to participate with in their daily routines for the initiatives to become effective.

As I compared the accounts of the interviewees, I recognized that the motivations of people participating in the same initiative seemed very different, and at times even divergent. Further, I noticed that the motivations participants would share with me were differed from those they would share with other participants or the wider public. Camille Gira stated that when he lobbied for the development of a district-heating grid in Beckerich, he never mentioned climate change, because he knew it would not have convinced several people to act. Rather, he used populist statements about international dependency and autonomy to convince people to take action.

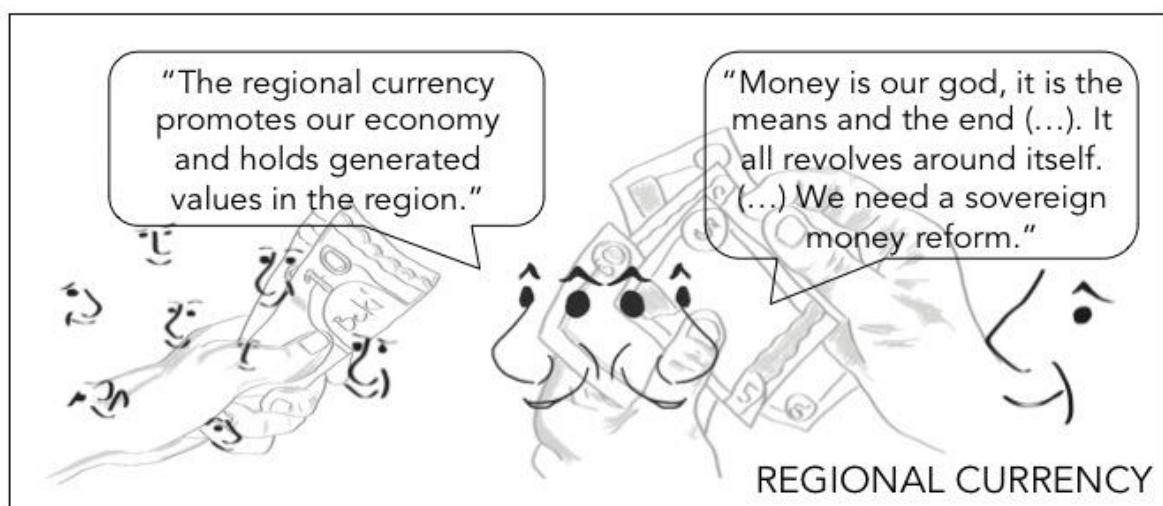
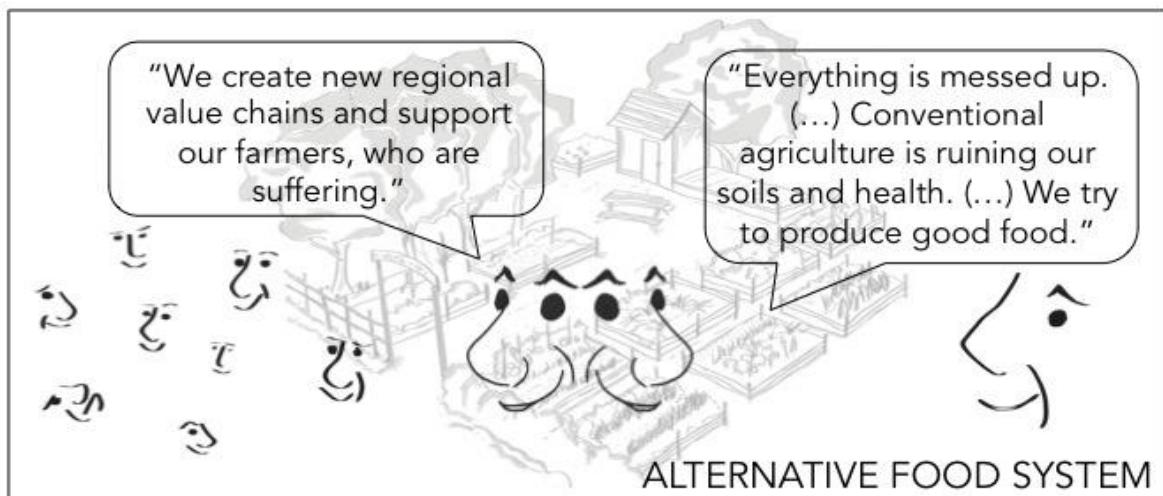
I concluded that the initiatives were far from being intentional communities of people sharing a homogenous sustainability mind-set, but rather pragmatic communities that align very different intentions in practice. It seemed that they the initiatives were designed to accommodate a range of different motivations and interests of people required to carry out the necessary function. Only because participants have an idea about what others expect from an initiative, they can co-creative them so to satisfy each other's expectations



Picture 12: Visualization of the rural development sustainability experiments in different fields of the community, or policy domains. (Source: Author's own)

The comic strip of picture 17 in the following page is a representation of this finding that I have used for conference presentations. For the policy domains of energy, agriculture, and finance, it presents quotes of interviews with protagonists from each initiative, one side capturing how the interviewee described his/ her motivation to me, and the other capturing how the same person promotes the initiative in the general public. The constellation of these extreme quotes deliberately exaggerates the communication about initiatives for the sake of argument. However, I do believe that the ability to communicate based on a deep understanding of others' motivations, and the skill to evoke others' motivations in a way that enrolls them in an initiative that then satisfies both motivations, is a key aspect to understanding the phenomenon of transition in Beckerich and the canton Réiden.

As will be shown in chapter 4, geographic research on grassroots initiatives similar to those in Beckerich and the canton Réiden, such case studies on the transition town Totnes in the UK, or German and French eco-villages, rarely touches upon this aspect of diversity and divergence of motivations of citizens and participants. Further, research on such cases often assumes intentional communities, e.g. people bringing forth sustainability intervention because they share similar sustainability ambitions. These exploratory findings challenge this idea, and instead suggest that the initiatives in the canton are brought forward in rather pragmatic actor constellations that address common problem or needs together. I believe that this is a crucial aspect for understanding the development in the canton Réiden, and a perhaps more mundane perspective on transition initiatives, that is rarely acknowledged. Therefore, the aspect of purposeful, or symbolic communication and interaction is a trajectory of this research project.



Picture 13: Comic strip pointedly contrasting the arguments for participation by protagonists used in public deliberations (left) and in interviews with the researcher. (Source: Author's own)

2.3.3 Research complexes examined in this thesis and selection of the research sample

The research project addresses two complexes of working hypotheses and guiding questions that draw from the discussions above. These research complexes (RC) hold that the grassroots initiatives are markers and drivers of the overall sustainable rural development (RC1), and that these are made possible by the capability of the local communities to align diverse motivations in sustainable practice (RC2).

Research complexes

The research interest is to better understand how transition is done in Beckerich and the canton. As grey literature on the case is scarce, the main source of information are the accounts of locals. The research design is therefore constructed with respect to the character, or physiognomy of the way they remember and recount the rural development, notably as interrelated sustainability interventions in different policy domains. Consequently, progressive initiatives that are qualitatively different to the traditional set-up of the policy domain, such as the CSA in the agricultural domain, move to the focus. Further, these initiatives are functioning alternatives with a significant impact in a policy domain where sustainability transformation is needed (see section 2.1). Other initiatives become less relevant for in-depth research. For example, the public swimming pool that was established by the syndicate may have contributed to the overall process by increasing protagonists self-efficacy but is not considered a progressive intervention in a specific policy domain, or economic sector. The character of the sustainable rural development will be examined at the example of progressive initiatives in different policy domains, by their internal set-ups, and their relations to one another (RC1).

RC2 looks "into" the initiatives and examines their physiology. Exploratory research suggests a much more differentiated picture than the general narrative about the transition itself, as well as the scientific discourse, regarding the intentionality, or "transformative spirit" of the development. It appears that it is not so much shared common visions that bring people together, or homogeneous interests and motivations, but the ability to design initiatives in a way that they align and satisfy a range of at times conflicting interests. RC2 consequently explores the character of these different interests and motivations, described as social perspectives, in selected initiatives, and tries to identify patterns of the constellations of social perspectives among selected initiatives.

RESEARCH COMPLEX 1 (RC1)

Working hypothesis 1: The diverse grassroots initiatives in different sectors are linked, and prefigure one another (through people, materialities, understandings, norms, activities etc.). Understanding these links is the key to understanding the entire transition.

Guiding question 1: Through which elements are the initiatives linked (understandings, people, materialities, activities) and what is the character of these links (constitution, prefiguration, causation)?

RESEARCH COMPLEX 2 (RC2)

Working hypothesis 2: The initiatives are bought forward by heterogeneous actor groups, holding different motivations, beliefs, referred to as social perspectives. Unlike the dominant narrative on the development suggests, it is not the intentionality of the group that allows the transition to occur, but the capability to align at times divergent interests in practice.

Guiding questions 2: What are the social perspectives within the grassroots initiatives? How diverse are they? Are there patterns in the constellation of social perspectives among the initiatives?

Selection of initiatives

On the following page, each initiative is listed with the policy domain it addresses, the realm of phenomena or scientific concepts it is part of, and the managing institution that sits at the heart of its network. Other initiatives, such as CELL, the Gringgo platform, economic zones, or the eco-construction cluster have not been included, because they do not fulfil all the above-introduced criteria.

In order to address the research complexes, four initiatives of the canton are chosen for in-depth research (see chapter 7). These have been chosen according to the following criteria: First, they need to be on-going so that ethnographic observation can be used for triangulation of findings. Second, they need to address interventions in distinct policies domains, so I can explore the hypothesis of various initiatives relating to one another across policy domains, and thus driving the overall sustainable development. The energy transition would have provided a range of initiatives in and of itself, but they may not have helped to do justice to the 40-year process. Third, they need to have a direct and immediate impact in the canton and be brought people living there. Initiatives that aim at influencing the national scale, or distant other places will not be considered. Fourth, they need to address policy domains, where sustainability transformation is urgent (see section 2.1). Finally, the interviewees in the exploratory interviews need to have mentioned them frequently. These criteria lead to the selection of four grassroots initiatives in the canton, which are sustainability interventions in distinct policy domains.

CONTRAT RIVIÈRE ATERT

Policy Domain: Nature & Environment
Phenomenon: Ecosystem governance
Managing institution: Maison de l'Eau NPO



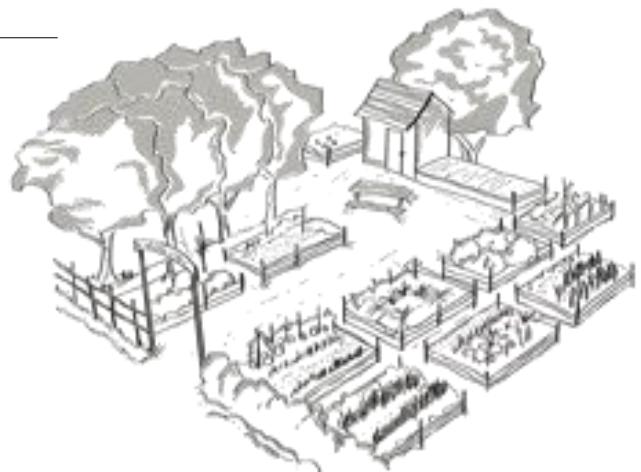
ENERGIEATELIER

Policy domain: Energy, agriculture
Phenomenon: Low-carbon transition, citizen energy
Managing institution: Energieatelier NPO



SOLAWA

Policy domain: Agriculture
Phenomenon: Alternative food network
Managing institution: vun der Atert s.c.



BEKI

Policy domain: Finance, economics
Phenomenon: Ecology of money, Regional currency
Managing institution: de Kär NPO



All sketches are author's own.

2.3.4 On the research design and structure of this thesis

The structure of this thesis is unorthodox. In this chapter I give an exhaustive introduction to the research case and developed the research questions with little dialogue with debates in geographic research. However, such literature has been extensively reviewed in the Master' thesis that prefigures this research project, and that produced much of the above-introduced insights. The relevance of the case and the research questions the geographic debates has been indicated in section 2.2 and will become clearer in the following chapters on societal background theory, philosophy and social theory (chapter 3), and mid-range theories from geography (chapter 4). I take this thesis as an opportunity to experiment with alternative background theories, ontological approaches, and methods to explore research questions an to push the geographic debate not only by contributing new knowledge regarding real-world transitions, but also by advancing the conceptual, ontological, and methodological state of the art of the discipline.

Therefore, this thesis does not set out by introducing current disciplinary debates and the research design, but it will gradually construct the conceptual approach over the chapters 3, 4, and 5. The following chapter 3 introduces a variety of theories from sociology and social psychology, which address phenomena ranging from reflexive modernity, to community engagement, to symbolic interaction and to social learning. These theories shape the conceptualization of the case, notably by refining existing mid-range theories presented in chapter 4. Further, this extensive theoretical review will provide insights that allow the concluding theorization of the case in chapter 4, to introduce concepts from neighbouring disciplines into my geographic theorization of the rural development in Réiden. To translate the concepts developed in chapter 4 into a coherent research design, chapter 5 builds the ontological foundation to address both research questions, drawing on the social practice theory. Chapter 6 introduces the research design.

This chapter has introduced the research case. It gave a brief introduction to the national political economy, and landscape of civil society engagement. Against this backdrop, it introduced the rural development in Beckerich and the canton, and presented key actors, organizations and initiatives. This chapter argued that the rural development can be regarded as a comprehensive sustainability transformation process that spans across policy domains. It developed the two research complexes and introduced the four initiatives to be analysed in this thesis. The following chapter sets the philosophical backdrop of this research and introduces key theories of neighbouring disciplines.

3. ASSOCIATIVE DEVELOPMENT IN REFLEXIVE MODERNITY

This chapter sets findings made above in dialogue with social theory. Specifically, it introduces theories of social change that help elucidate the rural development from different scales, ranging from theories of societal transformations, over philosophies of freedom and associative, to insights from social psychology about deliberation and learning. As a consequence of the sustainable rural development in Réiden, and with regards to the character of the RCs, the theories introduced below are predominantly sociological. More case-specific and mid-range theories will be introduced in chapter 4, and in the analysis of the four initiatives in chapter 7.

The chapter sets out by introducing *reflexive modernity* theory, which holds that western societies are undergoing a transition between two epochs of social development. In this phase of transition, or reflection, new forms of politics emerge in the cracks of the old system. The *Real Utopias Project* contributes an understanding of the character and strategies of these initiatives as they engage with concrete problem situations created by the unintended side effects of first modernity (section 3.1).

The change between two epochs evokes and entails a change of social development paradigms. Notably, qualitative goals become (again) legitimate rational criteria for criticizing current development trajectories. Instead of prescribing new development norms, however, contemporary discourse acknowledges necessity of context-specific and democratic deliberation of development ambitions. The *capability approach* helps analysing how qualitative development visions emerge democratically (section 3.2).

Pragmatism and *symbolic interactionism* look at the contexts, or sites, of these deliberations. Pragmatism holds that local, context-specific problem-engagements are at the heart of collective decision-making, and the emergence of a democratic public in general. Symbolic interactionism elucidates how people align and negotiate their various social perspectives on local development (section 3.3).

Theories of *transformative and social learning*, finally, address the element of progress in the rural development, by attending to the cognitive effects of such problem-engagements. On one hand these theories address the question how action in uncertainty becomes possible, and how people and groups can develop new initiatives. Furthermore, it looks at the learning effects of the practices, arguing that different forms of knowledges can emerge from grassroots initiatives. Such learning effects are a key aspect to understanding the overall rural development as consisting of initiatives that prefigure and co-constitute one-another (section 3.4).

3.1 INTERSTITIAL SUBPOLITICS IN REFLEXIVE MODERNITY

This section situates grassroots initiatives as subpolitics in reflexive modernity. This social theory argues that large parts of western industrialized societies are undergoing transformations, as the unintended side effects of (first) modernity's development dynamics erode the very institutions that produce them. Faced with the resulting risks, such as the environmental catastrophe, a new form of politics emerges from the cracks of the hegemonic systems, referred to as subpolitics. These are context-specific engagements with problem constellations in a cooperative, often civic way, and they are assumed to contribute to wider social change through cumulative effects (section 3.1.1). The *Real Utopias Project* is a long-term global research project that assembles and characterizes various strategies and institutional set-ups of such initiatives. This literature suggests that the initiatives in the canton are interstitial stakeholder arrangements pursuing associative democracy (section 3.1.2).

Drawing on these complex social theories allows conceptualizing of the very diverse grassroots initiatives in the canton from the same theoretical position on wider societal transformation. The local problems that the various grassroots initiatives in the canton address, are regarded as symptoms of this deeper process of reflexive transition between two epochs of human development. Instead of focusing on the policy domains the initiatives address, the logics that drive them, or the character of practices they pursue, these theories allow situating the initiatives in broader currents of social change, as aim at becoming more resilient from these symptoms.

3.1.1 Subpolitics as reflexive modern processes

The theory of reflexive modernity and the concepts of risk-society and subpolitics have strongly influenced the political and scientific discourse on societal transitions over the past 40 years. By analysing the current societal sustainability transformation as the break of a sociological epoch, of which matters like the economic catastrophe or the rise of financial capitalism are symptoms, reflexive modernity renders a very broad theoretical introduction. This will allow perceiving of the highly diverse grassroots initiatives as subpolitical phenomena of the same societal process.

For this thesis, reflexive modernity serves not only as a meta-theoretical approach to social transitions, but it is also essential to the researcher's positionality (see chapter 6.1). It does not look at one specific policy domain, as the economy in the growth debate, or a set of logics of social organization, such as much research on post-capitalist economies. Rather, it allows linking diverse contemporary phenomena to deep, underlying currents of human development. Unlike other social theories with the prefixes "post" (-modernity), "de" (-growth), or "anti" (-capitalist) the theory of reflexive modernity asserts that all these efforts are always (still) inherently modern- including the intention to break away from this epoch. By acknowledging the way modernist (individualistic, rationalist, capitalist, etc.) institutions shape our actions, and the contexts in which we pursue them,

the awareness for the historical significance and complexity of this process increases. Further, it may help to overcome divisive normative categorizations between practices and discourses that are anti-this, and post-that, and others being "still" modern. Approaching societal transformation from the perspective of reflexive modernity may help acknowledging ambivalence and plurality and render a perspective on sustainability transitions that empathizes with the human condition instead of creating boundaries through dissociative moralization.

The following gives a brief overview of the argumentation of reflexive modernity, beginning with the concept of *risk society*. It will then introduce the concept *subpolitics* as a form of civic engagement in reflexive modernity. The developments in Réiden can be understood as reflexive modern processes, while the concept of subpolitics serves as a guardrail to situate the grassroots initiatives in this process of wider societal development and will be amended with insights from the Real Utopias Project.

(First) Modern societies at risk

It is common practice in the social sciences and the humanities to conceptualize the current sociological epoch as modernity. For some, like Jeremy Rifkin (2005)³⁰ this epoch begins with the colonization of time by Benedictine monks in medieval monasteries, and colonization of space by the invention of the perspective by Florentine painters during the renaissance. For writers in the Marxist tradition, as well as Ulrich Beck (1993) and Anthony Giddens (1990), modernity emerges with the age of industrialization, nation states, and global capitalism.

The diagnosis of underlying structures of modernity naturally differs among these writers. Literature on reflexive modernity (Beck 1993; Beck and Bonß 2001; Beck, Giddens, and Lash 1996) identifies a variety of such structures: The societal organization in nation states³¹, the territorial fix of production and management that makes the contrasts between work and capital seemingly tameable, the differentiation of social subsystems (economy, politics, administration, culture, etc.), the hierarchization of societal subsystems of knowledge, and the devaluation of "every-day knowledge" that creates hierarchies between experts and laypersons.

Grassroots initiatives, as will be shown throughout this thesis, can be regarded as engaging with such structures of first modernity: First, in several cases they aim at re-communalizing basic systems of provision, such as food, and energy, or common infrastructure, such as currencies. These are strategies to increase communities' resilience and sovereignty in the given domains. Second, grassroots initiatives crosscut social subsystems. For example, rural energy cooperatives re-define agricultural activities, while traditional activities of food production may become increasingly

³⁰ In this publication Rifkin draws a rather coarse comparison between concepts of freedom in the USA (negative, reckless), and the EU (cooperative, sustainable). It would be intriguing to inquire out whether he stands by this diagnosis, after several consulting missions in EU countries and regions, among them Luxembourg (TIR Consulting Group LLC 2016, see chapter 2).

³¹ Throughout his work, Beck fiercely argued for social sciences to overcome methodological nationalism, e.g. taking the nation state as a key analytical vantage point and thereby reproducing it. This thesis certainly failed to avoid such methodological nationalism on several occasions.

influenced by civil society through community-supported agriculture schemes. Third, as the aim of grassroots initiatives is to address the problems and needs of diverse stakeholders in an associative manner, hierarchies of knowledge are often deliberately deconstructed. In order to harness local capacities as efficiently as possible, these initiatives often aim at complementary integrating diverse knowledges and skills, and de-colonizing reference frames from the logics of the incumbent system they critically engage with. However, reflexive modernity literature highlights that the structures of first modern have over centuries become naturalized and are highly inert (see Beck and Bonß 2001, p. 20). They result in a set of *premises and logics*³² of modernity that also deeply influence discourses of development and sustainability transition- notably those of incumbent actors³³. Among these premises and logics are a concept of nature that regards the ecological environment as being disconnected from society, and that can be contained and exploited according to individuals and society's needs, while negative side effects of these processes can be passed off to nature again. Another premise is that human and social development is pursued on the basis of a scientifically defined concept of rationality, emphasizing instrumental control, that often results in reductionist, and quantitative value judgments (see the discussion of approaches to social development in the following section 3.2). Nature and society are therefore regarded as systematically improvable through such rationality, which is also mirrored in science and particularly in economics. This rationalization further entails an ever-deepening functional social differentiation.

The grassroots initiatives analysed in this thesis are to certain extend critical engagements with these concepts of rationality and functional differentiation, as they embrace complexity and systems thinking, for example in the cases of Contrat Rivière Atert and Beki (see also chapter 3.4). SoLaWa is very much a response to the results of an over-rationalization and functionalization in the agricultural sector as it engages with side effects like soil degradation, social alienation of farmers, and the economic decline of family-owned farms.

A key assumption in reflexive modernity literature is that these structures and premises of modernity inform processes that undermine (first) modernity's institutions. Classic examples here are the erosion of the nation state in times of globalization and cosmopolitisation, the ecological and climate catastrophes that cannot be addressed with an instrumental and functionalist (extractivist) approach to nature, or the corrosion of social solidarity, family structures, and spiritual wellbeing through increasing individualization (see the following section 3.2 on social development paradigms).

³² An aspect not mentioned below is the understanding of societies as capitalist *Erwerbsgesellschaften* . This could be a promising trajectory to examine the societal effects of civic engagement, for example from a diverse perspective- especially in a country like Luxembourg where the wages are so high that the pressure to work full-time for all family members is comparably low. This lies however outside the realm of the research complexes. Further, with the age of digitization, this will become an increasingly relevant driver of the transformation of first modernity.

³³ This is mirrored in the debate on ecological modernization, which is not included in this thesis. Different strategies to address the environmental catastrophe are discussed here, notably a strand arguing for technological fixes, and others stressing the necessity of a deeper cultural change. See for example Mol and Spaargaren (2000) and Christoff (1996).

The most relevant example of such a reflexive modern process in this thesis is perhaps the ecological catastrophe: As its effects increasingly emerge in people's immediate life-worlds, society begins to perceive of itself as being at risk (Beck 1986). However, many of societies' foundational institutions that were developed in first modernity cannot address these problems, and there do not exist widely accepted and functioning alternatives yet. Therefore, the ecological catastrophe is answered with more institutions, more markets, more technology- the very logics that have caused it (Beck 1993, p. 80).

This is what the concept of risk society describes: The awareness that the unintended consequences of our life forms (Jaeggi 2013), and the social institutions that maintain them, undermine the very foundations of human development. The legitimization of state-politics, and the wider political economy of first modernity thus erode in face of inter- and intra-generational conflicts.

Reflexive modernity

Reflexive modernity describes a meta-change of the coordinates, leitmotifs, and basic institutions of the epoch referred to as first modernity, which held truth for a certain time for western industrial societies and welfare states. It describes a phase of development of modern societies in which the social, political, ecological and individual risks that are continuously produced through modernist dynamics and withdraw from established control-institutions. The risks, Beck argues, are not options that can be weighed and taken up or discarded through processes of political deliberation. They are an inherent and inevitable product of autonomous process of modernization that are deaf to their risks and blind to their consequences (Beck and Bonß 2001). The extend and severity of the threat would correlate to the inertia of societies to reflect upon these processes, the authors argue. Simultaneously, Beck holds that these institutions are protected by *organized irresponsibility*: Since everyone is playing the game, no one can be singled out to blame.

The concept reflexive modernity describes the process of first modernity becoming its own subject, of modernity modernizing itself, and becoming something unknown, referred to as second modernity. This, however, would rarely be an active intellectual process of reflection and deliberation on systemic conditions, but more a gradual adjustment to systemic paradoxes and challenges that occur simultaneously in various social domains and on different levels. In this regard the grass-roots initiatives analysed in this thesis can be seen as local contributions to these gradual adjustments.

Within these multiple arenas of reflection, Beck argues, the expectation of unknown and unintended consequences dominates discourses on decisions to be made. Expected future developments thus become an integral part of today's decision making. Beck refers to this as an ontological change in which the dominance of the past is substituted with the dominance of the future. He argues, however, that modernist cognitive meta-structures, notably the conviction that political

change based on reason and legitimization is possible, would prevail. Consequently, in many cases the reproduction of social structures and institutions would cease, as they cannot be supported against the expected and undesired otherness of the future (see Wright's concept of active and passive reproduction in the following section). Reflexive modernity, unlike postmodernity, insists that individual and institutional boundaries have to be drawn new ("as-if") on the basis of changing and plurality of contexts and expectations on the future, and finally institutionalize (transformative learning and action in face of uncertainty are discussed in sections 3.3 and 3.4).

From this point in the line of argument, the literature on reflexive modernity extensively discusses the loss of cultural certainties and process of institutional stratification, which are not relevant for this thesis. Rather, the following concentrates on the conscious processes of reflexive modernity. Whereas the reflexive modernization can be examined as a process of gradual institutional change, it also occurs within individuals' life-worlds. As people would experience the above described consequences of first modernity, and realize that their current life-forms are at risk due to the negative externalities they themselves produce, the present would become "de-realized on face of the expected otherness of the future" (Beck and Bonß 2001, p. 31).

This may have paralyzing effects or evoke cynicism. It can, however, also be an empowering and liberating revelation: If it is certain that the status quo produces an undesired future, one may become less apprehensive and hesitant to proactively engage with change and become more inclined to accept the uncertainties that taking initiative entails. The grassroots initiatives in this regard are efforts of "holding the future together" (Brown et al. 2012).

Subpolitics

Reflexive modernity indicates a change in the social location of the political (Beck 1993), as the negative externalities of our life-forms, which have been widely unpolitical in the industrial epoch, become politicized. In this situation, Beck argues, societal institutions such as governments and corporations would deny their lack of control, as well as their responsibility, and tend to defend themselves with the above discussed mechanisms: More technology, more market, more rationalization.

As citizens become aware of this paradox, they would grow alienated from these institutions and begin democratizing the negative (and positive) side effects themselves (as will become clear in chapter 7, almost every initiative analysed in this thesis has a strong democratizing, and communalizing thrust). In order to engage with such problems, such as soil depletion, or the collapse of public services, ad-hoc institutions of associative decision-making are established. Through deliberation in such arenas elements of the expected undesired future enter public debates- not because they have agents from the private sector, the government, or science who carry them into the public, but because the public themselves becomes aware of them in their own life-worlds.

Similar to Holloway (2010), and literature on grassroots initiatives introduced in chapter 4, the political is imagined to “break open” in institutional voids, aside from formalized competences and jurisdictions, while generally remaining unrecognized by those who equate politics with the formalized political system and traditional careers in the political economy. Grassroots initiatives can be understood as such processes. The following section, introducing Wright's (2010) theorization of *real utopias*, will discuss political strategies and practices of such initiatives in (first) modern political economies.

This thesis follows Beck (1993) in perceiving of politics as any action that affects a community; it is not confined to state politics. Beck develops the term subpolitics as a cosmopolitan dialectics, drawing on John Dewey's (2002) political theory (see chapter 3.3). He argues that the public becomes possible through reflection on the unintended and problematic consequences (of first modernity's institutions) that affect their communities. Dewey had developed his thought in the beginning of the 20th century in rural Vermont, USA. It can be assumed that community for him is homologous the village, or municipality, and higher order institutions are situated at the state and national level, with little media in place to communicate between them. Beck's theory of subpolitics, however, is developed in the age of global communication and mobility. He holds that a reflexive global cosmopolitanism would acknowledge that the consequences of our actions include distant others, whereas the action taken to mitigate the negative externalities would be often local and developed in people's direct geographical lifeworld. This is what Beck refers to as *cosmopolitan dialectics*: Local action out a sense of global relatedness and responsibility.

Beck (1993, p. 157) highlights the importance of political cultural arenas in shaping subpolitics (these will later be referred to as systemic instruments for social learning, see chapter 3.4). Civic movements would increasingly define the topics of the future, often with the resistance of ruling political and economic elites. These elites would remain unchanged, as new topics and practices emerge. Subpolitical organizations emerge in many policy domains, taking many forms of social organization. They differ from traditional politics in the sense that they are brought forward by actors outside of the incumbent political economy. However, Beck holds that subpolitical activists would migrate within niches of identity and activity, while remaining, at least with one leg, in existing mainstream institutions (see the discussion of alternative milieus in section 4.3.2, and the theory-led reflections in chapter 10). For Beck (1993), subpolitics means the shaping of society from below, to protect communities from the assaults of self-assigned elites, from the relapse to authoritarian and identitarian nationalist movements, from the illusion of the invisible hand, without homogenous convictions, without a presupposed master plan. Subpolitics is therefore an ideal starting point to describe the grassroots initiatives in Réiden as it highlights their local and ad-hoc problem-solving character, while acknowledging heterogeneity of motivations, contingency and open-endedness. Further, the concept is descriptive and does not establish normative criteria ex-ante.

The concept subpolitics links several theoretical positions introduced in the following: Like pragmatist thought, it is concerned with action in uncertainty, while acknowledging heterogeneity of visions (section 3.3 and 3.4). Similar to associative Marxism (section 3.1.2), and qualitative freedom theory (Section 3.2), it perceives of political action as protection and expansion of freedom. And similar to the case at hand and the literature on grassroots initiatives discussed in chapter 4, it situates the political in local, community action (see also Mason and Whitehead 2012; Stevenson 2012). The following section presents strategies and forms of organization of such initiatives.

3.1.2 Interstitial transformation and associative reforms

Reflexive modernity and subpolitics describe the breaking out of new collective action in a phase of transition between two historical epochs. This section elucidates the strategies and forms of organization of subpolitical initiatives in greater detail. In the book *Envisioning Real Utopias* by sociologist Eric Olin Wright (2010) introduces a variety of existing subpolitical initiatives around the world that aim at making their respective policy domains more just and egalitarian. Examples range from Wikipedia, to the Mondragon cooperative, and alternative pension fund programs. Comparing these initiatives, Wright outlines a sociological theory of social transformation that builds on Marxist critique to existing social systems, and associative anarchism. The emergence of this new post-capitalist social order is described similarly to the way Polanyi's (2013) *Great Transformation* towards capitalism. Similar to the transformation from feudal societies to market democracies, this process would occur through a variety of uncoordinated de-centralized problem-engagements in different social domains that occur simultaneously across space. However, it is not Wright's intention to extrapolate a utopian society, but rather to promote the understanding of diverse transformative sub-processes that are generally uncoordinated and unrelated, but may potentially contribute to wider social change.

This section discusses selected aspects of Wright's work, while leaving out essential parts such as the extensive diagnosis and critique on contemporary capitalism, the in-depth case studies of existing alternatives, and the variety of (theoretical) options for rearranging the political economy. The focus in the following lies on Wright's perception of associative democracy and economics, as well strategies of change. These are complementary to the theory of reflexive modernity and will serve as foundations to conceptualize of the political strategies found in the Beckerich and the canton. Wright's work lends essential concepts for the internal set-up and institutional relations of grassroots initiatives and this thesis, particularly *interstitial transformation strategies*, and *associative democracy*.

The point of departure for Wright's work is the classical Marxist assumption that human suffering and deficits of human flourishing are the result of existing social structures and institutions. It would therefore be the task of an emancipatory social science to diagnose, critique, and promote

examples of reform of such structures (for an explication of the constructionist research paradigm of this thesis, see chapter 6.1). He argues with Friedrich von Hayek, however, that changing social structures and institutions may cause more harm than the status quo, which would foster inertia to change. This assumption holds special relevance for transition practices in the wealthy country of Luxembourg, as chapter 2 shows. Therefore, the diffusion of examples that work, or real utopias, is essential for promoting social change as they lend courage and reduce the risks of failure for others. The real utopia's project thus follows Claus Dierksmeier's (2016) claim: "Reality proves possibility³⁴" (see section 3.2).

An utopia is a place that does not exist and may never be achieved, but that depicts a guiding vision for social action. Real utopias are existing examples of more just and egalitarian organizations of socio-economic sectors. Drawing on John Holloway (2010), these are thought to emerge when and where hegemonic institutions are weak or leave "cracks" and "windows of opportunity" for alternative action (see chapter 4 for corresponding geographic literature). They are thus reforms that can occur and persist in the existing order among existing institutions. Wright's work develops conceptualizations of these utopias' inner structure, the conditions of their emergence and the pathways in affecting the wider economy.

Wright perceives of three spheres of power and interaction: The state, the economy, and civil society. The state has the power to impose binding rules over a territory, the economy is the sphere of social activity in which people interact to produce and distribute goods and services, and the civil society is the sphere in which people voluntarily form associations for various purposes. Associational, or social power depends on the capacity of people voluntarily associating with one another within civil society. As will become clearer over the next section, this is a crucial factor for social change in general, and the rural development in Réiden in particular, given their character as heterogeneous, and voluntary local problem-engagements.

Seven different ways of how the economy is organized are discussed, and the most relevant for this thesis is *associational democracy*. It "encompasses a wide range of institutional devices through which collective associations in civil society directly participate in various kinds of governance activities, characteristically along with state agencies and business associations. (...) Associational democracy could be extended to many other domains, for example watershed councils which bring together civic associations, environmental groups, developers, and state agencies to regulate ecosystems (...). To the extent that the associations involved are internally democratic and representative of interests in civil society, and the decision-making process in which they are engaged is open and deliberative rather than heavily manipulated by elites and the state, then associative democracy constitutes a pathway to social empowerment" (ibid., 137). The four initiatives

³⁴ German: *Wirklichkeit beweist Möglichkeit*.

chosen four in-depth analysis of this thesis work in this associative way, as they bring together various stakeholders from all three spheres to foster change in specific policy domains.

Some of these initiatives in Réiden seem to aim re-gaining sovereignty over supply chains of basic systems of provision in the canton or re-establish public services. They draw on elements of the *social economy* in pursuing these goals, by establishing social enterprises that serve the common good rather than shareholders, and by defining flat hierarchies and participatory decision-making structures in their statutes (p. 193). Further, part of the initiatives are social enterprises, such as the agricultural cooperative vun der Atert.

Wright's theory of transformation, taking these initiatives as real-world examples, examines processes of *social reproduction* to conceptualize how initiatives affect their wider social environment. The concepts developed here are highly informative for understanding the case Beckerich. Social reproduction "describes how people's subjectivities and mundane practices are formed in such a way as to help stabilize a social system" (ibid. p.274). Most complex institutions serve a variety of functions and rely on forms of active and passive reproduction simultaneously. Wright holds that "social structures and institutions that systematically impose harms on people require vigorous mechanisms of active social reproduction in order to be sustained over time." (ibid., p. 276) Passive reproduction can be disrupted when institutions that shape daily practice contexts are themselves disrupted, which may pose a crack in the hegemonic institution, and open a window of opportunity for subpolitical activities. Several initiatives in the canton Réiden are linked to such events in the interviews. For example, the low-carbon transition was to an extend triggered by a local movement that evolved around the resistance to a high voltage grid. Many citizens were unsatisfied with government's energy policies and felt it was harming their landscape aesthetics. Therefore, citizens developed new local social practices and institutions to satisfy local energy needs to gain sovereignty of the positive and negative externalities of their energy regime.

Social reproduction is conceptualized to occur along four dimensions, two of which hold relevance for the case. The *reality of harms* describes the embodied lived experience of negative externalities, without necessarily having the full knowledge about their causes. This is a key aspect to pragmatist action theory, as well as transformative education theory (see sections 3.3 and 3.4), and crucial for understanding how abstract problems can trigger local action, such as in the canton Réiden. *Human capacities and motivations* capture the initiative people take to do something about these harms. When the harms have social causes, this would lead to people critically engaging with the institutions deemed responsible. The concept capacities and capabilities will be further discussed on under development paradigm capability approach in section 3.2.

Constitutive elements of social reproduction are *material interests*, e.g. mechanisms that tie the welfare of individuals to the effective functioning of (capitalist) structures, and *leadership*. The latter concept is not in the analytical focus of this thesis, but certainly important to the overall

development in the canton. Wright assumes with Gramsci that leaders are followed because people believe that they are on their side, have their interests at heart, and share a common vision of a good society. As discussed in chapter 2, much of the catalytic energy of the developments in Beckerich is attributed to the leadership of Camille Gira. For all initiatives in the canton, protagonists' ability of communicating and designing initiatives in a way that enrolls a wide and diverse range of citizens is crucial. This is addressed by RC1 and the corresponding background theory, symbolic interactionism, is discussed in section 3.3. Finally, Wright conceptualizes of three grand strategies of transformation. Everyday real utopian initiatives are often hybrids, drawing these tactics of in these to achieve their goals:

Ruptural transformation:	A radical break and overthrow of existing institutions, associated with the socialist communist traditions. Smash first, build second. A ruptural seizure of (state) power (<i>smash the state</i>).
Interstitial transformation	Build new institutions in the cracks of the systems. Drawing on associative anarchism, this strategy emphasizes the importance of "building now" in the cracks of the systems (<i>ignore the state</i>)
Symbiotic transformation:	Use existing institutions in ways that solve problems, to build alternatives (<i>use the state</i>).

Although there is no explicit indication for anarchist thought in the exploratory interviews with local protagonists, most initiatives in Réiden seem to follow the logic of interstitial transformation, as they strategically use existing institutions to build local alternatives. All initiatives are pragmatic incorporations of stakeholders from government institutions, the private sector, and civil society. The impetus to establish these initiatives often comes from civil society arenas, such as the deliberative commissions in Beckerich, or the LAG where all stakeholder groups discuss initiatives together. In several cases these can be understood as local reforms in policy domains, that emerge when the hegemonic institutions are weak, or the locally felt harm assembles a mass of citizens that is large enough to build new institutions locally, such as the Energieatelier, the water governance program, and the inter-communal syndicate.

Wright closes with a list of lessons about social transformation pathways: Initiatives, especially when they are economic structures will most likely be hybrids, drawing on different logics and social arrangements, and they pursue a multiple pathways of social empowerment that may change along the journey and different across policy domains. Finally, *strategic indeterminacy* highlights that there are multiple institutional forms through which social power can be increased, and there are multiple logics through which these institutions can be constructed and advanced. These will however depend in the continuous and deliberate efforts of engaged citizens, who take initiative

regardless of the inherent opacity of the future and the limits of their possibilities. It may well be that the future envisaged by the initiatives, including those examined in this study, are not workable solutions in other places, and that protagonists' sustainability goals are simply not viable for wider society. Wright (2010, p. 373) closes "The best we can do, then, is to treat the struggle to move forward on the pathways of social empowerment as an experimental process in which we continually test and retest the limits of possibility and try, as best as we can, to create new institutions which will expand those limits themselves."

This is an important perspective to the rural development in Réiden: As an experimental process, and emergent production of alternative local institutions that expand the local capabilities to bring forth emancipatory initiatives in different policy domains. These, however, may not be workable in other places- or adequate to address the needs in Réiden in the long-term.

3.1.3 Discussion and relevance for the case

Reflexive modernity theory diagnoses contemporary western societies to be in a transition phase between two epochs of social development. It holds that premises inherent to our understandings of social development in (first) modernity, specifically an instrumental understanding of nature, the equation of individualization with individual freedom, the hierarchization of knowledge systems, and a standardizing, scientifically defined concept of rationality to measure social development, are producing unintended consequences that erode these very institutions. Among these consequences are an increasing sense of being at risk on a global scale in various domains, such as the ecological catastrophe, an emergent cosmopolitan understanding of global relatedness and responsibility, and a socially corrosive and spiritually destructive form of individualization. The concept of subpolitics captures the emergence of new forms political action of the breaking out besides and below incumbent institutions of the political economy. Grassroots initiatives, such as those in Réiden, responding to similar phenomena of institutional erosion and risk reflexive modernity theory describes, can be seen as such subpolitics (see also Stephenson 2012; Mason and Whitehead 2012).

The Real Utopias Project traces examples of these new economic configurations around the world, as they emerge in the cracks of the old system. Based on empiric studies, identifies patterns of such (not only place-based) initiatives' strategies to engage with the structures of first modernity. Further, Wright (2010) characterizes various new forms of social organization set up between stakeholders from the state, civil society, and the private sector. Some of the cases analysed by Wright (2010) correspond to Beck's diagnosis of subpolitics: They are associative and interstitial in the sense that they engage diverse stakeholders from different societal sectors in a democratic manner on a basis of common problem solving, and in a basic democratic manner. They pursue a development ideal that values satisfaction of common needs over individual choice maximization, as

they gain to gain sovereignty over the production and distribution of positive and negative externalizes and show a high awareness of global relatedness and justice, e.g. cosmopolitanism. To conclude, the discussed literature is to an extend complementary for describing social change. Reflexive modernity addresses the erosion of societal institutions and indicates large currents transformative process. Phenomena as the environmental catastrophe, social fragmentation, and the loss of legitimacy of hegemonic institutions are understood as part of the same historical process. The Real Utopias Project offers an empirical inventory of subpolitical initiatives that are proactively engaging in this process. It provides an analysis of the strategies and structures of these new forms of organizing the economy, most relevant for the case being associative democracy and interstitial strategies. Grassroots initiatives are such subpolitical phenomena, and, as associative local problem-engagements, they often employ interstitial strategies, as the relevance of the LAG in Réiden shows.

Reflexive modernity theory gives no indication as what a second modernity may look like, while the Real Utopias analyses a variety (grassroots) initiatives for this purpose. Both literatures emphasize that initiatives such as in Réiden are associations of heterogeneous stakeholders that are often open-ended and with changing and evolving goals. In part, they are responses to the negative side effects of a first modern development paradigm, without having systemic alternative. Therefore, these initiatives must be analysed from a theoretical position of social development and change that aims at overcoming the fallacies of the premises and logics of first modernity and acknowledges the procedural, deliberative, and essentially qualitative character of collective development paradigms that hold these heterogeneous associations of people together. The following section introduces the capability approach as a theory that holds social development to be directed at democratically established, qualitative criteria.

3.2 DEVELOPMENT IN ASSOCIATION

This section introduces the philosophical foundations of the understanding of social development in this thesis that will in chapter 4 be translated to the analytical framework *community capabilities*. The approach departs from mainstream theories of economic geography in the sense that it perceives of development as broadening individuals' opportunities to make ethical choices in their every-day lives and thus gives primacy to qualitative development goals. With the theories introduced below, grassroots initiatives are perceived as associative efforts to expand stakeholder's opportunities of realizing (aspects of) desired life-forms, based on qualitative goals emerging through (local) deliberation (for example justice, reciprocity, ecological sustainability).³⁵

³⁵ This does not mean that I reject these approaches. Rather, given the nature of the initiatives to be analysed, and the research questions, I believe that qualitative approach to development captures the essence of the phenomenon better. Further, they provide intriguing opportunities for theorizing regional development, as I will argue in chapter 10.

This section sets out by linking the subject of development paradigms to critiques of the theory of reflexive modernity and the Real Utopias Project. It will then discuss qualitative and quantitative approaches to freedom and introduce the capabilities approach as the underlying development paradigm of this thesis.

3.2.1 Development logics of first modernity

The previous section introduced the premises and logics of first modernity and argued that these are deeply ingrained in our institutions and have become latent in social practices. The works of Beck and Wright both capture a specific paradigm of (capitalist) social development that gradually erodes its own foundations. In condensed form, this paradigm assumes that individuals maximizing their personal utility would contribute to overall societal well-being. The corresponding political ideology libertarianism, very much born out of the traumatizing experiences of authoritarianism and fascism, perceives freedom as the absence of outside constraints or coercion, and is therefore highly sceptical of any form of government control³⁶. This is mirrored in neoclassic economic theories hypothesizing of individual economic actors making rational choices, e.g. the most individually cost-efficient decisions based on full and equal information.

The theory of reflexive modernity offers an expansive diagnosis of these ideologies' reflexive effects. With regards to the case, four processes in reflexive modernity illustrate particularly vividly why this development paradigm requires critique and recalibration. First, cosmopolitanisation describes the increasing awareness among people for the effects of their actions on distant others. Put bluntly: It becomes uncomfortable to live in abundance, when knowing that this life-form inhibits distant others to pursue theirs. Modern communication and increasing mobility confront us with the costs of our actions and creates ethical dilemmas that may stimulate reflection and change. Second, the environmental catastrophe makes us aware that current life-forms are achieved at the expense of future generations. Third, the gap between capital and labour is widening, and the pressure on individual jobs and small enterprises increases. This is what Beck refers to as the dissolving congruence between capital and work (in western societies): Local economies, such as the basic systems of provision analysed in this thesis, are often in the hands of distant others who may not take into account the well-being of the communities in which their profits are created. Fourth, an individualistic culture corrodes institutions that were developed to represent collective interests (such as labour unions) and leaves many disenfranchised and dissociated.

These processes have been implicit in exploratory interviews with protagonists in Réiden. They are also common themes in similar case-studies on initiatives that aim at mitigating environmental

³⁶ Some of the defining authors of this philosophy, such as Ayn Rand, Milton Friedman, John Rawls, and Friedrich von Hayek had experienced the world wars, and the rise of socialist totalitarianism. Any critique of libertarianism and neoliberalism needs to take into account these historical roots of the theories in their proponents' personal experiences with state power. For an insightful analysis of the impact of neoliberal politics in the EU, producing many of the challenges to rural development addressed in this thesis, see Ther (2016).

impact, practice solidarity with local businesses, promote social justice and care for distant others, and increase the communities' resilience by democratizing and regionalizing the supply chains. The initiatives in the canton, however, cannot be captured by a single paradigm of development, such as utilitarianism, libertarianism, or communitarianism. They appear to pragmatically link several motivations and interests of their stakeholders so to widen everyone's opportunities to realize their respective desired life-forms. If freedom refers to the ability of a person to make (moral or immoral) choices, then the initiatives can be understood as efforts to preserve and expand the freedoms of citizens in the canton. This is why related contemporary approaches perceive of *development as freedom* (Sen 2001).

Efforts to expand freedom, however, requires collective normative judgments as to the direction of this expansion. As initiatives are brought forward in often voluntary and cooperative efforts of citizens, this must be subject to local deliberation that goes beyond empty signifiers of growth and prosperity. The aim of this thesis is to examine these social perspectives to development, and not to approach them with ready-made normative criteria. This requires awareness to process-character of social development norms, e.g. to attend to communities' deliberative practices of these norms, while acknowledging their individual members' liberty to choose which opportunities created by the initiatives they want to realize.

The following draws on Claus Dierksmeier's (2016) work on philosophies of qualitative freedoms and presents the capability approach of Sen (2001) as part of this literature. These theories allow conceptualizing initiatives' impact as preserving and expanding the capabilities of the people to realize desired life-forms, while also increasing the communities' capacities to bring forth such initiatives in other policy domains. Section 3.2.2 introduces an example from the canton to show why a discussion of theories of freedom is relevant in this thesis. Subsequently, key arguments of the philosophy of qualitative freedom are discussed (section 3.2.3), and the capability approach introduced as such a philosophy (3.2.3). The section closes with a summary of the implications of theories of qualitative freedom for the case.

3.2.2 The qualities of association in the canton Réiden

The initiatives in Réiden are new associative democratic social organizations that are not primarily directed towards maximizing individual stakeholders' utility. Their success is not foremost assessed by quantitative indicators, although they naturally provide important measures of initiatives' effectiveness (for example, the low-carbon transition is measured by CO₂ emission reduction and Beki's success addressed by the amount and velocity of circulation of notes). Public discussions about the initiatives are led by qualitative arguments, such as energy autonomy, energy security, and energy democracy, or regional economic solidarity.

Initiatives will have specific utilities for individual participants, otherwise many would not participate. However, as initiatives are heterogeneous stakeholder constellation with very different preferences, individual utility must be secondary to collective norms that are developed in associative democratic arrangements and allow to consolidate heterogeneity under collective norms.

In order to achieve their individual interests, people in the canton have to associate themselves with one another. This becomes clear at the example of the alternative food network: The farmer who wants to change towards more ecologically benign practices and re-establish relations with his customers instead of producing for an anonymous global market to the detriment of the sustainability of his business, engages with other people in the village to establish an agriculture co-operative. This cooperative addresses his needs and those of other participants, such as healthy food, learning about farming, or being in community. The cooperative therefore allows diverse participants to realize their needs and desires in association with others. This association is economic in the sense that it re-organizes producer-consumer relations of a certain good, whereas the interests of participants are not mainly financial, or profit oriented. From a neoclassic understanding of human development, assuming rational individuals aiming to maximize their utility, such a cooperative would be deemed irrational, or inefficient, as it cannot capture these qualitative motivations.

3.2.2 Human development between qualitative and positive freedom

The book *Qualitative Freiheit*³⁷ written by the director of the *Weltethos-Institut* in Tübingen, Germany, Claus Dierksmeier (2016), provides a synthesis of social development theories since the age of enlightenment. In face of sustainability and justice issues, he urges for a change in business ethics. Dierksmeier argues with Galbraith (1976) and Sen (2001) for a more democratic and emancipatory approach to economic development. Specifically, he suggests that theories of *qualitative freedom* help overcoming reductionist, purely quantitative development indicators that would rarely represent the development ambitions of individuals and fail to account for the specific conditions of their life-worlds. To support his arguments, Dierksmeier (2016) traces the history of thought of qualitative freedoms from Kant, to Fichte, and to Krause and underlines his arguments with empiric insights from various scientific fields, such as anthropology and social psychology. Freedom, in Dierksmeier's work, is the capability chose whether to do or not to do something. With Kant, freedom is regarded as a meta-capability, because only the freedom of choice would enable a person to make moral judgments. The central concern of the qualitative freedom theory is to perceive of another person not as a barrier for personal freedom, but as a sphere via which freedom is realized. It emphasizes that any choice of options is inherently socially constituted.

³⁷ English: *qualitative freedom*

Qualitative freedom theory builds on assumptions that are similar to the diagnosis the theory of reflexive modernity. Notably, Dierksmeier holds that the hegemonic approach to social development in first modernity, emphasizing cumulative effects of utility-maximizing and self-interested people, would erode with the emergence of cosmopolitanism and the environmental catastrophe. Instead, he identifies the emergence of a new development paradigm. For example, sustainability strategies would increasingly become acknowledged as a rational ethics, even though they would do not maximize anyone's utility at present. What has previously been dismissed as idealistic ethics would gradually become a realist and accepted method.

Hence, Dierksmeier argues for breaking with the traditional conceptualization of *negative freedom* (to be free of constraints) and *positive freedom* (to be free to do something). Instead he proposes the spheres *quantitative* and *qualitative freedom*, because theories of freedom (and development) are concerned with either the amount, or with the substantive character of options. The qualitative dimension, or the substantive character has primacy, he argues, because we need to know if and why something is desirable, before we measure it.

This, Dierksmeier argues, would require re-embedding economics as a social science. With Galbraith (1976) he argues that the domination of quantitative approaches of formal physics undermines the inherently social purpose of the economy, e.g. of contributing to social development through the purposeful provision of goods and services. He argues that the assumptions of an economy constituted of actors in fair competition may have applied for economies of small enterprises of the 17th and 18th century, but this would not apply to the 20th and 21st century, where economies are dominated by oligopolies of global corporations and global finance (see chapter 2). Further, the assumption of rational individuals making choices based on full-information and transparency does not apply to the today's reality, where substantial efforts are made to obscure certain qualities of products and stimulate essentially irrational consumer's behaviour through sophisticated advertisement strategies (also Herman and Chomsky 2002). Dierksmeier further argues that an economic market is the product of century-long cultural and judicial efforts of shaping the economy in desired forms, and not a natural, self-sustaining system. Therefore, implicit normative judgments would determine what is considered a factor in economics, and what isn't.

Dierksmeier (2016, p. 313) concludes that the positivist economist needs to disprove of motifs that people have and insinuate preferences that they do not have. Normativity would be an economic faculty, because it is a faculty of the subject that economic theory is concerned with. Therefore, the procedures of establishing qualitative economic judgment, meaning the purpose and direction of economic development need to be revived and oriented towards aesthetic, moral, social, cultural, and ecological goals. This endeavour would be complex and conflict-laden, but the burden of the process would convey its dignity³⁸ (ibid. p. 316).

³⁸ German: *In der Bürde liegt die Würde der Verfahren*.

An essential characteristic of qualitative freedom approaches is therefore their emphasis on process and deliberation: In a cosmopolitan world with pluralist societies, Dierksmeier argues, philosophy must not make qualitative prescriptions.³⁹ Qualitative freedom must be continuously developed in democratic deliberation, and the purpose of philosophy would be to inform such procedures, similar to the self-perception of pragmatists (following section 3.3).

The theory does not specify on the character of these procedures. For example, he does not indicate the character or extend of networks and communities within which this deliberation should occur. Also, he does not explain how a cosmopolitan consciousness will come about, and how it manifests in deliberative process. This leaves the question of how to account for asymmetries of power within these communities.

Nonetheless, Dierksmeier argues for the relevance of his approach in two ways. First, the character of recent philosophical currents, as those of Galbraith and Sen, and their reception in policy discourse would indicate a shift in paradigm. People would become increasingly aware of the consequences of radical utilitarianism as they experience its consequences in their immediate life-worlds. Second, he introduces a range of empiric arguments from anthropology and psychology indicating that the rational choice theory is empirically unfounded. Given coercive-free situations of collective decision-making, people would help and make sacrifices for others, not because it's the rational thing to do (as libertarians would argue), but because they feel that this is normatively the right thing to do. Further, current institutions, and especially the educational system, would promote unsocial and inhuman behaviour, by diminishing inherently human instincts as solidarity, compassion, and creativity. Qualitative freedom theories, unlike theories of negative freedom would instead nurture these human traits by encourage approaching others as spheres, and not as barriers for individual freedom⁴⁰.

For the purposes of this thesis, the blind spots of Dierksmeier's work are negligible, because qualitative freedom here serves construct an alternative understanding of development, and power relations are not subject to either RC. Rather, this thesis examines the implicit effects of collaborative efforts in on specific problems on an overall phenomenon of rural development. Here, the emergence of specific community norms of development is understood as a product of social learning in processes of pragmatic problem-solving (see the following sections 3.3 and 3.4). Dierksmeier's arguments are paramount to shift the awareness of development ethics away from negative, or quantitative notions as proposed by first modernity capitalism, to a more contextual and deliberative form of providing for collective qualitative freedoms. The capability approach

³⁹ Herein lays also the basic difference between Nussbaum's and Sen's capability approach. Nussbaum (2001), focusing on justice issues, insists on a list of capabilities to be applied everywhere. Sen, on the other hand insists that capabilities must be achieved in democratic and deliberative processes. (see also Robeyns 2005).

⁴⁰ Particularly interesting here is Juan Elegido (2009) work on *Business Education and Erosion of Character*. It would be intriguing to discuss the implications of these with regards to societal implications on the migration policies of Luxembourg, focusing strongly on workers in the financial services.

elucidates how such qualities are constituted and how collective egalitarian efforts can expand individual freedom.

3.2.3 Development as the expansion of capabilities

The philosophy of qualitative freedom holds that measuring development should attend to the quality of progress indicators, before assessing their quantity (for example GDP growth does say much about the condition of people within a society and is yet held as an indicator of progress). To achieve this, Dierksmeier (2016, p. 280) argues, we have to re-establish a context of reference between the economy, politics, and ethics ("Verweisungszusammenhang"). Instead of arguing for, or against specific norms, theories of qualitative freedom focus the character of the procedures of deliberation of the norms that guide economic processes. This is particularly significant for cases of voluntary associative democratic engagements like those in Réiden, as will become clearer below.

The economic theory of Kenneth Galbraith is an example of such approaches, as it argues that the science of economics should concentrate on supporting the emancipation of citizens to co-create their economic environment. The question now is how to perceive of a development that is achieved collaboratively, and yet preserves and expands individuals' liberties to choose according to their preferences. One such theory that aims at bridging the divide between individual liberty and collectivism is the capability approach, developed most notably by Martha Nussbaum (2001) and Amartya Sen (2001). It follows Galbraith's critique on neoclassic approaches to measuring well-being and develops structural guardrails for the deliberative and contextual processes of the development of qualitative economic norms. Notably, it argues that the purpose and success of an economy should not first and foremost be assessed by the quantitative amount of options it creates, but by qualitative individual ambitions the members of a community can effectively achieve. Therefore, the economy is not regarded as a passive product of its objects governed by self-regulating markets or invisible hands, but as a purposeful construct of its active subjects. A humane economics would acknowledge a difference in people's objective needs and subjective wants. Sen (2004, p. 42) argues that the rationality of people's choices does not have to assume utilitarian premises of self-interest, but could be maintained with moral criteria: "The first and the most direct use of rationality (...) must be normative: we want to think and act wise and judiciously, rather than stupidly and impulsively. If the understanding of rationality is firmly tied to the systematic use of reason, the normative use of rationality is easily placed at the centre of the stage."

Sen argues that the economic sciences should let go of merely focusing on the distribution of economic goods and services, and instead focus on the real capabilities and life chances they enable. The capability approach can therefore be understood as an inherently normative, and thus qualitative approach of determining context-specific economic success, or, in the case of this

thesis, rural development. It is a geographically sensitive approach to social change and human development⁴¹. Nussbaum and Sen propose an approach that allows people to participate in the discussion and selection of choices and priorities, while retaining their individual liberty to choose which of these options they want to realize for themselves. In a first step, this is achieved by distinguishing between *functionings* and *capabilities*. Functionings refer to concrete beings (being in community, well-nourished, educated) and doings (eating, caring, voting). Capabilities refer to the real opportunities, or freedoms, to achieve these functions.

For functionings to become capabilities, certain conditions need to be in place. The classic example is a child that has been given a bicycle: It provides the functioning of riding a bike, but in order to do it, several factors need to be in place. The child needs to have the physical disposition that allows riding a bike, and it needs to be in an environment where there are streets to ride it that are safe enough to do so. Thus, for a functioning to become a capability, these *personal, social, and environmental conversion factors* need to be in place.

An example from the context of Beckerich could be a woman who has a well-paid and secure position at the national administration and who wants to pursue a more ecologically benign life-form. Her financial disposition, as a personal conversion factor, would allow her to eat whatever she prefers, drive around in her own car, and use as much energy and water as she likes. However, in order to achieve her desired lifestyle, or a specific set of capabilities, certain amenities would have to be provided by the regional context: She would have to have access to efficient public transport, regionally sourced food, and renewable energy sources. If these social and environmental factors are not provided, she cannot achieve the set of capabilities she desires. As these factors cannot be provided by her personal conversion factor, she either needs to get engaged in local politics and collaborate with others to work for their provision, chose a different life-form, or move away. Sen summarizes: "A person's 'capability refers to the alternative combinations of functioning that are feasible for her to achieve. Capability is thus a kind of freedom: the substantive freedom to achieve alternative functioning combinations, or, less formally put, the freedom to achieve alternative various lifestyles" (in Dierksmeier 2016, p. 325).

The example shows that the capability approach is not concerned with normative prescriptions about the good life, or the common good, but with conceptualizing of freedom and development in a way that enables people to make their own ethical choices through associative engagement. This is how the approach informs the concept of development in this thesis: As the collective efforts of voluntary associations of heterogenous people to preserve or expand local opportunities for people to make ethical choices in their everyday lives, and ensure that they and their children will be able to do so in the future.

⁴¹ Despite the lively discussions on alternative, or diverse economic approaches and post-capitalist economies, in the field of geography, the capability approach has, to the author's best knowledge, thus far found little resonance in these debates.

Sen offers very detailed insights for the structure of such a development paradigm. For example, he conceptualizes of the constitution of capabilities in a three-tiered model. *Opportunity* aspects address life-chances, the conditions afforded by the contexts we live in, while *process* aspects address the ways they can be achieved. For example, an opportunity aspect would be to pursue sustainable life-forms in Beckerich, while process aspects would describe engagements in initiatives that provide conversion factors for achieving these life-forms. *Substantive freedom* captures the inter-relation of these two aspects, and by linking them it proves a key argument for the rationality of reciprocity: Who enjoys freedoms that are socially granted cannot refuse to co-construct the freedoms of others. Individual freedom (to pursue a certain life-form) is a social commitment. This argument further allows sustainability, or inter-generational justice, to become a central normative element of the deliberative process on substantive freedoms.

Substantive freedoms emerge through the interplay of several components, which are important for understanding the relations between grassroots initiatives and their contribution of the regional development. These are: 1) political freedoms, 2) economic facilities, 3) social opportunities 4) transparency guarantees, and 5) protective security. These aspects enforce one another: For example, the more political freedom a society or community has, the more it can purposefully direct its economic institutions and encourage social participation. Vice versa, a high degree of institutional transparency enables a corruption-free functioning of economic transactions and political deliberation. The various components of substantive freedoms condition and co-constitute one another.

The capability approach will be put in dialogue with geographic case-studies in chapter 4. The resulting concept of community capabilities consists of the dimensions cultural, organizational, infrastructural, and personal capabilities. They differ in character from Sen's approach (notably they facilitate coding), but the understanding of their interplay is the same: The dimensions of capabilities in an initiative condition one another, and they affect the capabilities of other grassroots initiatives, through effects of prefiguration, causation, inhibition, and others (see site ontology)⁴².

3.2.4 Discussion and relevance for the case

This section argued that the logics of first modernity result in development paradigms that aims to maximizing individual utility, measured by reductionist quantitative indicators. As Beck, Wright,

⁴² One of the most cited scholars working on the capability approach and former PhD student of Sen, Ingrid Robeyns, argues that capabilities can only be held and be realized by individuals. Assuming community capabilities, as I do in this thesis would be an ontological mistake (Robeyns 2003, p. 52). She holds that this debate, apparently quite common in development theory, can be rooted to different approaches to social development, notably those of liberalists and communitarians. I would not count myself to either of these communities, but I do believe that using community capability as a heuristic concept with a social practice ontology is an effective tool for this empiric study that is in line with the self-perception of protagonists in the canton. I further argue that Robeyn's stance renders the approach unrealizable for empiric work, because the development of indicators for individual capability-development within a community, or region, would have to be aggregate and reductionist to a degree that would give them the character of community capabilities anyways, as one cannot account for the various elusive wants and desires of each member of a community.

Dierksmeier, and Sen argue, not only is these paradigms not appropriate for addressing development challenges such as those in Réiden, it is also producing these challenges. Furthermore, such paradigms neglect the inherently normative underpinnings of social development, such as reciprocity, solidarity, or compassion. The theory shifts the focus from quantitative and individualistic perceptions of freedom and development and attends to the collective and normative efforts that expand individuals' capabilities to achieve desired life-forms. The theory is therefore in line with the associative democratic character of the rural development in Réiden. The theory will be translated into an analytical approach in this thesis that addresses RC1 with the concept of community capabilities (see section 4.4.1).

The capability approach is a practical philosophy to inform process of collective development of substantive freedoms. By distinguishing development functionings and capabilities and acknowledging that various contextual conversion factors are necessary to achieve capabilities, it highlights the inherently social and ethical nature of development. Often, quantitative development indicators do not adequately represent the real development problems in people's life-worlds, as the example the woman living in Beckerich showed. For the case of grassroots initiatives, in order to achieve individual life-forms, people to associate themselves with one another to create the needed conversion factors that allow choosing if and how they want to realize them according to their own preferences. Like the philosophy of the Transition Town network (see chapter 2), the neighbour in a commune becomes a sphere for realizing one's individual freedom, instead of a boundary.

The capability approach serves as the underlying development-paradigm of this thesis. It follows the associative and voluntary character of civic engagement in the canton Réiden, and allows for a qualitative, and yet liberal account of rural development. However, the approach only suggests the conceptual premises for the process ethics creating development criteria. Dierksmeier's theory does not elucidate how the arenas of such deliberation are created and constituted, and how members of a community indicate their diverse development needs and desires to one another. Reflexive modernity and the Real Utopias Projects suggest subpolitical, associative democratic initiatives emerge in the cracks of the hegemonic system, but say very little about how exactly people come together and construct new development paradigms in face of uncertainty. The following section 3.3 introduces pragmatist action theory and symbolic interactionism in community action to address these questions as it shifts the attention of this chapter from societal theory to the level of local communities, and personal inter-actions.

3.3 PRAGMATISM AND ASSOCIATIVE LOCAL PROBLEM-SOLVING

This section turns the attention of this chapter from large-scale social theories and philosophies to the scale of the case, e.g. personal inter-actions in local communities. It contributes three crucial insights to this thesis: First, it asserts the original position of the public, or community, as a collective problem engagement. Second, it will provide epistemological and ontological foundations of this thesis, notably a constructionist research design employing site ontology. Third, with concepts of symbolic interactionism, social learning is introduced as a meta-process of development.

The previous section showed how new forms associative political engagement emerge as a response to the unintended side-effects and eroding institutions of first modernity. With theories of qualitative freedom, it was argued that these engagements pursue new context-specific and collective development paradigms that expand their participants individual freedoms to achieve desired life-forms. To elaborate how such collective form and negotiate problem-framings and collective development norms, this section introduces pragmatist thought on community action in uncertainty and collective problem-solving (section 3.3.1). It discusses symbolic interactionism, a theory of social psychology that examines how people indicate needs and desires to one another (section 3.3.2).

Pragmatist thought emerged in the end of the 19th century in the USA and is considered among the most influential western philosophies of the modernist epoch (Beck 1993; Joas 1992; Rorty 1999). However, compared to the USA, the concept has received a mixed reception in Europe. German sociologist and philosopher Hans Joas (1992; 2012), who developed a pragmatist theory on creative social action in the beginning of the 1990's argues that it has often been perceived as a utilitarian philosophy promoting the functionalistic and individualistic approach to social development of first modernity. Joas further shows that pragmatism was dismissed especially by German critical theorists as promoting an amoral "Whatever works position" that would lend the philosophical underpinnings for a capitalist action theory⁴³.

In this thesis, pragmatist thought helps elucidating associative community action in reflexive modernity. It allows linking the abstract social theories introduced in the previous sections to the mid-range theories endogenous rural development and grassroots initiatives (chapter 4), as well as to the social practice approach site ontology (chapter 5). The following draws predominantly on John Dewey's (1997; 2002) thought on education and democracy, and introduces pragmatism - or consequentialism - an essentially empowering and realist philosophy that takes an originally human position as a starting point: Any public emerges through the encounter of collective problems in citizen's life-worlds, and through the associative practices of finding solutions to these problems.

⁴³ Having reviewed particularly Horkheimer's and Adorno's critiques on pragmatism, Joas concludes that they have most likely not read the original works of James, Peirce, and Dewey.

With pragmatism, capability approach can be related to local community action, while its attention to crisis and problem-solving corresponds to reflexive modern social practices that pursue real utopias.

The below introduction of pragmatism concentrates on aspects of collective decision-making in uncertainty, concepts of learning, and the contextuality of truth-claims. The link to social practice theory and the introduction of symbolic interactionism is mostly based on the works of German sociologist Hans Joas (1992; 2012), whose translations of the works of Mead, developed to a theory of creative collective action, played a central role in the introduction of pragmatism to the German-speaking scientific community.

3.3.1 A pragmatist approach to social cooperation

Pragmatism locates the social in inter-subjective action. Unlike German idealism, the vantage point for explaining and informing social order is not an abstract normative position, but the associative effort of solving collective problems. Its early proponents Henry James, Charles Peirce, and John Dewey worked in the tradition of classical practical philosophy by developing thoughts and paradigms to inform optimal and empowering structures for expanding collective social capabilities for problem-solving. Pragmatist thought promotes a contextual, practical rationality that informs action while accepting that consequences are uncertain. Truth in this regard is not a metaphor for a representation of the world, but assumed to be an improvement of the capacity to act appropriately in a specific moment and context. It is well-captured by Charles Peirce's assertion that *practical* is what we can do freely and without constraints, whereas we need *pragmatic* strategies if our pursuit is bounded and conditioned by context (in Martens 1997). The importance attributed to context, resembles to the social and environmental conversion factors in the capability approach, will later be used to link both theories to geographic concepts (chapter 4).

The political program of educational theorist John Dewey (1997; 2002), developed in first half of the 20th century, aimed at revitalizing the democratic public, which he thought was threatened- for reasons very similar to those of Beck and Wright. He suggested vitalizing communities (also in urban areas) and preventing expertocracy. Further, he argued for the responsibility of the public to reflect upon and act against the negative consequences of industrialized societies (Joas 1992, p. 102).

A central theme of Dewey's thought is the revitalization of the democratic public that would allow applied learning through social practices of collective problem-solving. This would occur in *situated creativity*, meaning the theoretical and deliberative playing through of action possibilities resulting in the collective choice of an action (see chapter 3.4). This chosen action would again be confronted with new problems, which are partly the result of its own unintended or unanticipated

consequences. The reflection upon these consequences, may result in the adjustment of habits and routines, and again stimulate learning.

In this strand of pragmatist thought, the moment of origin of social development is the encounter with an incomplete world, and as a current of (re-) emerging obstacles and problems- that partly occur as unexpected consequences of our action, similar the diagnosis of reflexive modernity thought. It is inherent to these situations that they cannot be addressed with known routines, and the existing knowledge. Consequently, the results of actions addressing such problems can never be known fully, and action is taken in uncertainty. This, then, may again produce unintended side-effects.

The previous section introduced Hayek's problem of action in uncertainty, arguing that not knowing if one would be worse off if a course of action is change would lead to social stability (or inertia). Dewey argues that collective action is a social tool to mitigate uncertainty, because more eventualities are controlled for when more and diverse knowledges are included. Tackling problems is therefore a collaborative effort and it requires communication between actors regarding norms, but also rules and actionable knowledge for conduct (see chapter 5). Democracy is prerequisite and product of this collective quest to overcome problems, as optimal solutions are most likely to be found in inter-subjective deliberation. Others must warrant individual truth-claims; otherwise they cannot assemble collective effort behind them ("A vision that no one shares is a hallucination" Charles Peirce in Martens 1997).

The focus on action in uncertainty indicates pragmatists' contextual and relativist concept of knowledge. Visions of a solution to a problem are necessarily based on extrapolations of what is already known. Since existing knowledge however is not sufficient to solve the problem, initiative must be taken without having a clear vision of the outcomes. Pragmatism therefore assumes that knowledge and goals are discovered and created through action (see chapter 3.4). In small, iterative steps, collectives experiment with habits and inquiries in a creative way, and learn about the world ("Weltverständnisse") and themselves ("Selbstverständnisse") in the process⁴⁴ (Joas 2012). In this philosophy, knowledge and insight are not foremost gained through contemplation and theoretical inquiry, but related to the world as it is experienced, as a quest for solutions to problems, and new ways of doing things. The value of an idea lies not just in how adequately it represents the world in general, or its congruence with the world, but also in the pedagogical and psychological experience of its effects in the world, meaning its capacity to stimulate learning (see Geiselhart and Steiner 2012). Pragmatists regard truth claims as contextual, contingent, and continually changing (see chapter 6.1 for the elaboration of the epistemology of this thesis). Action, or social practice, is the source and reference of thought from a pragmatist point of view. People

⁴⁴ Not in the sense of fundamental Habitus-change, like in Bourdieu's works. See chapter 3.4.

develop a sense of what is true not first and foremost through intellectual exercise, but gain insight through action in the world, and its emotional experience.

As mentioned in the introduction of this section, pragmatism has been negatively received among German philosopher's because it was considered a-moral. Its consequentialist strands, like the works of Dewey, hold that the consequences of actions in face of the context of decision-making are the primary criteria of determining the ethical value of an action. Therefore, actions are evaluated not purely by their underlying intentions, but by how they are adopted in recognition of a specific action context, or site. Informing such structures of optimal collective decision-making *in-site* is at the heart of the pragmatist agenda.

Pragmatism is thus not a philosophy of "whatever works", but an argument for free association in collectives, which takes its original position in concrete situations of everyday cooperation (Joas 1992). Similar to the capability approach, pragmatist ethics does not seek meta-theoretical norms, but aims at informing social change and human development by reconstructing the situation of decision-making and examining procedures that can help perfecting actors' pursuit of expanding their capabilities. Like Wright's (2010) real utopias project, and Dierksmeier's (2016) claim that reality warrants possibility, the task of a pragmatist social science is widening and improving the scope for collective action. In this sense, this thesis stands in a pragmatist tradition: It does not approach the case the readily available criteria, but perceives the democratizing and emancipatory thrust of initiatives as something worth investigating, and aims at informing the rural development in return (see chapter 6.1).

To conclude, Dewey's pragmatism intendeds to overcome rationalist, individualist social theory approaches, and has times strong parallels with associative anarchism (Alinsky 1989; Chomsky 2014). However, its role in this thesis is not so much that of a societal theory, like reflexive modernity. Rather, it contributes to this thesis the conceptualization of grassroots initiatives as social practices of local collective problem-engagement, a relativist and contextual approach to knowledge and truth claims, an understanding of development as driven by social learning. Pragmatism aims to provide toolsets, or paradigms for examining and informing situated collective decision-making. Symbolic interactionism is such a paradigm.

3.3.2 Symbolic interactionism

A key theme of pragmatist thought is situated collective problem solving. Taking such a social practice as the original philosophical position does not mean that the world is regarded as a mere object or material for action. Rather, pragmatism suggests that we experience the world and ourselves in action. The engagement with obstacles and problems is seen as a central element for social development and learning, because they require the reflection and eventual substitution of traditional routines and habits (Joas 1992, p. 33).

In his book *Pragmatismus und Gesellschaftstheorie*, Hans Joas (1992) introduces symbolic interactionism to the German speaking scientific debate as a quest for non-marxist foundations for a democratic socialism, which later renders the foundations for his theory of collective creative action (Joas 2012). The concept is similar to Habermas' theory of communicative action in the sense that it argues for the importance of bounded and contextual, inclusive and deliberative democracy. Whereas Habermas examines language-centred conceptions of intersubjectivity, symbolic interactionists, such as George Herbert Mead (1998)⁴⁵ and his student Harold Blumer (1969)⁴⁶ are concerned with practical intersubjectivity. Specifically, symbolic interactionism focuses on reciprocally oriented social practices, and examines the symbolic character of interaction. Social relations are regarded as emergent and continuous mutual indications of meanings.

In this thesis, symbolic is the smallest theoretical level. It holds particular relevance for RC2, as it informs the conceptualization of how individuals indicate their different needs, desires, and problem understandings to one another. Further, it provides the conceptual toolkit for several approaches to social and transformative learning introduced in the following. This section briefly discusses the concept itself, as well as its implication for social reform, development, and learning.

Theoretical position

The original position of symbolic interactionism is a person, or collective being in a situation that requires the creation of an alternative or new action. It assumes that the world is experienced by individuals and groups as composed of meanings of objects, which are always already products of processes of symbolic interaction. Three categories of objects are distinguished: physical (ecosystems, infrastructure), social (friend, community), abstract (norms, laws). Blumer (1969, p. 10) argues: "From the standpoints of human beings, "the environment only consists of objects that the human beings recognize and know. The nature of this environment is set by the meaning that the objects composing it have for those human beings." Objects are regarded as "human constructs and not self-existing entities with intrinsic natures. Their nature is dependent on the orientation and action of people toward them" (ibid., p. 68). Over time, an object's meaning can therefore change in social defining processes. Symbolic interactionism assumes that people act upon the meanings objects have for them. Since these objects are social products, and people themselves and their actions are meaningful objects for others, conducting an action requires considering how it is perceived by others⁴⁷. The act of meaning making refers therefore not to one's own standpoint, and that of the other person, but it includes the potential meanings of all objects in that relation.

⁴⁵ Mead (1863-1931) had not published a book in his lifetime. *Mind, self and society* (Mead 1998) is a posthumous publication, and it comprises of lectures, essays, and articles. The introduction of Mead's thought in this thesis draws mostly on the works of Jean-Francois Côté, Detlev Garz, and Hans Joas.

⁴⁶ In comparison, Blumer's approach is more concerned with the micro-scale of personal interaction (Côté 2015)

⁴⁷ Mead and Blumer also discuss the intuitive, immediate, and unreflected non-symbolic interaction. As this does not serve to better understand the case, it will not be discussed here.

When people encounter inter-personal problems, or decide to pursue certain goals, they need to cooperate with others and coordinate actions. Mead referred to this as *social acts*, and Blumer as *joint actions*. These are coordinated through the indication of mutual expectations of actions, which emerge through symbols emitted by persons in order to stimulate others. Therefore, we consider our actions, with regards to how they affect actions of others, which, in turn, condition ours. Social interaction orients itself at the potential reactions of others, and it is always embedded in the flow of interactions. A joint action, then, "refers to the larger collective form of action that is constituted by the fitting together of the lines of behaviour of the separate participants. (...) A joint action cannot be resolved into a common or same type of behaviour on part of the participants, each participant necessarily occupies a different position, acts from that position, and engages in a separate and distinctive act. It is the fitting together of these acts, and not their commonality that constitutes joint action" (Blumer 1969, p. 70). These joint actions are emergent and contextual as they build on existing meanings, in existing actions. The mutual indication of expectations and meanings is continuous, and the social definition of meanings may change along the journey of the joint act. Further, Blumer follows the Aristotelian thought indicating that a joint action creates a quality that qualitatively exceeds the sum of individual action⁴⁸.

Conceptualization of symbolic interaction in-site

The central contribution of symbolic interactionism to pragmatist thought, and to this thesis, is the conceptualization of mutual personal indication of meanings in achieving joint actions. Joint actions are created by the communication of meanings of objects that are the context of people's actions. This context, as will be discussed in the introduction of site ontology in chapter 5, can be referred to as a specific site of a collective action. The purpose of an act, or social practice cannot be assumed or determined outside of the context of the practice, or the site, as it is a result of reflections upon the given constraints of the (manifold oriented) social act⁴⁹.

Like Dewey, Mead was concerned with collective problem solving and he assumed that in a social situation in-site the actor himself is a stimulus for others to act. Mead and Blumer thus regard action as being oriented at the potential reactions of others. Reciprocal practice-expectations emerge as symbols and are in need of constant verification. Consequently, people create actions according to the standards of their community, whose members and institutions assess, interpret, and value them, and consider their adoption in subsequent social actions. Symbolic interactionism does not

⁴⁸ A major critique to Blumer's works is that he simply extrapolates from the situated inter-personal encounter to a concept of society that neglects power relations, different degrees of institutionalisation, etc. (see Schatzki 2013): "A society needs to be seen and grasped in terms of the action that comprises it. Next, such action has to be seen and treated, not by tracing the separate lines of action, or the participants-whether the participants be single individuals, collectives, or organizations- but in terms of the joint action into which the separate lines of action fit and merge (...) They are the source of established and regulated social behaviour that is envisioned in the concept of culture." (Blumer 1969, p. 70). Although this thesis follows the emergent and contextual perception of joint actions over time, it departs from Blumer's approach to symbolic interactionism and turns to concepts that are closer to Meads concept of personal interaction.

⁴⁹ For a discussion of subjectivities as operant, see chapter 6.2.

assume that social order emerges from homogeneity and like-mindedness of the members of a community, but from the inter-personal symbolic communication in practice that links and aligns heterogeneity and individual uniqueness.

Herein lies the value of symbolic interactionism for this thesis: It corresponds to exploratory findings that are addressed by RC2, which examines how citizens engaged in grassroots initiatives, harmonize their expectations and visions to construct joint actions. Symbolic interactionism implicitly informs theoretical approaches that address this research complex, such site ontology (chapter 5), and transformative social learning (section 3.4). Therefore, the following briefly introduces Mead's conceptualization of individuals' minds in interaction, based on the works of Garz (2008) and Joas (1992).

In a situation of communication between two people, symbolic interactionism conceptualizes of the *self*, or the identity of a person in two parts: The *I* and the *Me*. *I* is the reaction of an organism to the stance or attitude of others, while *Me* refers to the organized attitude of others that one takes on. In other words, the attitudes of others form the organized *Me*, and a person reacts to them as *I*. Mead distinguishes between these with the categories determination (*Me*) and freedom (*I*). *I* refers to spontaneous and creative, often erratic and unpredictable actions of a subject. It is the element in ourselves that surprises us. It is described as the sentiment of freedom and initiative. *Me* on the other hand is the side of the subject, that has been moulded by experiences of social interaction, it occurs to do its duty. It represents a specific form of conventions of a community that members have internalized.

Mead gives the example of someone observing some else falling down: Intuitively, *I* may react with laughter, while *Me* reflects on social conventions and personal experiences. A strongly pronounced *I* is linked to the creation of an artist, or invention from a scientist⁵⁰, whereas *Me* determines the form and structure to *I*'s expression. With Freud, Mead describes *Me* as a censor of the self, because it determines what actions are appropriate, it determines the stage of expression, and it lends the cue for expression. In terms of the research case, *I* can be regarded the realm of personal motivations and desires to act, whereas *Me* can be regarded as the mind's sphere that represents the culture of the local context, or site. The *self* of a person, the mediating element between *I* and *Me* is perceived of as the capacity that aligns the personal motivations with the common good of the community.

The relation between individual Leitbilder, or social perspectives, and those commonly held in wider community is a central subject to site ontology (chapter 5) and the wider research design of this thesis (chapter 6). This thesis regards the capacity of aligning personal needs and desires with those of others, prefiguring the creation common substantive visions, or social perspectives to

⁵⁰ Garz (2008) interprets the Kuhnian conceptualization of scientific paradigm shifts as occurring in intuitive revolutionary insights triggered by a scientific *I*.

which people within a community can relate, as crucial for the (re-) production of grassroots initiatives in the canton. These are the foundations of the concept of social learning that will be essential to the theorization of the overall rural development in Réiden.

3.3.3 Discussion and relevance for the case

The democratic ethics of symbolic interactionism and the pragmatism of John Dewey lay in their ontological foundations, and not in abstract moral reasoning. In their concern for informing procedures of collective decision-making, these theories show strong links to philosophies introduced in the previous sections of this chapter. These theories assert that associative communities and local democracy emerge through the reciprocal indications of needs and desires in symbolic practices. A fundamental criterion for the quality of a social action is the degree to which it accounts for the people affected by a problem-situation in-site. A voluntary, civic, and associative grassroots initiative, being such a social action, will therefore only be successful, if it appeals to, and successfully coordinates a diverse group of citizens that is required to carry out all its constitutive actions. Mead is not foremost concerned with the morality of actions, but with the relationship between action and consciousness, with jointly constituted and coordinated goals. The constitution of these goals is abductive, not deductive, and context-specific (see section 3.4). From an ethical point of view, Joas (1992) indicates that Mead breaks with utilitarian approaches ("the most happiness for the largest number of people"), and ethics of conviction ("Gesinnungsethik"). Whereas these two approaches are individualist ethics, Mead holds that ethics lie in the set-up, design, or procedure of interaction that is always context specific. This is a fundamental difference to philosophical positions looking at general logics of abstract acts. For the subject of this thesis, being a rural sustainability transformation, this is an essential point: Grassroots initiatives' effects are not criticized according to how well they achieve abstract development norms (as it is often the case in de-, or post-growth debates), but in how well they employ local capacities to set policy domains on more sustainable development trajectories.

Mead's ethics are concerned with the generalization of the aspired object (physical, or abstract), which is always already socially predefined. Garz (2008) suggests that only to the extend the own motif can be identified with the common good, one can achieve a moral ideal, and thus moral satisfaction. Symbolic interactionism in this regard corresponds ontologically to the capability approach, and perhaps any theory of qualitative freedom.

Finally, symbolic interactionism and pragmatism lend constructive insights for conceptualizations of social change and reflexive action. The key argument reflexive modernity theory is that the institutions of first modernity are eroding by the effects of their own conduct. On a personal level, people would realize that their actions today endanger one's near future, the future of their children, and distant others. These assumptions are part and parcel of Dewey's thought, as

he translates such problem engagements as local community action. The original position of pragmatist thought, the collective contextual problem-situation, is perceived to emerge from the unexpected and unanticipated consequences of previous action. Hence, the emphasis of constant emergence and learning in pragmatist thought.

To conclude, this approach to development is well captured by Mead's thoughts on social reform, or progress. He perceived of social reform terms of the two interrelated phases of disintegration and reconstruction of collective action. The movens of social reform for Mead lies in the encounter of a problem that appears in the form of the disintegration of a usual course of action. In a reflective process, and a phase of reconstruction, a new course of action emerges that can be pursued (Côté 2015). "Thus, while reason is bridging over the chasm between society and the individual, it is forming a new society or a new individual, and either case is making a real identification. (...) This takes place, not by a statement of what either society or the individual is going to be, but by finding the point of identity between them, and controlling the process of reform by sacrificing nothing valuable in either. It is only the method we can be sure of, not the result" (ibid., p. 4). The following section, introducing concepts of social and transformative learning, elaborates how these such community action promotes the creation of new knowledges and values.

3.4 LEARNING FROM CRISES

This section introduces concepts that help to understand how learning occurs among collectives, or communities. While the previous sections examined what processes induce change in people's practices, the strategies they pursue, and the contexts of action, this section discusses literature that explores how experiences of these engagements manifest in individuals' minds and their community, and thus build capacity for further engagement.

Naturally, learning and education are disciplines in and of themselves, and cannot be explained in a geographical work to a satisfying extend. This section centres on two works that help guide the research design by assuming and structure and support the discussion and theorization of findings. The first section introduces a *transformative education* theory, which renders disciplinary foundations (section 3.4.1). The second section reviews the debate on *social learning*, predominantly from the sustainability sciences, which features significantly in research on grassroots initiatives, and transition studies.

Although the concepts will be explored in-depth in the following, the terms learning (German "Lernen") and education (German "Bildung") require a brief clarification. Traditionally, education refers to a deep, often a formalized form of learning, that transmits meta-capabilities, such as knowing how to acquire and employ knowledge purposefully. The works introduced below often blend these terms. For example, Koller argues for broadening the term "education" for any process that

leaves a person deeply transformed. For the sake of simplicity, the following will use the term “learning” for any process that leaves a person changed. Determining the structure and depth of such effects is at the heart of both works.

3.4.1 Transformative learning in educational theory

In his work *Bildung anders Denken- Einführung in die Theorie transformatorischer Bildungsprozesse*, educational scientist Hans-Christoph Koller (2012) develops a theory and method to describe and research transformative education processes. Here, the German term *Bildung*, in the following translated as *learning*, refers to processes that result in a “changed” person⁵¹. It does not only describe a new way of thinking, but a new relation to the world. Koller does not relate the approach to sustainability issues, or any process of wider social change, but focuses on the cognitive realm of interactions with the world, most notably interactions between people⁵².

Koller (2012) reviews various theories from various fields of the social sciences and humanities that have influenced research on education. Most informative for this thesis is his discussion of theories concerned with the generation of new knowledge, notably the works of Karl Popper, Thomas Kuhn, and Charles Peirce, and the link to Ulrich Oevermann’s work on the emergence of new structures of interactive practices. These two foundations of his methodological approach mirror the trajectories of the research interest in this thesis: Whereas the works concerned with knowledge creation are concerned with the mental realm, or cognitive relations to the world, structures of practices are concerned with the interactions in which they manifest. Common to all of these approaches, and this is the link to the other theories previously introduced in this chapter, is that they perceive the movens of educational process to be a crisis situation, in which a given phenomenon, or problem, cannot be addressed with the knowledge and routines at a person’s disposal. The following discuss such theories concerned with the generation of new knowledge, before Oevermann’s approach to the emergence of new structures of practical interaction is introduced. The section closes with a brief dialogue between these theories the RC of this thesis, and their links to the theories introduced above.

Koller argues that theories of the development of scientific knowledge generation have structural analogies to theories of education. Kuhn’s (1970) works on the structure of scientific revolutions are deemed particularly relevant here. A scientific revolution would occur when discoveries could not be aligned with existing concepts and assumptions. According to Kuhn, scientific revolutions

⁵¹ Koller introduces various authors to grasp what *transformative learning* is. With Bourdieu, for example, transformative learning would describe process that change the *habitus* of a person. As the *habitus* is defined by the deepest layers of our personality, and to a large extend structured by childhood experiences, such learning would be an almost traumatizing event. As this understanding of learning, much debated in the educational sciences, does not apply to the crisis-events in Réiden, this approach will not be pursued. Judith Butler’s discursive sociogenesis concept, on the other hand, describes the becoming of the self as a iterative process of subjection and domination. As power relations are not part of either RC, this approach will not be pursued.

⁵² Although this work has made a strong impact in German speaking educational sciences, specifically on research on free, or alternative forms of education, it has to the author’s best knowledge not been adopted in geographic research. Certainly, the potentials for geographic research on grassroots initiatives, especially those strands drawing on social practice theory are very rich.

can be characterized by their holistic structure (a new constellation of relationships between rules and regularities), by the way they change the language that is used to describe a phenomenon, and by the change of criteria of what is considered to be inside and outside the realm of a given scientific discipline. In this sense, the approach shows strong analogies with the theory of reflexive modernity, as scientific revolutions contribute to overcoming functional differentiation by creating new, complex, and transdisciplinary relations between knowledges (German "Wissensbeständen"). Koller (2012, p. 107) concludes with Kuhn that transformative learning process would not only refer to singular moments or situations, but comprehensively reconfigure the way a person relates to the world (*Weltverständnisse*), and the self (*Selbstverständnisse*), as well as the language a person uses for these relations⁵³.

Whereas Kuhn's works serve to describe the nature and effect of transformative learning processes, Koller draws on Charles Peirce's (1991) works on the abductive emergence of new rules and norms to examine how action is reflexively designed in uncertainty. Peirce conceives of three elements in a constellation of reasoning: A *rule* refers to a general pattern of a phenomenon, a *case* is a sample of this phenomenon, and a *result* conveys specific characteristics of a case. Peirce holds that *inductive* and *deductive* reasoning would both infer from two known variables to a third, unknown variable. Whereas deduction is the conclusion from the rule and the case to the result, induction is the conclusion from the case and the result to the rule. A *hypothesis* refers to concluding from the rule and the result to the case. This allows for an alternative way of concluding from one known to two unknown variables, called *abduction*. The conclusion in this model of reasoning is reached by applying a hypothetical rule to a result in order to explain a case. Abductive reasoning does not have the status of warranted knowledge, but only that of a hypothesis.

This argument is highly informative for subpolitical grassroots initiatives taking action in uncertainty, as described by pragmatist action theory: Faced with a concrete problem situation, such as local sustainability challenges, we have to rely on hypotheses on the nature of rules that can guide our action towards a desired result. An abductive suggestion "comes to us like a flash" Peirce argues (in Koller 2012, p. 111), and can be verified or dismissed by repetition in practice⁵⁴. In other words, abductive reasoning enables creative problem-solving based on hypothetical rules of action that are confirmed or dismissed according to the achieved result. A confirmed hypothesis can thus become a rule for further action as new knowledge⁵⁵. This is a sociology-psychological concept to describe how action in uncertainty can stimulate learning processes.

Consequently, Koller introduces an approach that would allow the empiric study of the emergence of new structures of interaction. *Objective hermeneutics* is a research agenda developed by social

⁵³ Koller sets out by drawing on Bourdieu's rather strict interpretation of habitus change. In order to open the concept of transformative learning to less traumatic, or fundamental changes in personality structures he sets out to review a range of alternative theories describing behaviour change and personality development, among them the ones introduced in this section.

⁵⁴ Abductive reasoning is used as a research heuristic in this thesis, and further explained in chapter 6.

⁵⁵ This is also a key assumption in Joas' (2012) theory of creative collective action.

scientist Ulrich Oevermann (1991) that assumes a sequential logic to human conduct. Practices here are understood as arrays, or successions of interaction that follow a certain structure or regularity based on what people know, what they expect, and what is expected of them by the context. Oevermann further assumes that in each stage, or *Interakt*, of such a sequence, people can choose one option out of many, and therefore potentially alter the direction of the sequence. Since an *Interakt* conveys an array of opportunities, a sequence of human interaction is a sequence of chosen selections that are determined by a specific logic, or structural regularity. The chain of such sequences is the structure of a specific life practice, that is conveyed in the "natural protocol" of such sequences Oevermann (1991, p. 270). The transformation of the regularity of a sequence of action thus produces something qualitatively new. In other words, something new is the realization of an action-opportunity that had not been realized before, but that now changes the direction of the entire sequence and therefore the context of action. These changes can be triggered by moments of crisis⁵⁶, when the confrontation with a specific situation does not allow the usual *Interakt*. This situation is examined by conceptualizing of two instances drawn from symbolic interactionism:

- *General rules and norms of the society, or community*: These determine what action is regarded consistent to the social context, and what action is not. Oevermann refers to this as the realm of obligation for reasoning (German "Begründungsverpflichtung")
- *Rules and norms of the life-practice of the individual*: These are case-specific decisions in which the individual reproduces his sequences of action. Oevermann refers to this as the realm of compulsion to act (German "Entscheidungzwang")

A crisis situation presents a conflict between the obligation of reasoning and the compulsion to act for an individual. In reflexive modernity, for example, ethical conflicts may arise through cosmopolitan dialectics that may lead individuals or communities to criticize and dismiss hegemonic norms and rules for conventional practices (of farming, mobility, finance, etc.). Drawing on Mead, Oevermann assumes that a person's *I*, the realm of impulsiveness and spontaneity, is the source of the recognition of new opportunities for an *Interakt*. The realm of the *Me*, representing the social site of the self that harmonizes impulses with the wider community, would reflect and legitimate these choices with what is socially expected or accepted. In a specific *Interakt*, a person may now choose an action that he would not have chosen previously. This action, Oevermann further argues, would be guided by visions, or *Leitbilder*, that are an intuitive abductive anticipations of the appropriate transformative action Oevermann (1991, p. 316). The concept of *Leitbilder*, analogous to the term social perspectives, is a key concept in this thesis to address RC2, and will be further elaborated on in chapters 4, 5, and 6.

⁵⁶ Oevermann refers to these crisis moments as *brute facts*. To the author's best knowledge, Oevermann does not elaborate on the nature of such crisis moments, and, as in most of his works, does not indicate references of this concept. It can be assumed that the nature of such *brute facts* is similar to crisis moments that shape the *general understanding* on a phenomenon at the macro-level, such as climate change. See chapter 5 for the conceptualization of the mental domain in this thesis.

Such an abductively designed may still conform to the obligation of society or community, but change the direction of the entire sequence of action, and affect the context accordingly. The Me is the domain of conscious reflection of whether a change in sequence is adopted continuously, or not. However, Oevermann argues with Mead that only the reconstruction of the underlying line of argument and the reflection of motivation can produce a reform of a sequence of action. Transformation thus means a reflection on the chosen action in a given crisis-situation, and the resulting change on the objectified sequences of interaction.

This concept, however, does not include outside constraints, or the embeddness in societal institutions. As Wright (2010) argues, for examples, cracks in the system emerge when the active, or passive reproduction of social institutions that social practices weakens. The following chapter will draw on transition studies literature to elaborate on this aspect with regards to grassroots initiatives.

To conclude, a transformative learning process leaves the person with a new relation to the world, and himself⁵⁷. These processes are imagined coming about in crisis situations, which a person cannot address with traditional routines. The new practice can be abductively designed, and the new rules and knowledges for action confirmed (or refined or dismissed) by repetition and reflection. Further, this reasoning should to an extend confirm with the rules and expectations of a community, while enabling a choice of action that has not been realized before. Individual changes in choices of action may affect the direction of an entire sequence of action and thus transform a practice, and the context in which the crisis has emerged.

These theories of learning are the smallest analytical level in this thesis, as they address the cognitive domain of individuals and their partners in interactions. The literature introduced in this section, as well as pragmatist and symbolic interactionist thoughts discussed previously, highlight the importance of intuitive guiding visions for practice. These will be addressed by RC2, and the ontology chosen for this thesis, site ontology, serves to elucidate the relation between the mental realm and social practice.

The introduced approaches assume learning to emerge in collective action, and the effects of learning to be situated on a meta-personal level, the referred to as the Me in symbolic interactionism. The following section introduces approaches to social learning from sustainability sciences that are not as conceptual as this section, but describe the political process that different degrees of learning may trigger. It therefore serves as a link between this theoretical chapter and the introduction of geographic transition studies and the mid-range theories endogenous rural development and grassroots initiatives that are introduced in chapter 4.

⁵⁷ The quality and degree of this new relation is subject to much debate in the educational sciences. Rigid interpretations of Bourdieu's habitus concept argue that a new *Selbstverständnis* is similar to a habitus change, e.g. a change in personality so deep that it eradicates formations build in childhood. I believe that such an interpretation makes the concept redundant for research.

3.4.2 Social learning and sustainable development

Social learning is a central concept to the sustainability sciences and transition studies to describe effects of grassroots initiatives (see chapter 4). Similar to the approaches introduced by Koller, this literature focuses on the interplay of cognitive process and social practices in problem situations. Unlike the theories introduced above, however, this literature is concerned with deliberate learning effects, particularly to foster more sustainable behaviour. To capture different learning effects, or depths of learning, concepts often conceptualize of two or three loops, or levels of social learning. Since its emergence in the 1970's, the concept has become continuously refined, and today authors assume different levels, or orders of learning process. This conceptualization is a central element of social learning concepts concerned with value-change for sustainability. The following briefly introduces the career of the term social learning. The current, sustainability related debate is then discussed based on the compendium *Social learning towards a sustainable world*, edited by Arjen Wals (2009), which features significantly in on grassroots initiatives.

The emergence of the social learning concept

Psychologist Albert Bandura (1974) is generally referred to as the first scholar to develop the term *social learning*. Focusing on how individuals and groups learn from interactions with their physical and social environment, Bandura advanced the study field by emphasizing reflection of experiences and self-regulation. These would contribute to *self-efficacy*, an individual's belief in the ability to achieve certain goals, and the understanding of one's role and contribution to a social group in given problem situations. Bandura's (1974) works on social learning thus created awareness for the effects of group process on emancipative and intentional forms of learning in the individual. He assumed that individuals learn from observing and imitating external models, and which would finally enable them to influence the modelling of process themselves. Several model-influences shape an individual's behaviour: "Research findings, considered together, disclose that modelling influences can serve as teachers, as inhibitors, as disinhibitors, as response- elicitors, as stimulus enhancers, and as emotion arousers" (Bandura 1974, p. 11). This corresponds to the significance attributed to crisis experience as stimulants for learning in the previous section. However, social learning following the assumptions of Bandura, has a more purposeful thrust. It is directed at achieving specific learning effects, such as skills or problem understandings, beyond a given problem situation.

Building on Bandura's thoughts, David A. Kolb (1984) emphasized notions of reflection and the re-introduction of experience into active experimentation in *learning cycles*, feedback loops of perception and reflection of experiences and their translation to practice. Importantly for the adoption in sustainability sciences, he assumes learning to occur on different personal levels, or orders, with increasing intensity of experience, and reflection.

Reflection is an integrative component of the *transformative learning* concept developed by sociologist Jack Mezirow (1995), which assumes that deliberate and conscious critique of underlying assumptions leads to a change in behaviour, attitudes, and norms⁵⁸. This concept holds that every person possesses *meaning schemes*, sets of knowledge, conviction, values and emotions that shape her/ his perception and influence their interpretation of experiences. *Meaning perspectives* are bundles of habitual expectations that direct our reflection on the basis of our experiences. Meaning schemes and perspectives together shape the *frame of reference*, which determines what we experience and how. The frame of reference is built through socialization.

These assumptions build on concepts of symbolic interactionism developed by Mead and Blumer, where the frame of reference concept is similar to the *Me*, and the habitual expectations correspond to the *I*. Mezirow (1995) attributes high importance to crisis experiences, or dilemmas, which would create conflict with our frames of reference. These have the potential to trigger transformation processes, in which critical reflection ultimately leads to the development or renewal of frames of references that guide people in the pursuit of their social life. Mezirow further suggests that learning can be *instrumental*, for example regarding the intentional acquisition of new knowledge, skills or understanding through communication with others.

As will be discussed further in chapter 5, the concepts developed by Kolb and Mezirow show strong analogies with the understanding of the mental realm of social practice theory. A central assumption in this thesis is that meaning schemes and frames of reference can be changed through experience in social practice, and vice versa, for example through engagement in grassroots initiatives, and therefore trigger change of behaviour in other fields of social life is a key explanatory angle for the development phenomenon at hand. With theories of qualitative freedom, and especially the capability approach, it can be argued that the normative guardrails directing in local deliberation on problem engagements may shift (for example towards reciprocity, resilience, or togetherness), as citizens' frames of reference and meaning schemes change through engagements in other social fields. The concept of self-efficacy captures well the apparent transformative capacity in the canton, as experiences of successful collaborative action seem to stimulate further engagement.

Social learning and sustainable development

The seminal work *Social learning towards a sustainable world: principles, perspectives and practice*, edited by Arjen Wals (2009), comprises of a broad range of contributions from different academic fields, as well as practitioner perspectives. For this thesis, the first two chapters (Glasser 2009; Sterling 2009), present a grand narrative of societal change in this school of thought, while the 3rd and

⁵⁸ This is a milder interpretation of transformative learning effects than those building on Bourdieu's habitus change.

9th chapter (Loeber et al. 2009; Dyball, Brown, and Keen 2009) offer conceptualizations of how learning occurs among sustainability initiatives.

The introductory chapters of the book argue that the "greening of progress" would convert "breath taking opportunities disguised as insoluble challenges" (Glasser 2009, p. 54) into an improvement of the common good for "global society as a whole" (Sterling 2009, p. 78) as people take initiative upon an ecological *Zeitgeist*⁵⁹. The authors do however acknowledge a gap between our knowledge on sustainability challenges and consequential action. Closing this gap would require a shift in social relationships, from those based on separation, control and excessive competition, to participation, appreciation, self-organization, equity and justice (Sterling 2009). As discussed below, a social learning perspective proposes that environmental management is more about managing people than the environment (also Loeber 2007).

Sterling (2009) draws on Mezirow's meaning frames and -schemes, stating that a shift towards a relational, living-systems' worldview is needed. A worldview for him "has a descriptive aspect, influencing which aspects of and how the world is perceived, and a normative and purposive aspect which legitimizes courses of action" (ibid. p. 66). A *postmodern ecological worldview*, based on the acknowledgement of societies' ecological embeddedness, valuing participation, context and diversity, is thought to emerge through a process of societal *2nd order learning* that ultimately leads to a system metamorphosis towards a more sustainable state⁶⁰.

The *2nd order learning* processes is regarded as a "deconstructive postmodernism" (Sterling 2009, p. 75), that eventually produces a new perception of reality in societal fields ranging from philosophy, over business, to politics, education, and everyday life. "Hence, the ecological worldview has a strong teleological element which urgently challenges the objectivism of modernism, and the relativism of deconstructivism" (ibid. p. 77). Glasser (2009) highlights that a change in one's worldview does not bring with it a change in values, but rather their rearrangement and re-prioritization.

The attention to scale in strands of social learning theory makes the concepts highly relevant for geographic research in general, and this study in particular. Research from organizational psychology suggests that direct feedback to practice is crucial for social learning in order to close the gap between knowledge and action. In a globalized world we are often disconnected from the consequences of our actions (Loeber et al. 2009). "Social learning is likely to occur only in those situations where a person is no longer able to 'shut out' dissonant information or when one deliberately wishes to reflect on one's (professional) practices" (ibid. p. 88). For the community level, this very much supports the strategy of Agenda 21 initiatives developing projects that make visible the global interrelatedness of practices, thus evoking a sense of responsibility (see chapter 4). Loeber

⁵⁹ For a review and critique of different strands of ecological modernization theory, please see chapter 4.

⁶⁰ The authors implicitly draw on concepts on socio-ecological resilience and systems' shift between stable states, such as in Folke et al. (2007). These are briefly discussed in the analysis of the eco-system governance program *Contrat Rivière Atert* in chapter 7.

et al. (2009) emphasize that in order for such learning to occur on individual and group level, iterative feedback cycles on these practices needs to be constantly provided in the form of, among others, ecological criticism⁶¹.

Most research on such social learning process for sustainable development centres on regional and local governance. Here, the composition of practitioner communities, the reflection on the effects and consequences of practice, and the influence of facilitators introducing strategies and criteria to foster social learning for sustainability, are most direct. Local initiatives, such as those in Réiden, can in this regard be regarded as nuclei for sustainability transformation, as they offer protective arena's for learning process. The diffusion of learning effects, or the impact of wider societal transformation can then be portrayed as multiple decentralized and contingent learning localities that in sum may produce a higher sustainability awareness on the societal level. Further, the impact of initiatives must not just be measured in quantifiable impacts they have in a given community, but also conceived of as long-term learning effects. Research on grassroots initiatives therefore plays a central role in the wider sustainability sciences.

Orders of learning in communities of practice and systemic instruments

Education theorist Etienne Wenger argues that the most personally transformative learning occurs through membership in *communities of practice*, which are "created over time by the sustained pursuit of a shared enterprise" (Wenger 1998, p. 45). The concept has been developed through a case study on the practice of claims processing department in an insurance company and has gained significant attention in organizational theory. For Wenger, a social practice "must be understood as a learning process and a community of practice is therefore an emergent structure, neither inherently stable, nor randomly changeable" (ibid. p. 49).

Wenger's understanding of communities of practice does not indicate notions of ethical or normative reflection of such process. Rather, he perceives of communities of practices as arrangements of people who co-create practices in order to deal with the requirements of their institutional context in a reactive manner, by negotiating meaning, and not by reflecting upon it (ibid. p. 96). On the organizational level, Wenger perceives learning as a measure to sustain the cooperation of various communities of practice. Regardless of the concept's substantial impact on the scientific discourse, it is unsuitable as a conceptual lens for grassroots initiatives such those under analysis in this thesis, because it lacks any awareness to the purposive or normative thrust that guides social practices. In the following, the term community of practice will be used as a group of people together pursuing a practice reflexively together, as in various recent sustainability-oriented works on social learning (see Wals 2009; Reed et al. 2010).

⁶¹This would also serve to reduce the risk of *maladaptation* of unsustainable practices. Learning can go both ways, towards a more sustainable future, but also to foster and deepen an unsustainable status quo (Glasser 2009; see also Shove and Walker 2010).

A general assumption of social learning approaches is that the transdisciplinary cooperation of participants with different interests, knowledges, and resources fosters reflection and makes for a more systemic perspective within the group. In a practitioner-centred, management-oriented approach, Loeber et al. (2009) highlight the importance of a common understanding of a purpose within communities of practice. *Congruency*, thus a precondition for social learning, occurs "when actors however heterogeneous in their roles, ideas and values, come to regard some line of action as a meaningful and valuable solution to a problem they experience- however different their problem definitions" (ibid. p. 91). Congruency is a highly relevant concept for the RC2, which examines the degree of heterogeneity of participants' social perspectives, or *Leitbilder*, of a social practice. It links to the assumption of pragmatist theory that collective action revolves around common problem-understandings. Congruence will later in this thesis be related to *cultural capabilities* (chapter 4), e.g. the capacity of a community to get behind a common vision, and *mental states*, the meta-individual realm of social practices (chapter 5).

Systemic instruments are thought to support congruency and translate it into cooperative action, as "arrangements that create interfaces between actors from different institutional realms; they are supposed to enhance conditions for innovation by, amongst others, providing a platform for learning and experimenting (ibid. p. 93)." For the research case at hand, the KomEcoRura, the inter-communal syndicate, and the LAG are such systemic instruments. As will be shown in chapter 7, they are highly important regional institutions for the emergence of grassroots initiatives.

In comparison to the work of Koller, these rather (transition) management-oriented concepts do however not conceptualize how learning process within groups occur, and how to address them empirically. They remain descriptive, concentrating on different learning effects (Reed et al. 2010). For example, in the introductory article to *Social Learning for Sustainability*, Glasser (2009) identifies five essential strands to social learning:

- *Reflexivity* (reflecting ourselves, our knowledge and relation to others)
- *Systems thinking* (attention to process, relationships and interactions)
- *Integration* (of different forms of knowledge, ways of thinking)
- *Conflict* (not to be avoided, but to be harnessed in negotiation, needs rules for dialogue)
- *Participation* (to invite a wide range of diverse actors in the process)

These strands are understood as characteristics of social learning within groups, and they key criteria in governance oriented case studies, such as on resource management (Pahl-Wostl et al. 2007, see also chapter 7.2), or regional innovation networks (Sol, Beers, and Wals 2013, see chapter 4.3.1). As Reed et al. (2010) argues, these indicators refer to the conditions of learning, and not the process itself. Important for this thesis, strands of social learning regard forms of group work based on hierarchy, competition, and functional reductionism, which are characteristics of the logics of first modernity, as harmful for social learning.

Learning is in most works characterized along two or three classifications. For Reed et al. (2010, p.3), *single-loop learning* refers to the recognition of consequences of action, *double-loop learning* refers to reflection on the assumptions that underlie our actions. *Triple-loop learning* describes learning that challenges the values, norms, and higher-order thinking processes that underpin assumptions and actions.

Literature on grassroots innovation, as introduced in the following chapter 4, generally conceptualizes 2 levels of learning. For Seyfang and Smith (2007, p. 590), *1st order learning* is a narrow, technical appraisal of performance. *2nd order learning* "generates lessons about the alternative socio-cultural values underpinning the niche and implications for diffusion." Here, *2nd order learning* is analogous to double and triple loop learning as mentioned above (see Sol et al. 2013). This literature embeds learning in a process of broader social change, whereas Reed et al. (2010) focus on the groups themselves and do not explicitly account for consequences of learning beyond the group.

3.4.3 Discussion and relevance for the case

The previous sections of this chapter discussed how and why new political initiatives, such as the grassroots initiatives in Réiden emerge in reflexive modernity, it introduced process ethics that may guide them, and highlighted their democratic, community-building potentials. This section examined the cognitive effects of such grassroots initiatives and built the argument that local problem-engagements may stimulate learning process that enable individuals and communities to expand their capacities to initiate change in other policy domains. The section thereby closed the theoretical introduction in this thesis by discussing how grassroots initiative may stimulate other initiatives over time, thus allowing perceiving the rural development as a process of transformative social learning.

Transformative learning as an experience that leaves a person with new relations to the world and new relations to the self and that consequently change the way a person will relate to the world and others in practice. The stimulus for such a process is often a problem, or a crisis situation, which a person cannot address with the knowledge and routines he or she would usually draw on. This section introduced an analytical approach to transformative learning, and a rather descriptive and conceptual approach to social learning.

The analytical approach assumes with the work of Kuhn, that learning processes reconfigure what elements and process are perceived as being part of a given phenomenon, and the language used to refer to it. Learning therefore transcends disciplinary categories and functional ascriptions. Peirce's theory of abduction addresses the question of how we design an act, or a practice in a problem situation when we have insufficient information cannot predict the outcomes of a new action with certainty. Creating action hypotheses that could be proven in subsequent social

practice guide action in uncertainty and, should the hypothesis prove helpful, would render new actionable knowledge and rules that can become latent. Oevermann's objective hermeneutics takes an analytical, discursive approach to transformative learning, assuming that a person's I (the intuitive creative realm) can alter action-choice in a given sequence of action, that still correspond with the Me (the realm of norms and expectations), while changing the trajectory of an entire practice, thus contributing to a transformation of a given action-context, or site⁶².

Social learning approaches are concerned with promoting situations and stimulate group dynamics that nurture learning process. In the literature discussed, prescriptive social learning concepts aim at promoting sustainability transitions. Favourable process for social learning here is transdisciplinary participation, reflexivity, and systems thinking, which would change people's frames of reference and meaning schemes of a given activity. Positive experiences would further increase self-efficacy, the confidence in one's abilities to achieve goals, or overcome problem situations. Finally, two aspects to social learning in group dynamics are highly relevant for the case at hand: Congruence describes the extent to which people share a common frame of reference on a given practice. This concept is central to RC2, examine the degree of diversity and patterns of alignment of the social perspectives on Leitbilder of the grassroots initiatives in the canton. Systemic instruments are institutions or organizations that promote congruence, like the KomEcoRura, the LEADER action group, or the inter-communal syndicate in the canton. As will be shown in chapter 7, these are crucial for linking grassroots initiatives in the canton. Both concepts highlight that spatial proximity is beneficial for social learning.

To conclude, transformative learning theory picks up where pragmatism ends in the line of argument in this chapter. It explains how action can be taken in uncertainty, and how to analyse such process. Further, it elucidates how local problem engagements, such as grassroots initiatives may expand the capability of a community to create other grassroots initiatives in the future, and thus stimulate overall developments in a place.

3.5 SYNTHESIS

This chapter introduced theories addressing different levels and process of social development and transformation. The theories introduced above inform analytical concepts in this thesis and will become particularly relevant in the theoretical reflections in chapter 8.

The grassroots initiatives in the canton Réiden are perceived as associative democratic subpolitics. They are collaborative efforts to address local collective problems or satisfy needs that are not met

⁶² The concept of a site will be discussed in detail in the introduction of site ontology in chapter 5 and lends a key theoretical perspective for the analyses in chapter 7.

by the national political economy. Pursuing interstitial strategies, they incorporate diverse stakeholders from the state, the private sector, and civil society. Each of the initiatives chosen for in-depth research is regarded as pursuing qualitative development goals, such as resilience, togetherness, and reciprocity. RC2 will elucidate these goals for chosen initiatives in-depth. These goals enable the pursuit of more sustainable life-forms by providing social and ecological conversion factors (regional food, renewable energy, environmental education) that would not have been achieved without voluntary and collaborative effort. Therefore, the rural development is regarded as a process of expanding capabilities, by directing local economies towards desired life-forms. The capability approach, translated to community capabilities, will serve as a analytical framework to address RC1.

With pragmatism, it is assumed that the initiatives are local problem-engagements, meaning that a democratic local public, or community, emerges around collective efforts to engage with these problems. Often, these are triggered by concrete collective crisis experiences. As each citizen holds an individual understanding of these problems, and has personal needs and desires, symbolic interaction serves to create common social perspectives that allow them to engage in collaborative practices.

Transformative and social learning theory, finally, explains how action is taken in uncertainty. It elucidates how the encounter with action problems that cannot be addressed with existing knowledges and routines may stimulate learning processes. Specifically, an action hypothesis is designed in uncertainty and verified or dismissed in practice. Successful problem engagements would increase individuals' self-efficacy, and thus promote further initiative. Social learning literature further suggests that collaborative problem-engagements increase the community's capacity to create congruence of social perspectives, or guiding visions for practice, and that the creation of systemic instruments, such as the KomEcoRura and the inter-communal syndicate, may foster such congruence. These are key aspects of RC1 and RC2, respectively.

The following chapter 4 introduces mid-range theories from geography that inform the analysis of the initiatives in the canton Réiden. The theories introduced in this chapter, particularly subpolitics, the capability approach, and elements of transformative and social learning, will help refining these concepts.

4. RURAL DEVELOPMENT AND GRASSROOTS INITIATIVES

This chapter introduces geographic mid-range theories that link insights from philosophy and social psychology of chapter 3 to the case. It sets out by discussing approaches to space in face of the exploratory findings and RCs. This thesis does not commit to a single perspective on space, but will maintain a constructivist, place-making approach (section 4.1). The concept *endogenous rural development* sets focus on the sufficiency and resilience-oriented impetus of the efforts in Réiden as sustainable place-making initiatives that are based on local resources and capacities (section 4.2). This development is driven and marked by grassroots initiatives, which are local sustainability experiments that aim at to gain community-sovereignty in their respective policy domains to provide for and protect desired life-forms (section 4.3). Section 4.4 develops the concepts *community capabilities* and *Leitbildanalyse* based on geographic case studies and theories of chapter 3 to address the two RC. This section also introduces the approach to rural development in this thesis. The chapter closes with a brief conclusion that outlines the requirements for the research paradigm, and particularly the site ontology that is constructed in the next chapter 5.

4.1 SPACE AS EMERGENT AND SOCIALLY CONSTRUCTED

This section shows how different understandings of space shed light on different facets of the case. It does not result in a commitment to one spatial perspective, but it indicates how the concepts chosen in the subsequent sections of this chapter will emphasize certain aspects of the development, while neglecting others. This section briefly recapitulates relevant findings about the case from chapter 2, notably the blending of scales in Luxembourg, and the emergence of the idea, or discourse, of sustainable communities, and a sustainable canton. These will then be put in dialogue with four conceptions of space. The extensive account of the historic development in Beckerich, and the portrayal of the Luxembourgish political economy in chapter 2, is intended to lead the reader to a relational understanding of the development in Beckerich and the wider region. It portrays the case as continuously socially constructed, as the development of a region, not development in a region, deeply embedded in international flows of knowledge and polices (Allen and Cochrane 2007; Coenen et al. 2012; McCann and Ward 2010).

Two aspects highlighted in chapter 2 are of particular relevance for the approach to space in this study: The blending of scales in the Luxembourgish political landscape, and protagonists' descriptions of the local initiatives creating a "sustainable Beckerich", or "sustainable canton" that emphasizes sustainability ambitions more than territorial identities. Chapter 2 showed that in the small state of Luxembourg the ways between levels of government are comparably short, and the stakeholder networks in given policy domains are small. Decisions would often be made informally and

individual actors in government and economic sectors would monopolize knowledges. Further, actors would wear several hats at the same time, which would often result in conflation of interests. Affolderbach and Carr (2016) conclude that scalar hierarchies in Luxembourgish politics would blend. This holds relevance for the case, too: Several protagonists of the initiatives in Réiden are active on higher levels government, and actively use their connections to leverage local interests. The previous chapter characterized this transformation strategy as interstitial. This multi-scalarity of politics and politicians creates opaque agencies that interweave various levels of government and policy domains (see Allen and Cochrane 2007; Marston et al. 2005). The second aspect relevant for the spatial perspective in this thesis is the normative thrust that shapes the initiatives in Beck-erich. Exploratory research shows local protagonists do not foremost aim at drawing new borders around the canton; regional autonomy has rarely been a subject in the interviews, and the idea of a specific regional identity widely rejected.

In other words, there is no indication for enactment of process of re-subjectification of the local (Marston et al. Woodward 2005, drawing on Gibson-Graham), or pursuit of contentious politics (Leitner et al. 2008). Rather, the a discourse of a sustainable commune, or canton emerges as a result of various initiatives- not the other way around. As communities aspire to shape the becoming of their social and bio-physical environment according to their ethics (Taylor Aiken 2018; Mason and Whitehead 2012), the idea of the canton is revived, because the systemic instruments that provide the resources for these initiatives define the area of their services.

With Allen and Cochrane's (2007, p. 1163) conceptualization of a region, the canton can thus be described as "shaped by elements based on all levels and different horizontal positions in various social fields, as civic society, administration, politics and economics, as well the legislative and physical environment, in a fluid process of emergence and decay." It is discontinuous, as some areas within it may not be part of its most relevant place-making institutions (the commune Rambrouch aspires to leave the syndicate), while other relevant places may have strong links to these institutions, but are not part of the geographic region (such as the Transition Initiatives across the country, being members of CELL).

RC1 assumes the rural development to emerge from prefigurative effects among grassroots initiatives. As the discussion of the lock-in towards progressiveness hypothesis concluded, this thesis does not take a deterministic view on the rural development. Considering the nature of several initiatives as ad-hoc interventions that develop visions on the go, the development appears to remain contingent. However, regarding research on similar cases, and considering the emphasis of social learning theory on proximity, this thesis follows Truffer et al. (2015, p. 67) in emphasizing the "importance of factors of proximity (including non-spatial forms) and localized stocks of knowledge, routines and capabilities. (...) (It) highlights the role of institutional settings that have developed in specific places over longer time spans and gave rise to locally distinctive cultures

(...)" Proximity matters- not only in spatial terms-, but it is not deterministic. Regular exchanges between people over time foster the communities from which the initiatives emerge "create spaces with their own institutional arrangements, power relations, governance institutions and dynamics, which offer 'proximity' between actors" (Coenen et al. 2012, p. 969; also Loeber 2007; Longhurst 2015).

Different perceptions of space are useful to elucidate different particularities about the case. At the example Jessop et al.'s (2008) review of four selected perspectives (or "lexica") on place, a *network perspective* may highlight social constellations within the canton, such as the KomEcoRura and LAG, the exclusion of agents within, and the close relation to agents beyond the canton. A *scalar perspective* may render sensitivity for the relation between local LEADER initiatives and their dependence of favourable judgments from high-level national administration. A *territorial perspective* may serve as a hypothesis to scrutinize patriotic, identity movements.

A *place-making perspective*, examining socio-spatial patterning, and spatial embedding (for example of specific policy domains like energy), appears to be most in line with the narratives of local protagonists, and the RCs (ibid.). This thesis understands place-making as a perspective that is sensitive to the emergence of a certain character, or discursive identity of a place, by looking at how geographically bound materialities and social practices are represented in narratives about the social life in a place⁶³. Considering the particularities of the Luxembourgish context and the character of the RC, this thesis does not commit to one spatial perspective. The theories discussed below, especially endogenous rural development and grassroots innovation, follow a relational understanding of space, assuming contingent and emergent historic development trajectories across geographic areas. As no single perspective addresses the conditions of the RC and the case fully, this thesis follows Jessop et al. (2008) in perceiving of the canton as a landscape that emerges through the interplay of territorial, place-making, network, and scalar forms of organization. Site ontology, introduced in the following chapter 5, will introduce a spatial perspective that consolidate various of these approaches.

Chapter 2 closed with the choice for four grassroots initiatives, based on the given sample criteria. As it was shown, all of these can be seen as emancipatory sustainability interventions, as they aim at promoting values of sociology-ecological resilience, sufficiency, reciprocity, and the like. In this regard they can be understood as efforts of sustainable place-making. Other initiatives, like local music clubs, for example, "make" the place as well, but are not subject to this thesis.

⁶³ This thesis will however not pursue a discursive, but a social practice-based research design; see chapter 5.

4.2 RURAL DEVELOPMENT PARADIGMS

Rural development as in the canton Réiden is discussed under a variety of concepts in geography, such as territorial innovation systems, new regionalism, or new economic geography. However, as the focus of this thesis is not so much the economic performance, but rather the deliberative practices and process ethics in the local communities that direct the economic performance, these concepts will not be discussed here⁶⁴. Instead, this section will discuss approaches to rural development in scientific and policy debate are often situated along the spectrum of endogenous and exogenous development. These paradigms are at the heart of various EU and national policies affecting rural areas, such as agriculture and policies aiming to foster regional cohesion (see chapter 2.2.2). Exogenous and endogenous development are in the following introduced not as analytical concepts, but as paradigms, or logics, that shape rural development in their interplay. Initiatives that are in scientific literature analysed as social or grassroots innovation, such as alternative food networks, low carbon initiatives, or complementary currencies, can be interpreted as following an endogenous rural development paradigm, as they address aim at setting in value local resources and capacities to achieve distinct normative development criteria.

4.2.1 Endogenous and exogenous paradigms of rural development

The introduction of this thesis discussed current development problems and traditional functions of rural areas. Some of these functions, such as stewardship of the landscape and nurturing of biodiversity, as well as agriculture and energy, are key arenas of sustainability transition. Consequently, local strategies and social practices for rural development and sustainability transition are similar, as they tend to focus emphasize resilience and sufficiency. These strategies are central to the rural development in Réiden correspond to the (neo-) endogenous rural development paradigm.

Rural development approaches in western post-war Europe focused predominantly on agricultural production in economies of scale to ensure food security⁶⁵, and was mainly governed and financed by the Common Agricultural Policy (CAP) the European Community (EC). This exogenous approach to rural development, stimulating economic development by external investment, fell under dispute in the 1970's. It was criticized as "dependent development, reliant on continued subsidies and the policy decisions of distant agencies and board rooms. It was seen as distorted development, which boosted single sectors, and selected settlements and certain types of businesses, (...) but left others behind and neglected non-economic aspects of rural life" (Galdeano-Gómez et al. 2011, p. 58). The agro-industrial logic driving these policies, pursuing a techno-

⁶⁴ The effects of the economic crisis in Europe, severely affecting regions that have been considered best practices under these paradigms, sheds out as to their sustainability, and purpose. For a discussion, see for example Hadjimichalis and Hudson (2014)

⁶⁵ For further discussion, please see the analysis of the alternative food network SoLaWa in chapter 7.4.

managerial approach to rural nature was further regarded as producing a range of negative environmental and social externalities (Marsden et al. 2002). As a development panacea, it was in conflict with the socio-economic and ecological heterogeneity in European rural areas (Long and van der Ploeg 1994). As will be discussed in following sections, this heterogeneity, not only among rural areas, requires sensitivity and awareness to geographic context for research and policy making (Longhurst 2015; Truffer and Coenen 2012).

In contrast to the modernistic, top-down exogenous approach, the endogenous rural development paradigm pursues a philosophy of subsidiarity. It encourages local stakeholders to mobilize resources available in their localities according to their problem definitions and development visions. EU programs related to this paradigm, such as the LEADER and INTERREG programs, mainly financed by the European Agricultural Fund for Rural Development (EARD) and the European Regional Development Fund (ERDF), assume a variety of functions of the rural space that exceed the production of agricultural goods, such as energy production, tourism, landscape protection, as well as a range of public services (Dax et al. 2016; Nemes 2005; Ray 2000). These policy-programs are territorial approaches for specific geographic contexts and do no target specific socio-economic sectors (Nemes 2005). Endogenous development would further allow pursuing development visions that go beyond quantitative indicators (such as FDI growth), and which are more sensitive to local cultural, social and ecological values (Bassand 1986; Nemes 2005). As will be shown below, herein lies the link between this geographic concept and the theory of qualitative freedom introduced in chapter 3.2. The quantifiable impact of initiatives following this paradigm on rural economies, however, differs strongly between regions, and may be less than exogenous measures (Dax et al. 2016).

A central argument for policy programs following the endogenous paradigm is capacity building, as they aim at encouraging deliberation and cooperation between local citizens in interdisciplinary, but issue-based arrangements (Hassanein 2003; Ray 2000). Collective problem and vision definition are assumed to stimulate social learning process that would in turn increase the capacity for cooperative action - if the stakeholders are able to align their interests pragmatically (Hassanein 2003). Rural development does not follow either the exogenous or the endogenous paradigm. Rather, in any rural area of the EU, one will a variety of projects, funded by various different European and national funds, that exist in rural areas simultaneously and are not necessarily integrated in one development strategy. In this regard, these paradigms provide lenses to capture different philosophies behind actual development practice.

The parallels between the endogenous development paradigm and several theories introduced in chapter 3 are obvious. The emphasis on local resources and capacities in associative democratic arrangements resembles pragmatist action theory. Such arrangements arguably require new forms of decision-making, and new set-ups of economic practices, and therefore require and

stimulates learning processes. As the endogenous paradigm emphasizes the stimulation of local economies through process of democratization and communalization, they can be regarded as subpolitical practices that develop qualitative development visions that align both the needs of producers and consumers (see Mason & Whitehead 2012; Stephenson 2012). This philosophy, highlighting subsidiarity, and often socio-ecological resilience, further resembles the agenda of the Transition Town Movement, as represented by CELL in Beckerich (see chapter 2.2).

However, Long and van der Ploeg (1994) raise caution to overoptimistic interpretations of these approaches, as the modernistic exogenous paradigms to regional development would be deeply engrained in rural institutions and development mechanisms. Nemes (2005) highlights that deliberative regional institutions may be co-opted by powerful stakeholders and create lock-ins and path-dependencies towards specific development trajectories that may create conflicts in local communities⁶⁶. These two aspects are highly relevant for the case of the canton Réiden and Beckerich, where a lock-in towards a green policy agenda has been suggested (see chapter 2), and opposition appears to emerge from a sentiment of exclusion.

In scientific discourse, the two paradigms are lenses to look at development from different angles, and characteristics of both will be found in most cases. Bridging the divide between these two paradigms, Galdeano-Gómez et al. (2011, p. 61) propose the *neo-endogenous paradigm* that asks "how to enhance the capacity of local areas to steer these wider processes, resources, and actions to their benefit. This is the notion of neo-endogenous development.

The focus then is on the dynamic interactions between local area and their wider political, institutional, trading and natural environments, and how these interactions are mediated." This neo-endogenous approach highlights the relational character of territories and renders awareness to geographic contingencies (Pike et al. 2007). Compared to the endogenous development paradigm, it renders more attention to regions' embeddedness in a globalized political economy and global knowledge flows. This certainly speaks to the case at hand, considering the import and diffusion of policy fragments to and from the canton, as well as the (critical) relations of several initiatives to the higher-order political economy (see chapter 3.1 for cosmopolitan dialectics in reflexive modernity)⁶⁷.

However, the kind of rural development at hand is not so much concerned with mainstream economic development measured by competitiveness and growth of a knowledge economy, but by changing regional economies towards more desired development trajectories according to qualitative criteria. As mentioned above, the rural emerges from the interplay of practices following

⁶⁶ As will be shown throughout in chapter 7, there are signs in Réiden that more conservative citizens feel subjectivized by the vibrant network of green activists in the canton.

⁶⁷ A policy mobility perspective may certainly help to elucidate Beckerich's role as a hub for import and diffusion of sustainability policies (McCann and Ward 2010; Peck and Theodore 2010). This perspective has been considered for this thesis, but dismissed, as it does not directly inform either RC. However, policy-mobility-thinking has implicitly informed my perception of the nature of grassroots initiatives of the case.

each of the introduced paradigms. For example, the exogenous development paradigm captures the logic that drives the pressures some of the initiatives are responding to, such as soil degradation, and loss of value created in the canton⁶⁸. None of these three paradigms of rural development will be used as a analytical lens in this thesis. However, the four chosen grassroots initiatives are understood to mainly follow a neo-endogenous development paradigm, as the draw on global knowledge and policy flows to address local problems with local capacities and resources, thus stimulating socio-economic activity from within. Therefore, the following section introduces grassroots initiatives as pursuing a (neo-) endogenous development paradigm, reflexively responding to negative externalities, or pressures, of the exogenous development paradigm.

Table 1: Exogenous and (neo-) endogenous rural development models. (from Galdeano-Gomez, Aznar-Sanchez, and Perez-Mesa 2011)

	Exogenous Development	Endogenous Development	Neo-endogenous Development
Key Principle	Economies of scale and concentration	Harnessing local (natural, human and cultural) resources for sustainable development	The interaction between local and global forces
Dynamic Force	Urban growth poles (drivers exogenous to rural areas)	Local initiative and enterprise	Globalization, rapid technological change in communication and information
Functions of rural areas	Food and primary products for expanding urban economies	Diverse service economies	Knowledge economy, dynamic participation of local actors in local and external networks and development processes
Major rural development problems	Low productivity and peripherality	Limited capacity of areas and groups to participate in economic activity	Resources allocation and competitiveness in a global environment
Development focus	Agricultural modernisation: encourage labour and capital mobility	Capacity -building (skills, institutions, infrastructure): overcoming exclusion	Enhancing local capacity and actors participation to direct local and external forces to their benefit
Criticism	Dependent, distorted, destructive and dictated development	Not practical in contemporary Europe	Operates at a level of insufficient empirical evidence

⁶⁸ Especially the SoLaWa, see chapter 7.4

4.2.2 Neo-endogenous rural development practices

The neo-endogenous development paradigm manifests in a range of multi-stakeholder, place-based initiatives that address local problems and pursue local development visions while being inspired by global knowledge and policy flows (Cochrane 2011). In the EU, these are often facilitated by the LEADER and the INTERREG programs (Dax et al. 2016; Ray 2000). The initiatives in the canton Réiden are quite common cases in this regard. For example, in the introductory chapter of the *Handbook on local and regional development*, Cochrane (2011) discusses agricultural co-operatives and complementary currencies as alternatives approaches to rural development that set in value existing capacities and resources and fostering bio-regional resilience.

In a comparative study between Austrian and Irish LEADER regions, Dax et al. (2016) identify an increasing tendency of government to take back control over the LEADER programs. As the program budgets are handed to national ministries and redistributed to lower levels of administration, there are ways for higher-level government to influence local project design⁶⁹.

As will become clearer in the following section, the neo-endogenous development paradigm has strong overlaps with grassroots and social innovation literature, while some of their effects on the wider political economy can be perceived through concepts of sustainability studies. The aim of the LEADER program is to stimulate innovation that addresses local needs with local capacities⁷⁰ (Dax et al. 2016; Ray 2000; Cochrane 2011). Whereas the LEADER program and the underlying approaches to development are rarely mentioned in respective grassroots, or social innovation case studies, the neo- endogenous paradigm to rural development is an essential perspective that raises awareness to geographic context, and the multi-scalar institutional context in which they emerge.

Finally, it needs mentioning that these initiatives rarely produce hard economic outcomes or create jobs in a scope comparative to substantial FDI in specific industries⁷¹. However, they do create arenas for experimenting with more sustainable social practices, may serve to communalize systems of provisions that make communities more resilient (Barr and Devine-Wright 2012; Hadjimichalis and Hudson 2014), and are arenas for social learning process that contribute to wider societal sustainability transformation (see chapter 3.4).

⁶⁹ This is the case for some initiatives in Réiden, as will be shown in chapter 7.

⁷⁰ https://enrd.ec.europa.eu/leader-clld_en (accessed December 2018)

⁷¹ These however, may lead to an improvement of quantitative indicators, but not necessarily in an improvement of living conditions in a community, for example if taxes are funnelled through holding structures to Luxembourg.

The ongoing economic crisis in Europe had severe negative impacts on regions that have previously been hailed as role models of regional development. This challenges development researchers to reflect on the effectiveness of their theories or make their positionality more transparent. The focus on 'best practices' and success stories may have made some development researchers in the EU blind to the regional vulnerabilities certain development paradigms fail to address, or even co-produce. Research suggests that rural regions with high shares of FDI have significantly higher exposure to economic decline in crisis. Further, regions with regional clusters of companies have experiences significantly lower rates of jobs losses. On the other hand, grassroots initiatives, which have been widely neglected in traditional regional development theories, gain existential importance in areas suffering from austerity. Initiatives that may in more economically affluent regions be considered as hobbies, or mere acts of subversive critique, here re-establish basic systems of provision that have collapsed under crisis are not re-established by governments or markets.

Text Box 1: On austerity and regional development theory (see Hadjimichalis & Hudson 2014; Kousis et al. 2016; Martin 2012; Petrakos & Psycharis 2016; Wrobel 2013)

4.3 TRANSFORMATIVE INITIATIVES AT THE GRASSROOTS

This section develops the concept of grassroots initiatives as local problem-engagements following the neo-endogenous development paradigm. The purpose of this section is to provide a conceptualization that allows comparing the very diverse grassroots initiatives chosen for research regarding the RC. Since studies and concepts of grassroots initiatives cross-cut scientific disciplines, particularly the works on socio-technological systems, and social innovation, this section will give a brief introduction of these debates (section 4.3.1 and 4.3.2). Section 4.4 puts these debates on grassroots initiatives in dialogue with theories introduced in chapter 3 to develop conceptualizations of the terms *grassroots initiatives*, *community capabilities*, and *Leitbilder*. These are the analytical concepts to address the two RC, and they will be operationalized with site ontology in the following chapter 5.

The four initiatives chosen for analysis aim to gain sovereignty over policy domains. As discussed under the neo-endogenous rural development paradigm, the initiatives contribute to politically re-embedding the respective sectors' positive and negative externalities into the canton (such as financial gains and environmental degradation), often against the resistance of higher levels of the national political economy. By creating networks of diverse citizens (local government, enterprises, NPOS, etc.) who are predominantly rooted in the canton, accountability and transparency in the respective domains are increased.

The initiatives in Réiden are not unique, but exist in many other places around the world⁷². Often, their implementation in the canton is informed by examples from neighbouring countries and tailored to the local context. Comparative examples exist in the agendas of *Local Agenda 21*, the *Sustainable Development Goals*, and promoted in local government networks as *ICLEI*⁷³. In the

⁷² The analyses of the four initiatives in chapter 7 will include a review of comparative studies for each initiative.

⁷³ <https://iclei.org/en/Home.html> (accessed December 2018)

non-governmental field, the international *Transition Towns Network*⁷⁴, or the French *Colibris*⁷⁵ network pursue similar agendas of bio-regional development, or local sustainability experiments with more sufficient and environmentally benign life-forms, consistent and efficient resource flows, and humanistic approaches to community development.

In geographic research, such initiatives are addressed with concepts concerned with technological innovation for *sustainability transitions* (section 4.2.1), or localist initiatives promoting forms of *sustainable place-making* (section 4.2.2). Recently, these different paradigms converge in research on transformative grassroots innovation (section 4.2.2). Whereas these approaches differ regarding their awareness for political emancipation and community empowerment, they share similar conceptualizations of the composition and functioning of these initiatives. Socio-technical approaches to transition focus on the effects of transition initiatives on the institutional structuration of an economic sector, grassroots literature, looking at civil society initiatives, takes a more relational place-making approach and often draws on social practice theory.

Any of the four chosen initiatives can be regarded as a socio-technical arrangement and a grassroots initiative, as they mobilize local materialities in newly arranged social institutions and social practices. For example, the regional currency is a (locally) novel combination of social practices (for example accounting, strategically harmonizing supply chains) and materialities (bills, electronic payments systems) that potentially affects higher-order institutions of doing commerce regionally, and even national legislation. Simultaneously, it addresses local problems (drainage of economic values created from the region, lower competitiveness of local enterprises) with local means (organisational capabilities of the LAG, the KomEcoRura, and inter-communal syndicate). The regional currency is confined to a distinct territory yet entangled in and inspired by a globalized political economy and financial industry.

This section develops a conceptualization of grassroots initiatives informed by literature on socio-technical transitions, and social and grassroots innovation. It links these debates to the theoretical backdrop given in chapter 3 and develops concepts to address the two research complexes (section 4.4). A brief conclusion derives requirements for the development of the research ontology (section 4.5) in the following chapter 5.

4.3.1 Socio-technical transition studies

A salient strand of economic geography literature addressing sustainability transitions is research on *socio-technical transitions* (Geels 2002; 2005; Geels and Schot 2007) and *technological innovation systems* (Markard and Truffer 2008). Truffer and Coenen (2012, p. 3) summarize these

⁷⁴ <https://transitionnetwork.org> (accessed December 2018)

⁷⁵ <https://www.colibris-lemouvement.org> (accessed December 2018)

debates under the term *sustainability studies* and describe them as frameworks representing "policy demands for supporting radical transformation in technologies, markets, and institutions towards sustainability goals (...)."

Socio-technical transitions

Sustainability studies perceives what is in this thesis referred to as policy domains, or fields of community, as socio-technical systems (such as energy, agriculture, transportation). These are enacted arrangements of actor networks (enterprises, organisations, other collective actors), institutions (norms, standards, regulations), material artefacts (physical resources, machines, products), and action knowledges. Markard et al. (2012, p. 956) indicate that the "systems concept highlights the fact that a broad variety of elements are tightly inter-related and dependent on each other (...). Socio-technical transition is a set of processes that lead to a fundamental shift in socio-technical systems. (...) They differ from technological transition as include changes in practices and institutions. Sustainability transitions are long-term, multi-dimensional, and fundamental transformation process through which established socio-technical systems shift to more sustainable modes of production and consumption." The socio-technical systems perspective, therefore, is not so much concerned with the innovation of a product, or new technological artefact, but with the wider socio-technical arrangements of its emergence, production, and use over timespans of several decades. Sustainability studies literature develops frameworks to conceptualize of, and prospectively steer, such transitions in socio-technical systems to achieve more sustainable system-states. Based on studies of historic cases of disruptive technological innovations and their diffusion pathways (for example Geels 2002; see below), the fundamental insight of this literature is that technology and forms and informal institutions should not be seen as separately, but as intrinsically interlinked and mutually constitutive. The objective of this research is to develop concepts of socio-technical systems that help comprehending "configurations that work" for sustainability transition and inform policy accordingly (Rip and Kemp 1998).

Governance approaches to sustainability transitions

A highly influential concept in geographic debates on sustainability transitions is the Multi-Level-Perspective (MLP) (Geels 2002; 2005). It conceptualizes of complex and dynamic large-scale socio-technical change as occurring on different degrees of institutionalisation, which are represented in three levels. The regime denotes the paradigmatic core of an economic sector, a shared ruleset or grammar of routines, procedures, ways of handling artefacts, problem definitions, and the infrastructures and institutions they are embedded in (Fuenfschilling and Truffer 2014; Rip and Kemp 1998). Regimes are situated in deep socio-technical trends and external factors (environmental change, political coalitions, oil prices etc.), referred to as landscape. A niche, finally, is a social

space that is protected or insulated from regime effects, such as market selection, and thus allows for experimentation with radical novelties. Transition, or socio-technical change describes the process of a novelty emerging from a niche and disrupting the regime. The MLP has been developed in retrospective research on socio-technical innovations such as the steamboat and the car, conceptualizing how they pushed the sailing boat and horse-carriage off the market. The concept is nowadays often used as a heuristic to describe current processes of social change.

Lessons from the MLP and other sustainability transition concepts have been operationalized for their practical implementation in facilitating or managing socio-technical transitions. The *reflexive governance* approach (Voß et al. 2006) advocates reflexivity, adaptivity, and flexibility, perceiving of governance as "shaping the market and the society in a desired form" (Grin 2006, p 57). In this process of "deliberative re-orientation", civil society and private stakeholders would be included in decision-making arenas that had previously been under government control. This theory is rooted in the discourse of (reflexive) modernity (see Beck 2006) and acknowledges that any such governance process is inherently part of in modernistic processes and structures (Grin 2006). Non-modernist actors would acknowledge this embeddedness and that she/ he cannot change or overcome these structures, but at best acknowledge and steer them in more favourable, sustainable directions (Rip 2006). It is central for understanding the policy-making strategies *transition management* and *strategic niche management*.

These approaches have been developed in commissioned research by governments to inform governance⁷⁶, and consequently take an intrinsic approach to sustainability transitions. They have evoked criticism for being geographically naïve, deterministic regarding transition pathways, not accounting for innovation playing in several transition arenas simultaneously and stakeholders' cross-level relations, neglecting the potential impact of changes in everyday routines, ontologically closing imaginaries for alternative political pathways by avoiding a relational approach to governance, and not allowing to challenge incumbent power relations (Chilvers and Longhurst 2014; Faller 2015b; Shove and Walker 2007; 2010).

Recently, sustainability transition frameworks are linked to more place-sensitive approaches (see below). Conversely, socio-technical transition debates increasingly introduce geographic concepts in their studies (Markard, Raven, and Truffer 2012). The contention here is that geographic context conditions the transition potential and character as place-bound configurations of materialities, social relations, cultural histories, and their enactment in social practices determine how institutions work in a given site (see for example Coenen et al. 2012; Hargreaves et al. 2013; Jørgensen 2012).

⁷⁶ Dutch governments have been particularly supportive in the development of these concepts. Here, transition management has entered ministries' policy agendas already in the early 2000's. Research on the Dutch energy transition, however, suggests that the inclusion of incumbent regime actors, in this particular case Shell, would prevent radical systems-change to occur (Kern and Smith 2008).

To conclude, sustainability studies literature perceives of transitioning economic sectors towards more sustainable states as socio-technical re-configurations. It acknowledges the co-dependence and evolution of technical materialities and social institutions. Although the introduction in chapter 2 shows no indication of deliberate Transition Management, elements of reflexive governance, such as flexibility and continuous re-adaption to an environment that changes partly because of transition activities, seem to shape the process. Visions for a sustainable state of policy domain are constantly reviewed and adjusted in the process, similar to pragmatist social action approaches (see chapter 3.3). Sustainability transitions literature serves as a constructive heuristic to approach these processes, and the place Beckerich can be seen as a site, or a social space that serves as a protective niche for socio-technical experiments (see Faller 2015a, b). The concepts introduced in the following draw on assumptions of sustainability studies, and the MLP in particular, as grassroots initiatives are described as localized protective niches. In this regard the concept consolidates the socio-technical approaches to institutional transition with a spatial perspective.

4.3.2 Sustainable place-making at the grassroots

Socio-technical transitions literature is instructive for conceptualizing the co-constitutive relation between social institutions and technological artefacts and provides a structured understanding to transitions within policy domains. With regards to the conceptualization of the initiatives to be analysed in chapter 7, this approach needs amendment in two aspects: Attention to geographic context, and a clearer normative positioning that gives awareness to the power struggles and emancipatory thrust of the initiatives.

Therefore, this section introduces works on *social* and *grassroots innovations*. This literature approaches initiatives such as those addressed in this study as interventions within a given policy domain, emerging in a specific locality, as they address local needs with local means. They are in line with pragmatist approaches to community action and democracy and are seen as localized subpolitics (see chapter 3). These works are highly constructive for addressing two research complexes, because of their sensitivity to local geographic contexts, and awareness on emancipatory and democratizing intentions and tactics. The concepts *social* and *grassroots innovation* are the central mid-range concepts to conceptualize of the four initiatives examined in this thesis. The concepts *community capabilities* and *Leitbildanalysis*, which will be used as analytical frameworks for addressing RC1 and 2 are part of this literature.

Social Innovation

Whereas literature on socio-technical innovation examines pathways for more sustainable systems of production and consumption, social innovation focuses on the satisfaction of unfulfilled social needs, addressed with (predominantly civic) social means. Is concerned with cases of local

associations providing for needs are not sufficiently met by the respective political economy. In this understanding, it is a mid-range theory of pragmatist subpolitics at the local level.

Towards the end of the 2000's, social innovation became a key concept in government and EU guidelines, as "a panacea for welfare state reform" (Avelino et al. 2017; also Oosterlynck et al. 2013; 2015). Jessop et al. (2013, p. 111) refer to this instrumental view of social innovation as a "caring liberalism" that "privileges social enterprise as the key agent for social change and the economy as the primary sphere of social life." Moulaert et al. (2013, p. 13) therefore insist that "(s)ocial innovation (...), appropriately utilized, is a driver of interdisciplinarity and transdisciplinarity in scientific research, whose epistemological and methodological stances are in continuous development. It is used as a label to indicate significant changes in the way society evolves, how its structures are modified; its ethical norms revised, etc. Such changes are, in the first place, the concern of collective action, public policy, socio-political movements, public uprising, spontaneous organization, etc."

Arguably, the emancipatory aspects of the concept, promoting democratization and empowerment are "watered down" in course of commissioned government research projects. In the compendium on social innovation, Frank Moulaert (2013), a central figure to social innovation research since the 1990's, laments a "Babel-like terminological confusion", and argues for an emancipatory understanding of the concept. With regards to the normative and localist thrust of the initiatives in the canton Réiden, the following focuses on this tradition of the debate. This literature generally follows Moulaert et al. (2005) conceptualization of initiatives in three dimensions:

- *Satisfaction of human needs* that are not currently satisfied, either because 'not yet' or because 'no longer' perceived as important by either the market or the state (content/ product dimension).
- *Changes in social relations*, especially with regards to governance, that enable the above satisfaction, but also increase the level of participation of all but especially deprived groups in society (process dimension)
- *Increasing the socio-political capability and access to resources* needed to enhance rights to satisfaction of human needs and participation (empowerment dimension)

The approach to social innovation in this section concentrates on place-specific cases, and the new social relations they create for increasing the socio-political capabilities in specific domains⁷⁷. This related to Truffer and Coenen's (2012) assertion that regional, or rural development occurs in highly heterogeneous ways, and that sustainability challenges, be they ecological, social, or economic, are therefore place sensitive. Often, the new social relation assembles around qualitative and humanistic development norms and contribute to wider local, or regional development strategies (Moulaert et al. 2013; Oosterlynck et al. 2013).

Social innovation is rarely "new" like technological innovations. They may be experiments policy are new in a specific place, but often exist in different forms in other places - like all the initiatives

⁷⁷ An example for a less place-based social innovation could be new social institutions as the Wikipedia platform, which is also discussed an example of a *Real Utopia*, or *commoning knowledge*.

analysed in this thesis. However, as each place is confronted with specific problems, disposes of different capacities, and is embedded in wider institutional context, what works in one place may not work in another (see Tenemos & McCann 2013; Peck & Theodore 2010). Oosterlynck et al. (2013, p. 3), in their discussion of the relation between social innovation and welfare state institutions, add that initiatives would rarely follow coherent visions or strategies, but gradually come into being in a bottom-up fashion when people organize themselves to respond to a need they experience. This ascertainment mirrors the social action approach in pragmatism and subpolitics in reflexive modernity is conceptualized (see chapter 2).

Given of their emergent character, cases are often approached as long-term institutionalization process (Haxeltine et al. 2016; Howaldt and Schwarz 2016; Moulaert et al. 2005; Oosterlynck et al. 2013). Drawing on Deleuze, Moulaert et al. (2013, p. 17) describe social innovation as "tak(ing) place through windows of opportunity for social creativity along lines of life, lines of imagination, lines of bringing in assets for a better future. All these are windows of opportunity for social creativity, which may emerge from challenges to institutional practices. Innovation often emerges from conflict: opportunity spaces at micro scales may make creative strategies possible at macro scales. The perception of opportunity spaces here shows strong resemblance to the characteristics of a niche in the MLP. And again, the parallels to pragmatist thought and subpolitics are clear: It relates to Dewey's approach to community development and democracy as continuous problem-solving and social learning, and to the concept subpolitics, referring to civil engagement in situations where hegemonic institutions fail to provide social needs, or contribute to a situation that is deemed unsatisfactory, or threatening, e.g. being at risk.

An institutional perspective, such as provided by the MLP, informs how social innovations evolve over time and how they affect their community and wider society. Especially the latter point is a key theme of recent research projects examining the "transformative" impacts of SI. Research suggests social innovation to undergo life cycles of institutionalization and formalization (Haxeltine et al. 2016; Howaldt and Schwarz 2016; Moulaert et al. 2005). Formalization and professionalization may lead to co-optation of different levels of government and integration of public services (Avelino et al. 2017; Moulaert et al. 2005). The effect of social innovation on higher-order institutions is not subject of either research complex, and the initiatives to be analysed do not show signs of ending life cycles. Attempts of co-option by government bodies is a re-emerging subject in the analyses of the four initiatives in chapter 7.

Appraisal of social innovation's contribution to local governance arenas is ambivalent. On one hand, governance innovation, such as the introduction of deliberative commissions in Beckerich, may improve inclusiveness and empower citizens to address local challenges (Avelino et al. 2017). However, such governance may open opportunities of co-option: Whereas social innovation may re-articulate the state-civil society relationships, and offer new opportunities for political

citizenship, arenas of "governance beyond the state" would allow power interests to undermine these political process, and become "increasingly eroded by the encroaching imposition of market forces that set the 'rules of the game'" Swyngedouw (2005, p. 1993).

Further, within localities social innovation may exclude citizens by the values and visions they pursue. Research suggests that citizens may be excluded from initiatives should they not ideologically align (Moulaert et al. 2005). This may undermine the democratizing potential of such initiatives, especially in cases where social innovation become powerful arenas of local decision-making. For the case at hand, however, there is no indication of such exclusions. Rather, initiatives seem to struggle with the repercussions of inclusiveness, as it strains community capabilities, as will be shown in the analysis.

Finally, recent publications increasingly debate the relationship between social innovation and social change in society⁷⁸ (Haxeltine et al. 2016; Howaldt and Schwarz 2016). Both approaches built their frameworks on the dialectic interplay between social practices and institutions and perceive social innovation as reflexive and relational rule-altering social practices. Amongst various points, the approaches differ regarding their normative position, and geographical sensitivity. Howaldt and Schwarz (2016, p. 58) for example conceptualize of social innovation as "the establishment of a new institution guiding new forms of social practice" and of social change as "the process in which *new social practices emerge*, become socially accepted, and diffused in society by processes of *imitation, adaptation, and social learning* (...). (emphasis in original)" Haxeltine et al. (2016, p. 21) conceptualize transformative social innovation (TSI) as "processes in which social relations, involving new ways of doing, organizing, framing and/ or knowing, challenge, alter, and/ or replace established (and/ or dominant) institutions in a specific socio-material context. Rather than as a 'type' of innovation, we (the authors) consider TSI as a process that alters existing patterns of structuration (in local practices) resulting in varying degrees of institutionalization as a TSI journey unfolds across time and space." Further publications of this research project focus on aspects of (local) empowerment and capacity building (see Avelino et al. 2017). With regards to this thesis, the more geographically sensitive and emancipatory approach of this recent strand of the social innovation debate is more informative than the rather descriptive approach of Howaldt and Schwarz (2016).

However, the relation between social innovation and change can also be imagined as a juxtaposed causal relationship. Braun-Thürmann and John (2010), as well as Moulaert et al. (2013) suggest perceiving social innovation not only as drivers of social change in a given place, but also as indicators of it. Initiatives can in this regard be understood as responses to changes in overarching

⁷⁸ During this research project, two European research consortia had pursued case studies to develop theories on the relation between social innovation and social change: SI-DRIVE (see Howaldt and Schwarz 2016) and TRANSIT project (see Avelino et al. 2017; Haxeltine et al. 2016). The deliverables of these projects, most notably the resulting theoretical propositions were published in 2016, when the theoretical approach for this thesis had already been developed. Especially the results of the TRANSIT project would have been very informative for this thesis.

institutions (opening of windows of opportunity, as Moulaert et al. 2013 suggest), or a creating a supportive contextual culture for the development of new practices (local niche). From this perspective, the initiatives under analysis could be regarded as indicators, or manifestations, of the changes in the political culture in Beckerich and the canton. This seems a promising trajectory for interpretation, as each initiative can be linked to an opening of a "window of opportunity", or inertia and inability of the macro-scale to address problems that the local community consequently addresses itself. This is picked up in the operationalization of the initiatives in the final section of this chapter, as well as in the concluding theorization in this thesis. The following section introduces grassroots innovation concepts that transfer elements of social innovation to sustainability studies literature, as they link institutional change to place-making, bottom-up social practices.

Grassroots innovation in alternative milieus

Initiatives those examined in thesis are in Anglo-Saxon research often addressed as grassroots initiatives, or grassroots innovation. Lending conceptual insights from both social innovation as well as socio-technical innovation literature, case studies examine local initiatives that are mostly situated in the social economy (Smith and Seyfang 2007; 2013). Seyfang and Smith (2007, p. 585) describe grassroots innovation as "networks of activists and organizations generating novel bottom-up solutions for sustainable development; solutions that respond to the local situation and the interests and values of the communities involved. In contrast to the greening of mainstream businesses, grassroots initiatives tend to operate in civil society arenas and involve committed activists who experiment with social innovations as well as using greener technologies."

The concept combines the emancipatory thrust of social innovation with the attention to material engagement and institutional embeddedness of sustainability sciences. Community action is perceived as occurring in place-specific constellations that provide "protected niches" for experimentation with locally alternative practices. Compared to the socio-technical transition phenomena, grassroots innovation are generally perceived as more value driven, aiming for social welfare and human flourishing, and are performed to large extend by civil society (also Longhurst 2015 Mason and Whitehead 2012; Middlemiss and Parrish 2010).

Compared to managerial approaches, or reflexive governance practices that include incumbent actors in often large-scale initiatives, agency is more distributed, while stakeholders' resources are limited- hence the adequateness of neo-endogenous paradigm (Middlemiss and Parrish 2010; Seyfang et al. 2010). However, the concept is used to address a variety of research interests ranging from ethical place-making in counter hegemonic practices (Brown et al. 2012; Mason and Whitehead 2012), to more technological innovation-oriented research that also includes government

action as grassroots innovation⁷⁹ (Fressoli et al. 2014). With regards to the character of the initiatives of the case, the understanding of grassroots innovation developed in this section lends strongly from the ethical place-making approaches and pragmatic problem solving (Hassanein 2003; Mason and Whitehead 2012).

To conceptualize grassroots innovation for this case, two aspects are elucidated in the following: The perception of local communities as protective social spaces for subpolitical practices, described as *alternative milieus*, and the conceptualization of constitutive elements of grassroots innovation informed by *social practice theory*.

The concept *alternative milieus* engages with the reciprocally constitutive relationship of protective social spaces and grassroots innovation (Longhurst 2013; 2015). The concept corresponds to RC1, which examines how the various initiatives in Beckerich and the canton interlink to drive the overall rural development. An *alternative milieu* is a "localized density of countercultural institutions, networks, and practices (that create) a particular form of geographic protection for the emergence of different forms of sustainable experiment" (Longhurst 2015, p. 184). The concept lends conceptualizations from the MLP, perceiving of niches as protected social spaces for experimentation which social practices.

Drawing on Truffer and Coenen (2012), Longhurst (2015) argues that such "green" niches would partly emerge because of highly uneven regional development dynamics in the EU, and allow (or require) non-market forms of sustainability experiments based on volunteerism and new forms of social organizing. These experiments are not only socio-technical, but also conceptual, or institutional, in the sense that they may produce new sustainability ideas that could be systemic in their aspirations and implications (see chapter 3.4). The initiatives *Maison de l'Eau* (chapter 7.2) and the *Energieatelier* (chapter 7.3) are examples of this: Both evolved out of a local civil society initiatives that have become formalized and professionalized in the canton, and influenced the national ecosystem governance policies and renewable energy strategies significantly. Further, they have been successfully defended against attempts of government co-option. Longhurst (2015) conceptualizes of three factors contributing to an *alternative milieu*:

⁷⁹ It appears that the concept grassroots innovation is befalling by the same fate as social innovation, e.g. being co-opted by commissioned research linking a concept that was developed to conceptualize counter-hegemonic, subpolitical initiatives to rather government-, or business-led phenomena. The work of Fressoli et al. (2014) is an example of this.

- *Ontological and epistemological multiplicity*: Alternative milieus assemble different belief-systems as radical politics, spiritualities, and science-approaches that expand the cognitive realm of community imaginaries. Reciprocal credulousness creates the socio-cognitive space for experiments to emerge by stretching the socially accepted and constructed.
- *Spatial imaginaries*: Participants perceive “their” space as inspiring; it affects them, and they want to affect it.
- *Ontological security*: The trust and security members give one another, as they share cognitive frames. This would make sustainability innovation experiments acceptable, or appropriate social behavior.

All of these aspects have been explicitly brought up in exploratory interviews with protagonists of local initiatives, when asked to explain the developments in Beckerich. These aspects will not be part of the in-depth analysis of the four initiatives in chapter 7, but are essential for the theorization of the overall development (see chapter 8).

The second aspect of grassroots innovation relevant for the research design of thesis is that case studies often build on a social practice ontology (see chapter 5). In these works, innovations are perceived as social practices that create new arrangements of existing local activities and materialities, which produce novel responses to local challenges according to the ideas and values of the community. The community of local agents in this regard is often perceived as a *community of practice*⁸⁰, taking action in the immediate lifeworld. Social practice theory is in this regard often employed to explore the relationship between social, or grassroots innovation with social change. A key theme of all research strands introduced in this chapter is the effect of initiatives on social change, or transformation⁸¹. Social practice theory is deemed particularly constructive for this research interest, as it attends to the interplay between social actions and materialities⁸². Seyfang et al. (2010, p. 8) conceptualize of social change and transition “as occurring through changes in the way the elements of practices are assembled by different groups of practitioners. (...) Social practice theory looks towards the doings of practice by civil society movements just as by any other group of practitioners and ask how these evolve and change over time in different spaces. As such, it conceives of innovation as the making and breaking of links between the elements of practice.” This rather broad conceptualization allows for a variety of framings of how elements are linked in practice, depending on the analytical interest of the study. A well-cited example is the social practice approach of Chilvers and Longhurst (2014), which links the systems approach of socio-technical transitions literature to grassroots innovation literature’s awareness on geographic context and place-making. A system (such as the energy system) is perceived of as an assemblage of socio-

⁸⁰ Community of practice is concept that has originally been brought forward by social scientist Étienne Wenger (1998) and is often used in grassroots innovation research. As will be discussed in the following chapter 5, Wengers concept hardly aligns with the emancipatory and creative connotation of grassroots innovation, as he links it to teams executing tasks in large social organisations that have been handed to them from above. Surprisingly, none of the literature reviewed for this case takes issues with this.

⁸¹ The most recent examples are the research projects *SI-DRIVE* (Howaldt and Schwarz 2016), and *3transit* (Haxeltine, Avelino, Pel, Dumitru, et al. 2016), both proposing frameworks to examine the reciprocal relationship between social innovation, and social change, or transformation. As I learned about them after the research design for this thesis had been adopted, they are not included in this section.

⁸² Different social practice approaches assume different elements, or domains of social practices. This will be elaborated further in the following chapter 5. For now, this section follows site ontology by perceiving of social practices, or practice-arrangement bundles, to be enactments of social practices and materialities, guided by a mental domain.

technical arrangements, which differ regarding their complexity and stability. Collectives of human-and non-human elements (practices, rules, technologies, etc.) are entangled with one-another in higher-order spaces of coherence (*ibid.*). In these arenas, several collectives stabilize innovations that may eventually affect assemblages, the highest level of complexity and extend. Following a flat ontology, the authors argue that all these three levels consist of, are shaped by, and produce

- Knowings (knowledge, competences, cognition)
- Doings (technologies, practices)
- Organising (modes of organising, forms of governance, institutions)
- Meanings (framings, issues, visions, imaginaries, values)

This is an effective entry point to conceptualize the internal composition of grassroots innovation that will be refined in the course of this and the following chapter 5. Notably, it attends to the mental domain, as assessed by RC2, as well as the entire grassroots initiative as a social practice, which is subject to the social *Leitbilder* addressed by RC1. Regarding the latter, the following section will show how this conceptualization can be linked to the conceptualization of grassroots initiatives with the community capability concept. However, Chilvers and Longhurst (2014) do not elaborate on the character of relations between these elements, and between entire social practices. This, then, will be provided for by site ontology. The approach indicates the advantages of social practice theory for research on grassroots initiatives: It allows for a high conceptual awareness on diverse constitutive elements of an initiative, such as materialities, institutions, and actionable knowledge, while focusing on collective action, rather than individual agency, or social structures.

4.3.3 The interplay between grassroots initiatives and rural development

In this section, reflects on understandings of the impacts and effects of grassroots initiatives in scientific debates and in this thesis. This thesis proposes an alternative understanding to grassroots initiatives' impacts, drawing on the theories introduced in chapter 3. This is a key contribution of this thesis to the geographic debates on local sustainability engagements at the grassroots, and research on rural development in general.

To achieve this, the neo-endogenous rural development paradigm and works on social and grassroots innovation are put in dialogue with the theories introduced in chapter 3. Chilvers' and Longhurst's (2014) social practice approach lends the guardrail to include elements of social practice theory in this discussion. The following chapter 5 will link the concepts developed in this chapter to social practice theory, specifically to site ontology.

The rural development in Réiden, driven and marked by the grassroots initiatives, is a form of social change, or sustainability transformation. The initiatives aim at consolidating sociology-economic development and a rural sustainability transition. Chapter 2 and chapter 7 introduced comparative

case studies and scientific debates suggesting that the policies pursued by each initiative can have significant sustainability impacts in the given policy domain and promote rural development. This project differs from the transition studies literature presented in this section in a crucial way: While the approaches introduced above often examine initiatives' effects on (higher order, or more spatially extensive) institutions, referred to as social change, transition, or transformation, this thesis concentrates the role of grassroots initiatives in the wider endogenous rural development. Specifically, the impact of an initiative will not foremost be addressed as the effects on the institutional context (Howaldt and Schwarz 2016), or social field (Haxeltine et al. et al. 2016), but by the way they expand the capability of the communities to bring forth other initiatives in the same, or adjacent policy domains. This is achieved by linking grassroots initiatives and rural development literature to concepts introduced in chapter 3.

The four initiatives to be analysed in chapter 7 are perceived as grassroots initiatives. They are local problem-engagements brought forward by diverse citizens in *associative democratic arenas* (the systemic instruments) that include stakeholders from the private sector, the government, and civil society. They aim at re-directing the development trajectory of a given policy domain, public service, or economic sector in a desired way- notably to gain sovereignty over the positive and negative externalities and internalize them locally. The initiatives are subpolitical social practices in the sense that they address local needs that hegemonic institutions do not address (anymore), or problems that are created by the eroding institutions and structures of first modernity. Most relevant here is the ecological crisis, the effects of globalized economy on local producers, and social alienation. The initiatives appear to pursue an interstitial strategy in the sense that they include the state when necessary (for example through the LEADER program), while actively building alternative institutions, or systemic instruments, such as the inter-communal syndicate, that increase their subsidiary capacities.

Each of the four initiatives aims at (re-) communalizing and democratize a system of basic provision (for example energy, agriculture, finance, etc.), a public service (education, energy consulting) democratize the governance of a common (the ecosystem of the watershed area around the Atert). These reconfiguration processes are informed by qualitative development criteria that are constantly re-produced in the systemic instruments. The initiatives SoLaWa, Beki, and the Energieatelier align the diverse interests of consumers and producers from the canton in common development visions: In each of the initiatives the reconfiguration of a policy domain is guided by specific norms such as ecological sustainability, reciprocity, solidarity with regional actors, or inter-and intergenerational justice. These visions allow producers to change their practices, while they allow consumers to achieve desired life-forms. The development can therefore be addressed as a process of expanding capabilities, or freedom of local citizens.

Learning theories argue that local problem engagements require the design of new social practices. Transdisciplinary and diverse communities of practice would further increase the likelihood of success, because more diverse knowledges can be included, and risks mitigated. Such associative democratic engagements may then result in the creation new actionable knowledge, the ability to create congruence among diverse participants view (also cultural capability) and increase the practice community's self-efficacy. Therefore, successful problem engagements may stimulate social learning process that increase the overall ability of a community to overcome problem-situation in other policy domains, e.g. to bring forward new grassroots initiatives.

The overall rural development to be examined in this thesis is therefore regarded from two angles: First, the grassroots initiatives satisfy diverse needs, desires, and problem of diverse citizens through the provision of conversion factors that help them realize individual desired capabilities, thus expanding their freedom. Second, as grassroots initiatives stimulate social learning process, they expand the capability of the commune to bring forth (transformative) grassroots initiatives in other policy domains. The rural development in Réiden is therefore to like the way Polanyi (1993) and Wright (2010) conceive of societal transformation: Rural development, or social transformation occurs to the unplanned and unintended cumulative effects of diverse contingent and contextual problem engagements. This process is open ended, as no qualitative development norm is ever achieved, but only exists and expands through realization in social practices.

The case Réiden, where sustainability intervention that are highly progressive for the national context have emerged in various policy domains over a period of 40 years is an ideal case to experiment with such a development paradigm. To the authors best knowledge, all case studies reviewed for this thesis (see chapter 7), look at singular grassroots initiatives, or compare the same kind of initiatives (complementary currencies, alternative currencies, etc.) in different places. This thesis looks at various interrelated grassroots initiatives in different policy domains over time in the same place and is therefore a unique opportunity to experiment with alternative development concepts and theory.

4.3.4 Synthesis

This section put geographic mid-range theories addressing similar cases in dialogue with theories discussed in chapter 3. It introduced three paradigms underlying rural development, it introduced geographic debates on sustainability transitions and grassroots initiatives as local sustainability experiments, and it developed a case-specific understanding of rural development. The discussion concluded that the four initiatives to be analysed in chapter 7 are conceptualized as grassroots initiatives following a neo-endogenous rural development paradigm. The rural development is conceptualized as the continuous expansion of the capability of the local practice communities to bring forth grassroots initiatives in other policy domains.

With regards to lessons from comparative studies and a reflection of the requirements of the two RCs of this thesis, the discussion further concluded the research design to be built on social practice theory. The remaining section of this chapter will introduce the two concepts that guide the analysis of these research concepts, community capabilities (RC1) and Leitbildanalysis (RC2). Regarding the conceptualization of Chilvers and Longhurst (2014) introduced above, RC1 addresses the realm of doings and organisings, while RC2 addresses the realm of knowings and meanings.

4.4 ADDRESSING THE RESEARCH QUESTIONS

This section develops the analytical concepts to address the two RCs. *Community Capabilities* and *Leitbilder* are based on geographic research on grassroots initiatives and they will in the following be refined in dialogue with the theories introduced in chapter 3.

4.4.1 Transition as the expansion of community capabilities

RC1 hypothesizes that the diverse grassroots initiatives in different sectors are linked, and prefigure one another (through people, materialities, understandings, norms, activities etc.). Understanding these links is the key to understanding the entire rural development. It then asks: Through which elements are the initiatives linked (understandings, people, materialities, activities) and what is the character of these links (constitution, prefiguration, causation)?

The RC requires conceptualizing of the initiatives' constitutive elements and the relationship of these elements within and between initiatives. The interplay of these elements is imagined creating qualities that exceed the sum of the parts (or conversion factors), e.g. capabilities. Capabilities have two characteristics: For one, they represent real achieved freedoms for individuals to pursue desired life-forms, afforded by the community. On the other, refer to the freedom of the community to solve problems and pursue collective development norms through grassroots initiatives. These development norms are re-produced in social learning process stimulated through grassroots engagement. The following puts the concept *community capacities*, developed in research on similar cases, in dialogue with the development theories introduced in chapter 3, and develops the concept *community capabilities* along a social practice framework.

Middlemiss and Parrish's (2010) concept of *community capacities*, which is widely cited in geographic research on grassroots initiatives, satisfies all of these requirements: It conceptualizes of qualitative elements making up grassroots initiatives, and conceptualizes of an initiative's impact as the expansion of the capacity of community members to achieve more sustainable life-forms. The authors present a study of interrelated grassroots initiatives fostering low-carbon transitions in two places. As will be shown in section 7.3, low-carbon transitions require a number of integrated interventions along the energy supply chain. The concept assumes that successful interventions in

individual links of the supply chain can facilitate the emergence of others as they foster social learning process (also Bradbury and Middlemiss 2015). The relationship between grassroots engagement and capability-expansion, community empowerment, is the same as in this thesis.

Middlemiss and Parrish (2010, p. 7560-1) take a social practice approach in conceptualizing of the capacity of community (members) to create conditions for more sustainable life-forms. They assume that the "capacity to change is afforded both by the nature of the social context and that of the agent (individual or community). (A)s a result, agents have different capacities to act on sustainability issues according to their personal and social contexts. As such taking responsibility for one's ecological impact means agents acting according to the capacity that is afforded to them by their context."

A theoretical framework describes community capacity for enabling action for low-carbon transition (in this case called "community ecological footprint") in four dimensions:

- *Cultural Capacity*: Legitimacy of sustainability objectives in the light of the history and values of a community. How they are brought together in narratives of a place.
- *Organizational Capacity*: Values of the formal organizations active within a community, how they align with attempts to encourage sustainability, and resulting support available for community action to stimulate change.
- *Personal Capacity*: Member's resources for community sustainability. The understanding's individuals have on sustainability issues, the willingness (enthusiasm, values) they have to act and the skills they draw on to act.
- *Infrastructural Capacity*: Provision of facilities for sustainable practices by government, business, and community groups. Infrastructures that are integral or conducive to sustainable lifestyles in the community.

Middlemiss' and Parrish's (2010) use of the term capacity resembles the capability approach (see chapter 3). The authors acknowledge that agents require specific contextual conditions (conversion factors) in specific sites to realize their capacities through specific social practices (for the capacities to become capabilities). Surprisingly however, they do not make this connection and remain with the wording "capacity", even though the capability approach would fit well with their humanist approach to development⁸³.

The previous section concluded with conceptualizing of the effects of grassroots initiatives on rural development, or sustainability transformation as the expansion of the community capabilities to achieve sustainable life-forms, and to bring forth other grassroots initiatives within Beckerich and the canton. Middlemiss' and Parrish's (2010) approach is thus translated as community capabilities, while maintaining its conceptualization in four capability dimensions, and linking these to social practice theory. As will be discussed in the following chapter 5, the four community capability dimensions can be easily translated to various social practice approach. For now, Chilvers and

⁸³ A review on the works that cited this paper did not show any link between the two either.

Longhurst's (2014) concept of social practice elements within grassroots initiatives will as a guard-rail for further operationalization and refinement:

SOCIAL PRACTICE ELEMENTS	CONVERSION FACTORS
Knowings (knowledge, competences, cognition)	Personal
Doings (technologies , practices)	Infrastructural
Organising (modes, forms of governance)	Organisational
Meanings (framings, visions, values)	Cultural

To conclude, the rural development is understood as emerging from the cumulative effects of sustainability interventions, perceived as grassroots initiatives. Findings indicate that the grassroots initiatives prefigure, constitute, and stabilize each other, as one produces elements that become integral parts of the other (skills, knowledges, materialities, organisations etc.). The relation between grassroots initiatives and the rural development is mutually constitutive. In thesis, development means the expansion of community capabilities via the social practices that are the grassroots initiatives. Analysing patterns of the rural development therefore means to examine the ways the individual grassroots initiatives draw on existing and produce new elements of community capabilities in the four dimensions personal, infrastructural, organizational, and cultural capabilities. These four dimensions will be at the heart of the analyses in chapter 7.

Cultural capability is considered a meta-capability. It refers to the legitimacy of sustainability objectives in the light of the history and values of a community and how they are brought together in narratives of a place. Drawing on social learning theory (chapter 3.4), this capability captures social practices of creating congruence between various diverse objectives that is considered the prerequisite to enable diverse, trans-disciplinary stakeholder engagements, which in turn are considered the prerequisite for successful civic and associative problem engagements- that stimulate social learning.

4.4.2 Leitbilder of participation

RC2 hypothesizes that the initiatives are bought forward by heterogeneous actor groups holding different motivations and beliefs, referred to as social perspectives. Unlike the dominant narrative on the development suggests, it is not the intentionality of the group that allows the transition to occur, but the capability to align at times divergent interests in practice. RC2 asks: What are the social perspectives within the grassroots initiatives? How diverse are they? Are there patterns in the constellation of social perspectives among the initiatives?

This research complex examines the realm of informal institutions, problem-perceptions, experiences of participation, actionable knowledges, and motivations among of participants of a

grassroots initiatives. Further, it will develop patterns of characteristics of such social perspectives, or Leitbilder, and analyses their relation to one another within and across initiatives. In Chilvers' and Longhurst's (2014) conception, this refers to the realm of meanings, knowings, as well as doings and sayings- although Leitbilder are regarded to be of a different ontological quality, as for example doings and organisings (see chapter 5).

Although social perspectives are a common subject to research on grassroots initiatives, as it asks a classical question sociological research: "Why do people do what they do?" However, this thesis differs from any study reviewed from this thesis (see chapter 7) in two ways: First, the case examined is does not seem to be an intentional community of like-minded people pursuing a collective sustainability vision. Second, it develops a structured account of the character and relation of diverse social perspectives within and across grassroots initiatives in different policy domains⁸⁴. This research project therefore makes a unique contribution to the debate on grassroots initiatives as it advances the empiric knowledge of social perspectives within initiatives, it examines the relation between social perspectives and social practices, and it provides a research design that is transferable to any such grassroots initiatives. Before the analytical concept Leitbilder is introduced in this section, the following will briefly elaborate on the above points, by putting geographic concepts in dialogue with theories introduced in chapter 3.

The term intentional community refers to initiatives in places with a distinct sustainability culture, to which people migrate to pursue specific sustainable life-forms (Hausknost et al. 2018). Common cases for research are the Transition Town Totnes in the UK, or the various Ecovillages on the continent. Research on these cases approaches them as real utopias (chapter 3.1), from which lessons may diffuse into wider society. Essentially, the social perspectives within these community are rather homogeneous, enabling more radical sustainability experiments. Beckerich and the canton Réiden differ from these in the sense that they are more natural communities of people who are living in the same place not by choice, but by default. Looking at election results, the canton is rather conservative rural mainstream (see chapter 2). Therefore, the alignment of diverse social perspectives is arguably more challenging then in intentional communities, while lessons from the case may have higher relevance for wider societal sustainability transformation as it is closer to mainstream society.

Second, geographic case studies looking at social perspectives tend to make unstructured accounts of motivations in singular initiatives (see chapter 7 for an exhaustive review of case studies in the respective policy domains). This thesis will develop an analytical framework and research design that allows examining the unique character of collective social perspectives and comparing

⁸⁴ The author was not aware of the works of Martin Hager when the conceptual approach for this thesis was developed. In hindsight, the approach of Leitbildanalysis was very suitable for the purposes of this work, especially because it informs abductive category development. In the analysis chapter, the Leitbilder section introduces a literature review of comparative studies of social perspectives for each initiative.

these within and among initiatives. The following introduces three geographic works that are widely cited in case studies on social perspectives within grassroots initiatives. Each will deepen the understanding of social perspectives in grassroots initiatives, and the last concept, Leitbildanalysis will be chosen as the analytical framework to address RC2.

Brown, Kraftl, and Pickerill (2012, p. 1619) conceptualize of local sustainability experiments as anticipatory action of individuals and communities to avoid undesired futures- similar to subpolitics in reflexive modernity (see chapter 3.1). These initiatives are governed by social perspectives that "hold together diverse groups, and visions for the future, channelling them towards increased skills competences (...), or certain kinds of responsibility and 'social behaviours' (...)." Transition Town initiatives would therefore balance between radical possibility, and business as usual. The principle of emplacement contains that "(t)ransition does not work without (local) places, because those places offer the milieu- and the affective attachments-through which generic senses of responsibility, resilience, and relatedness may be most easily imagined and held together" (ibid., 1620). The principle of emplacement strongly resembles pragmatist action theory, particularly around the assumption that the public, or community evolve around collective local problems. It further corresponds to the symbolic interactionist notion that constant personal interaction, which is facilitated by geographic proximity, would increase the Me in interaction, e.g. a feeling for the culturally accepted and expected norms of community. This is also mirrored in Longhurst's (2015) studies on alternative milieu's (see chapter 4.2). It further links to the notion of social learning theory, and particularly the work of Loeber (2009), that local, place-based engagements are an important driver for learning processes, as consequences of one's actions are felt more directly, and collective feedback cycles of action more efficient in direct interaction.

Another relevant publication is Feola and Nunes (2013) survey-based analysis of 279 Transition Town initiatives from different places over the world is perhaps the most comprehensive scientific comparative analysis of factors for success and failure of grassroots initiatives. They confirm Brown, Kraftl, and Pickerill's (2012) assertion that initiatives' "success can be identified through the social links of members of the communities, their external impact, or contribution to the environmental performance of their place."

Three types of transition town initiatives are clustered, of which the first corresponds to the case of Beckerich: Feola and Nunes' (2013) study finds the most successful transition town initiatives to be located in rural areas and villages. Success criteria are stability and longevity, a large group of participants from the same place, and formalized structures that organize collective practices and creates links to relevant agents on different levels. All of these apply for the canton Réiden, particularly the attention to systemic instruments (see chapter 2, 3.4). Unfortunately, the review does not indicate the policy domains that the initiatives address.

Finally, a constructive approach to analyzing social perspectives of participants is the very rarely-cited concept of *Leitbildanalyse*, developed by German environmental education researchers (Giesel 2007; de Haan et al. 2000). The research project accompanied several local Agenda 21 initiatives over two years to conceptualize of typical development journeys, focusing on the internal forms of organization, and structural factors for success and failure, and attending to the motivation and experiences of participants.

The word *Leitbild*⁸⁵ can be translated as guiding principle, or guiding vision. It captures an assemblage of motivations, interests, and experiences of participants in community initiatives. Although the authors do not refer to Ulrich Oevermann, the concepts of *Leitbilder* seem analogous: Oevermann conceptualized of *Leitbilder* for action in uncertainty as the abductive anticipation of appropriate action that may then transform the entire interact (see chapter 3.4). A *Leitbild* therefore enables action without proven actionable knowledge. Oevermann's study, however, focused on individuals, and not collective action.

de Haan et al. (2000) perceive of Local Agenda 21 initiatives as subpolitics taking place aside from, or under traditional nation state politics and administration (see chapter 3.1). The researchers assume that in order to enrol as many citizens as possible in local initiatives, communes would have to have developed new forms of communication to articulate their views and pursue their goals. Without aligning with people's *Akzeptanzstrukturen*⁸⁶, it would not be possible to evoke their interest to participate.

In this context, the concept *Leitbilder* bundles people's goals, dreams, vision and hopes. *Leitbilder* serve the self-definition of *Sozietäten* and organizational structures. *Sozietäten* are communities in a culture that hold similar value-orientations and intentions. In other words, *Leitbilder* that guide collective practices have to have a degree of congruence to form *Sozietäten* (see Loeber et al. 2009; chapter 3.4). *Leitbilder* have the quality of structuring perception, focusing the thought of individuals and communities, and determining the actions of individuals. In communities, *Leitbilder* condense the imaginaries of overarching goals and teleologies. In short, they reduce the complexity of the world for individuals and communities and structure joint activities, or social practices, in specific action fields, or sites. (de Haan et al. 2000, p. 32)

The authors distinguish between propagated *Leitbilder*, and those that "lay open" in the community. *Leitbilder* do not coherently exist in the outset of local agenda 21 initiatives. They lay open, similar to the pragmatist assumption of knowledge being discovered through and therefore only existing in action (chapter 3.3), and the conceptualization of action in uncertainty in subpolitics (chapter 3.1), and Koller's (2012) transformative education theory (3.4). Further, de Haan et al. (2000) distinguish between *Leitbilder* of individuals and those of entire communities. This relation

⁸⁵ Composition of the verb *leiten* - directing/ guiding, and *Bild* - picture

⁸⁶ structures of acceptance

between individual and collective Leitbilder, and the way they shape social practices will be discussed in chapters 5 and 6.

The study results in a category system of different internal dimensions of Leitbilder that allows for comparative studies between initiatives. De Haan et al.'s (2000) category framework comprises of categories addressing individuals, and categories addressing the community. The final categories structuring the Leitbilder of Local Agenda 21 initiatives in Berlin are:

- PROJECTIONS OF DESIRES AND FEASIBILITIES:⁸⁷ Projections describe the thematically focused, shared "future-horizon" within a community, or Sozietät. Desires refer to things that are aspired and appealing, feasibility describes what is held to be attainable.
- SEMANTIC SUCCESSIONS⁸⁸: In every discourse, participants alternate between picture language (such as metaphors) and descriptive concepts. The authors hold that the transition between these two is the driver for the generation of new ideas.
- BODILY AFFECTIONS⁸⁹: To truly guide action, Leitbilder have to not only address the mental realm and address the thoughts of a person, but affect the entire person emotionally.
- COMMUNITY-BUILDING IMAGINARIES⁹⁰: Metaphors, buzzwords & symbols leading to the emergence of a community and foster their cohesion. It refers to terminologies or sentences that have a positive recognition value for the community.
- PROSPECTIVE (DE-) SYNCHRONIZATIONS⁹¹: Prospective synchronization refers to commonplace convictions on a problem, task or initiative. Different aspects or dimensions of a problem or project can be easier worked on the basis of shared convictions. The authors differentiate between internal (enhancing) factors, and external factors, and internal/ external obstruction, as well as personal boundaries. De-synchronizing aspects refer to convictions that are being explicitly excluded, because they are thought to be unreasonable or problematic.
- SUCCESS FACTORS⁹²: Open codes, and case-specific items that emerge in the research process.

In the study of de Haan et al. (2000; also Giesel 2007), these six categories have been developed abductively based on a review of educational theory and exploratory interviews. The categories then serve as codes for analysis of structured interviews to develop case-specific characterizations of existing Leitbilder. The above framework is compared to a carcass of a house that lends the foundation for individual designs. As discussed in more detail in chapter 6, in this study the Leitbild-framework is used in a similarly heuristic manner, as a case-specific framework will be developed by applying the above categories to exploratory interviews with protagonists in the canton, to then develop new categories tailored to the case and the RC.

⁸⁷ Wunsch- und Machbarkeitsprojektionen

⁸⁸ Semantische Sukzession

⁸⁹ Coenästhetische Resonanzen

⁹⁰ Sozietätsstiftende Imaginationen

⁹¹ Perspektive (de-) Synchronisation

⁹² Erfolgsfaktoren

4.5 DISCUSSION AND OPERATIONALIZATION

This chapter introduced geographic mid-range theories on rural development and local sustainability transitions. It constructed case-specific conceptualization of rural development, grassroots initiatives, community capabilities, and Leitbilder in dialogue with the social theories discussed in chapter 3 to address the two research complexes. These concepts will in the following chapter 5 be operationalized for research by translating them to a site ontology-based framework that will allow addressing both RC from the same ontological position.

The chapter set out by discussing different approaches, or lexica of space. This thesis will not commit to one spatial perspective, but assumes space to be relational and emergent, and as (various forms) of sites for social practices (see chapter 5). The place Beckerich and the canton Réiden are assumed to be sites, made by the contextual social practices that are grassroots initiatives of this thesis. Section 4.2 introduced three paradigms, or logics of rural development. The grassroots initiatives in the canton follow the neo-endogenous rural development paradigm, as they address local needs with predominantly local capacities, while drawing on global knowledge flows and acknowledging inherent relatedness to distant other places. Vice versa, problems addressed by these initiatives, such as soil degradation, drainage of economic value, and social alienation of farmers, are understood to be results of the exogenous logic. Section 4.3 discussed various concepts of local sustainability experiments to develop the conceptualization of grassroots initiatives, based on geographic research on grassroots innovation. The concept lends from socio-technical innovation research the awareness of initiative's embeddedness in various levels and degrees of institutionalization, and attention to the interplay between material arrangements, institutions, and social practices. It lends from social innovation research the awareness of the emancipatory, and place-making character of initiatives.

The grassroots initiative concept was then put in dialogue with rural development paradigms and social theory, particularly the capability approach and social learning. This thesis provides an novel way to think of rural development, inspired by Wright's and Polanyi's works on social transformation: Rather than examining how a single initiative affect higher order, or more spatially extensive institutions, this thesis looks at how various grassroots initiatives addressing concrete local problems in their respective policy domain stimulate the emergence of other initiative in the same, or adjacent policy domains. The rural development therefore emerges from the cumulative effects of diverse interrelated and contingent sustainability experiments that are the grassroots initiatives. This process is captured by the concept community capabilities, which has been developed from geographic case studies on low-carbon transitions, and theories of qualitative freedom, notably the capability approach. Community capabilities describe associative democratic efforts following collective development norms that produce conversion factors for citizens to freely achieve their

individual desired life-forms. The community capabilities concept is used as a conceptual framework for analysis to address RC1 and is adapted to social practice theory in the following chapter. Finally, the concept of Leitbilder lends a framework to analyse the diverse motivations, general understandings, and norms. They capture the development norms that guide the social practices that are the grassroots initiatives. The Leitbild-framework, to be refined abductively in course of this thesis, allows to characterize the existing case-specific social perspectives within grassroots initiatives, and to compare their characters and functional relations among grassroots initiatives. The Leitbild-categories lends the analytical framework to address RC2.

Grassroots initiatives

A subpolitical and associative social practice bundle that addresses a constellation of local problems with local capacities and resources. The problems tend to emerge from needs that the incumbent system does not address satisfactorily, and/ or from negative unintended side-effects of this system, and they enter local life-worlds as moments of collective crisis (for example a flood experience, the decline of small family-owned farms, or austerity measures). An initiative pursues interstitial strategies and comprises of stakeholders from civil society, the state, and the private sector. It is an attempt to regionalise and democratise supply chains or governance systems and therefore comprises of many interlinked local institutions, organisations, practices, and practitioners. These are orchestrated by formal managing institutions, often in the legal form of a cooperative or NPO.

An initiative aligns diverse desires and needs with the collective engagement, which is held together by a common understanding of a given phenomenon or overarching local development problem. The grassroots initiatives are directed towards collective qualitative norms located in systemic instruments and change through process of social learning. Grassroots initiatives are the driver of the neo-endogenous rural development, as they (re-) produce conversion factors that can be used to bring forth other initiatives in the same, and/ or adjacent policy domains and economic sectors, such as agriculture, and energy.

Community capability

A capability is the real opportunity to achieve a certain functioning to be or to do something, as part of a desired life-form. Such an opportunity exists when several conversion factors are available within a given site that individuals can enact according to their individual preferences. Grassroots initiatives produce conversion factors that none of the participants could acquire or produce by themselves. Qualitative development norms guide these collective efforts, or social practices. These are conceptualized as social perspectives, or Leitbilder and are subject to continuous social learning processes.

Conversion factors are conceptualized in four dimensions: Cultural, organisational, personal and infrastructural conversion factors. Following social practice theory, the cultural conversion factor is considered a meta-factor as it refers to the capacity to align diverse motifs and norms.

The overall rural development is conceptualized as the expansion of citizens' capabilities to achieve desired life-forms and the community capability to bring forth grassroots initiatives in the same or related policy domains. Particularly through effects of social learning and the expansion of cultural conversion factors grassroots initiatives prefigure and co-constitute one-another.

Leitbilder

Within a grassroots initiative, Leitbilder exist on the level of the individual practitioner and the practice community. They comprise of actionable knowledge, rules, teleologies and general understandings. Grassroots initiatives assemble a variety of diverse Leitbilder of their individuals, which are assumed to have a certain degree of congruence to allow for collective action. These congruences are condensed forms of overarching goals and teleologies that are often related to a common problem framing, or crisis experience that requires collective action.

People's individual Leitbilder are subject to constant change, as collective actions are often taken in uncertainty and stimulate social learning processes. Therefore, a Leitbild that guides someone's participation in a grassroots initiative is assumed to be only fully present in action, hence operant. The analytical Leitbild-framework allows to examine both individual and collective Leitbilder with a mixed-method approach. This framework allows comparing the quality and functional relations of Leitbilder within and across initiatives. It consists of four general categories (economic, ecological, social and cultural) future projections, (external and internal) factors of group (de-) synchronization, self-referential motifs and knowledge.

5. SITE ONTOLOGY

The previous chapter conceptualized of the case as a rural development that is driven and marked by several interrelated grassroots initiatives occurring in different policy domains. The composition of grassroots initiatives is conceptualized in four domains of community capabilities, and the initiatives are assumed to be governed and held together by practitioners' *Leitbilder* of participation, which are located in the individual practitioner, and the community of practice. Geographic works on comparable cases and with a similar research interest suggests a social practice theory-based research design. This approach allows linking these mid-range concepts to pragmatist action theory, the capabilities approach, and (transformative) social learning theories. Social practice theory as an ontology further follows the philosophy of the transition town movement, which is very similar to the rural development in Réiden, as it attends to the "Power of just doing stuff" (Hopkins 2013) for triggering development dynamics that may contribute to wider social change.

This chapter serves as a hinge between these mid-range theories and the research design. It develops a theoretical position on the foundations of site ontology that allows addressing the two research complexes in one ontological framework. To achieve this, the mid-range theories introduced in the previous chapter 4 will be translated to site ontological categories, notably *practice-arrangement bundles*, *constellations*, and *mental states*. This will allow to set focus on certain qualities of the subjects of this study, and to analyse their relation to one another, e.g. the relation between *Leitbilder*, or mental states of individuals and those of the community of practice of a grassroots initiative, and the links among initiatives through their constitutive elements.

Social practice theory is very much a field under development in the geographic research community. It establishes a mid-way between agency and structure dialectics by focusing on collective action in given material and institutional settings, referred to as sites. Its current popularity in geographic case-studies suggests a *practice-turn*, similar to the linguistic-turn in western philosophy that stimulated works drawing on post-structuralist discursive approaches.

This chapter will set out by introducing the arguably most influential strands of social practice theory in geographic debates. It will argue that site ontology suits best to the characteristics of the case and the requirements posed by the RCs on the research design (chapter 5.1). Subsequently, relevant elements of site ontology are linked to the research concepts presented in the previous chapter (chapter 5.2). Since the mental realm is a much-discussed issue in social practice debates, and requires particular care for epistemological issues, the approach to mental states and *Leitbilder* will be developed in a separate chapter 5.3. The chapter closes with a summary of the operationalization of the mid-range theories in site ontology terminology (chapter 5.4).

The translation of site ontology concepts to the research design, and particularly their methodological operationalization with Q method is a central intellectual achievement of this study and a

key contribution of this thesis to geographic research and debates on social practice theory in general. Therefore, experiences made with social practice theory in course of this research project will be a re-occurring theme throughout the following chapters.

5.1 SOCIAL PRACTICE THEORY

This section gives a brief introduction to social practice theory and argues for its particular effectiveness in linking the RC with the above-introduced conceptual approach. It presents the basic assertions of this social theory with relation to other prominent approaches, such as ANT and field theory, and clarifies its relation to early American pragmatism. As social practice theory is a wide field, and this thesis will draw on one specific approach, site ontology, this introduction builds on the most influential works from geography and neglects other disciplinary debates.

5.1.1 A brief introduction to the field

In a much-cited review of social practice theory debates in geography, Everts, Lahr-Kurten, and Watson (2011) introduce strands of theory and research. Embedding social practice theory among other ontologies and research paradigms, the authors conclude that recent approaches, such as the works of Theodore Schatzki and Elisabeth Shove, would go beyond Bourdieu's concepts of habitus and field, and Giddens' emphasis on rules and practical consciousness, and propose a new way of consolidating the two.

These approaches would draw on Charles Taylor's work on behaviourism, as they assume that social practices should be the primary unit of investigation of social theory, and that meanings and norms of actors are not just in the minds of actors, but out there, in the practices themselves. Thus, social practice theory shows strong correlations to pragmatist action theory, and epistemological implications, as will be discussed in chapter 6.1. The arguably most influential publications on social practice theory in the German (Hillebrandt 2009; Schäfer 2016; Reckwitz 2002; 2003) and English speaking scientific communities (Schatzki 2002; 2013; Shove, Pantzar, and Watson 2012), which are in close dialogue, perceive the locus of the social to be social practices and in the institutions (knowledges, norms, spatial imaginaries etc.) that guide human interaction, as part of human interaction.

Strands of social practice theory differ regarding the assumed location of these institutions in and among social practices. There is no definite, or standard definition of social practice theory, not even in the field of geography (see section 5.1.3). This section will therefore draw the contours of the debate and put them in dialogue with the requirements of this research project, whilst a distinct form of social practice theory, site ontology, developed by Theodore Schatzki, will be introduced in section 5.2.

Cultural theorist Andreas Reckwitz' (2002, 2003) works are often taken as a reference point for situating social practice approaches in sociological thought. Reckwitz (2002, p. 249) perceives of a practice (*Praktik*) as "a routinized type of behaviour which consists of several elements, interconnected to one other: forms of bodily activities, forms of mental activities, 'things' and their use, a background knowledge in the form of understanding, know-how, states of emotion and motivational knowledge."

Different forms of social practice theory focus on different elements of social practices and assume different relations between them. Two approaches are particularly helpful for situating the research case of this thesis in this debate and the choice of site ontology: the attention to symbolic meanings 'making' a space, and the distinction between conceptualizations of an abstract, or concrete case of a social practice.

French geographer Mathis Stock (2015; also Lussault and Stock 2010) differentiates between social practice approaches focusing on bodily experiences (non-representational), and those which attend the symbolic grounding of spatial dimensions and entities. With regards to the two RC, and the understanding of space in this thesis (see chapter 4.1), the approach developed in the following will be part of the latter strand, looking at how grassroots initiatives, co-constitute the rural development in the canton. Unlike the discursive understandings of place-making presented in chapter 4.1, "place-making" is understood literally: As the space, or site, that emerges from and shapes the social practices under analysis in this thesis. Social practice theories are however not a priori spatial, or a-spatial. Rather, different research interests will emphasize different understandings of space. Site ontology, as will be argued below, is perhaps the most coherent and geographically sensitive social practice theory.

A second way to distinguish practice theories is by the kind of practice they examine. Concrete cases, occurring in a particular site, "when understandings, materials, practitioners and activities come together in a specific way" (Hui 2016, p. 55), are referred to as *practices as performances*. *Practice-as-entity* on the other hand are concerned with types of practices, such as the practice of farming. These naturally comprise of a range of variations of practice-as-performances.

Although grassroots initiatives are concrete cases, they are approached as practice-as-entities in this thesis for methodological reasons. This approach facilitates a comparative analysis of their constitutive elements and the relations between them. Notably, it will set focus on the elements that constitute a grassroots initiative continuously over time, and the phenomena of which it is generally part (such as community supported agriculture and agricultural transition for the case of the alternative food network). Grassroots initiatives, such as the regional currency, or the alternative food network are perceived to be made up of diverse interrelated activities and materialities, which are conceptualized in the community capabilities framework.

Finally, the two research complexes address different and complementary domains of social practices. RC1 looks the relations of elements within and across grassroots initiatives in the dimensions of the four community capabilities. RC2 focuses on mental activities, particularly the meanings objects have for participants, captured with the concept *Leitbilder*, and the meanings they indicate one another in practice. This is the reason why site ontology is chosen for this thesis: It allows addressing both RCs from the same ontological perspective. This will become clearer in section 5.2.2, when site ontology is linked to the mid-range theory.

The following presents the criteria for the choice of social practice theory based on the RCs and the characteristics of the case. Subsequently, these approaches will be put in dialogue with different strands of the geographic debate on the theory (section 5.1.3). Finally, this section closes with a discussion of methodological challenges, notably of situating the individual agent as the main data source in a framework that focuses on communities of practice (5.1.4).

5.1.2 Criteria for the choice of practice theory for this thesis

Having situated the approach in this thesis as practice-as-entities making a place, this section discusses how this corresponds to the requirements of the research case. It will further argue why social practice theory is chosen over other approaches, such as actor network and assemblage theory. Social practice theory fulfils several criteria for the choice of ontology for this thesis that have emerged from the characterization of the rural development in chapter 2, and the discussions of relevant theory in chapter 3 and 4. These will be discussed in the following section, as indicated in the brackets below:

- It is a relational perspective that is place-sensitive and acknowledges emergence and process. (Section 5.1.3)
- It attends more to the inner composition and dynamics, as well as relations among initiatives, than to their scalar relations. (Section 5.1.3)
- It sets the focus on group dynamics, and how initiatives link together as practices, rather than tracing the agency of individuals. (Section 5.1.4)
- It corresponds to the physiology of the narratives on the local development as interconnected initiatives. (Section 5.2.2)
- It lends a framework to explore links between initiatives by tracing constitutive elements. (Section 5.2.3)
- It acknowledges the diversity of participants integrating complementary competences and *Leitbilder* in the initiatives. (Section 5.3)
- It allows to "dock" onto mid-range theories as grassroots initiatives, and social learning. (Section 5.4)

In following sections, social practice theory is introduced as a mid-way, or consolidation of structural, or agency approaches, societisms and individualisms (see also Everts, Lahr-Kurten, and Watson 2011). However, other ontologies were reviewed for this thesis as well. Assemblage theory (Allen and Cochrane 2007; DeLanda 2006) was considered for its radical ontological flatness, which is especially useful for conceptualizing decentralized social movements (Escobar 2008), for its awareness to material engagement and agency (Bennett 2005; Li 2014), and the inclusion of

virtual capacities into analyses of social change (DeLanda 2006). However, the theory was dismissed since in the author's opinion too often in geographic research the complexity of the approach is not proportional to its explanatory power. Further, it is deemed incommensurable with an research framework that includes the mid-range theories in the previous chapter.

Two other approaches, actor-network theory (ANT) (Latour 2005; 2007) and non-representational theory (Thrift 2008), were dismissed for their over-awareness to the agency of materialities, and focus on bodily experiences, respectively. Both may have rendered exciting trajectories for interpreting transition dynamics in the case. However, the selection of ontology focused around the above criteria in the bullet points, and the agency of materialities or bodily experiences that ANT and non-representational theory focus on do not correspond to this.

5.1.3 Social practice theory in geographic research

Social practice theory has become a common approach in geographic research (see Hui, Schatzki, and Shove 2017 for a comprehensive overview). Especially case studies on grassroots and social innovation draw often on this approach⁹³. With reference to the differentiation of practice as entities and as performances, this literature can be broadly categorized in two strands. One strand focuses on everyday routines such as daily energy or mobility practices, while other approaches use practice theory as a framework to captures initiatives' effects on broader institutional, or social change.

These strands draw on the two most salient spatial social practice approaches proposed by Shove, Pantzar, and Watson (2012) and Theodore Schatzki (2002, 2013). Both approaches perceive of places as having specific historio-spatial trajectories, or contexts of practices. Further, they argue that social practices are anchored in and move through space through the bio-physical elements they enact. Both look at the spatialities of social practices rather than the spaces of social practices, meaning that they examine the co-constitutive relations between social practices and space, instead of merely looking at what kind of practices happens where. This again is a follows the place-making approach to space discussed in chapter 4.1 and chapter 5.1.

Two differences between these approaches are particularly relevant for the choice of ontology for this thesis: The role and position of meanings and knowledge in the wider ontology, and the ability to conceptualize of different forms of extensions of social practices over time-space (for example the difference between a grassroots initiative and the rural development). These two differences correspond to site ontology's conceptualization of mental states, and its nature as being ontologically "flat"- two aspects that lend structure to the introduction of site ontology in the following section.

⁹³ Here, especially the transformative social innovation theory as presented by Haxeltine et al. (2016) would have been highly informative for this research project. Unfortunately, the author became aware of it after the conceptual approach had been developed.

For Shove, Pantzar, and Watson (2012) meanings are an intrinsic component of social practices, equal to the other two categories they conceive of, materials and competences. Their three-element-model therefore differs from site ontology: "Instead of emphasizing the ongoing, unfolding character of ends and projects, we short-circuit this discussion and instead treat meaning as an element of practice, not something that stands outside or that figures as a motivating or driving force" (p. 24). The conceptualization of social practices as constituted by three elements is purposefully simple, to facilitate operationalization for field research on everyday practices.

As discussed in chapter 3.3 and 3.4, this thesis requires thinking of Leitbilder as meta-personal elements of initiatives to situate them among a pragmatist action theory and capture social learning effects. Exploratory research suggests that the Leitbilder of individual practitioners are at times divergent, while still allowing for intelligibility in practice (see chapter 2.3). The previous chapter concluded that parts of Leitbilder must be congruent to allow for collective action, and that the various individual needs and desires of participants are held together, to some extent, by collective problem-framings. Yet, unlike the daily routines mainly carried by individuals that are subject to most research of Shove, Pantzar, and Watson (2012), the grassroots initiatives of this thesis are to an extend purposefully set up, and consciously and reflexively revised during the initiative's journey. The Leitbilder concept supports this purposeful enactment of elements. Therefore, Schatzki's (2002, 2013) account of the role of meanings is more suitable, because it assigns ontological primacy to the mental realm (see section 5.3).

Further, as Shove, Pantzar, and Watson's (2012) concept is primarily intended to address practices as daily routines; it offers little awareness to different forms of the extension of a practice over time and space, and the relations among several social practices. Here, the concept of a site, which allows to situate a social practice in specific locations in time and space, as well as in a broader teleological hierarchy of purposes and ends, or realm of activities, is more helpful (see 5.2.1). The introduction of different forms of extension of geographic time-space, such as constellations and large social phenomena, are helpful to relate and categorize different practices (see 5.2.2). Overall, Shove's approach is informative for attending social practices as performances, such as daily routines. Schatzki's site ontology on the other hand, as will be shown below, is more instructive for examining social practices as entities, which is the case in this study. Before introducing site ontology in detail in the following section 5.2, this section closes with a brief discussion of the role of the individual in social practice theory. This is a much-debate issue and highly relevant for this thesis, because it determines the main source of data gathering, and therefore the entire research design.

5.1.4 The individual practitioner and empirical problems of a social practice perspective

A long-standing issue in debates on social practice theory is how to take it to the field, e.g. how to gather qualitative data on collective doings and sayings, instead of discourses, or individual agency. As will be discussed in detail in section 5.2, a central characteristic of social practice approaches is that it helps to overcome structure - agency, and individualism - collectivism dialectics. The problem is, however, that doings and sayings are social acts that are performed by individuals who have a more or less reflective capacity. Thus, it can be argued that a theoretical position that assumes doings and sayings to be exclusively meta-personal, or social phenomena sacrifices a rich source for data gathering to preserve an intellectually rigorous argument (see section 5.4): The individual practitioner.

The role of individuals differs among different social practice theory approaches. This thesis follows the approach of Reckwitz (2002, 2003), who perceives of the individual as a *carrier* of a practice, or many practices simultaneously. This encompasses not only the bodily doing of a practice, but also the mental domain of understandings, values, knowledge about practice routines (actionable knowledge), and so on. Reckwitz (2002, p. 256) asserts: "As carriers of a practice, they are neither autonomous nor the judgmental dopes who conform to norms: They understand the world and themselves and use know-how and motivational knowledge according to the particular practice. There is a very precise place for the 'individual' – as distinguished from the agent – in practice theory (though hitherto, practice theorists have hardly treated this question): As there are diverse social practices, and as every agent carries out a multitude of different social practices, the individual is the unique crossing point of practices, of bodily-mental routines."

This approach to individual agency is a constructive way of consolidating the theoretical contributions of social practice theory with the required pragmatic attitude towards data gathering. Often, social practice theory-informed fieldwork draws on a variety of qualitative approaches, especially ethnographic observation and participatory action research. Considering the scope of the fieldwork required for this thesis, e.g. analyzing four initiatives when most comparable research projects on grassroots initiatives would concentrate on one initiative, does not allow for these methods. Therefore, the main source for data generation will be the individuals as carriers of practices of entities, meaning the participants of grassroots initiatives.

This thesis preserves the ontological quality of mental states as being meta-personal entities by perceiving of subjectivity as being operant (Brown 1980; see chapter 6.2). The approach follows the pragmatist assumption that subjectivities, which are perceived as analogous to versions of mental states of a practice, only exist in practice. In other words, people assemble the relevant elements of their understandings, values, and actionable knowledges in practice. With pragmatist action theory it will be argued that they can only exist in practice, because a social act requires aligning these elements with those of others for successful collaboration in a given context, or site.

The central methodological tool of the research of this thesis, Q method, serves exactly this purpose: It creates still-frames of subjectivities being operant.

5.2 SITE ONTOLOGY

Site ontology is a social practice theory that has been developed by American geographer and philosopher Theodore Schatzki over several decades. Whereas his earlier works concentrate on the inter-subjective realm of human action, attending to the role of meanings and practice understandings (Schatzki 1996; 2002; 2003), more recent works consolidate social practice with arrangement theories. They attend more to the bio-physical world and examine how complex social-practice-arrangement-networks (or bundles, meshes) extend over time-spaces. In this sense, the two RCs of this thesis are mirror the evolution of site ontology: RC2, concentrating on Leitbilder, draws strongly on Schatzki's early works on mental states and intersubjectivity (section 5.3), while the conceptualization of community capabilities as constitutive dimensions of grassroots initiatives in RC1 is informed by Schatzki's later works examining the constitution of PAB's and their bundling on different scales of extension over time-space⁹⁴ (sections 5.2.1-3).

A theoretical assertion throughout Schatzki's work is that the smallest unit of the social is the practice. It is a routinized nexus of doings and sayings, enabled by artefacts, and held together by implicit understandings among practitioners (Everts, Lahr-Kurten, and Watson 2011). Schatzki also assumes that the character of links between these elements within and across social practices, as well as between social practices and higher-order forms of extension over time-space (constellation, large social phenomena) are the same. The ontology is therefore referred to as being "flat": It does not assume scalar hierarchies, but different forms of extensions in time-space. The quality of elements and relations does not depend on these relations.

This thesis draws on Schatzki's later works on *practice arrangements* situated *in-sites* as an analytical framework to perceive of grassroots initiatives as interrelated *practice-arrangement bundles* (PAB) contributing to the *constellation* that is the rural development (see section 5.2.2). His earlier works, exploring meanings and practice understandings, allow perceiving of the diverse Leitbilder of grassroots initiatives as *mental states* that organize practices, of which individual practitioners carry (more or less divergent) *versions* (see section 5.3).

This section sets out by introducing the concept of the sites of practices, e.g. the contexts in which they emerge. Subsequently, the nature of PABs and their relation to other forms of extensions of time-space, such as constellation and large social phenomena, will be discussed (chapter 5.2.2). Chapter 5.2.3 will then briefly explain the "flat" nature of site ontology, by discussing how links and

⁹⁴ Time-space is a term often used by Schatzki to describe a specific development trajectory of a practice, as well as to differentiate between different forms of practice complexity (see section 5.2.2). This thesis follows this concept, as well as the adjective form *temporo-spatial*.

variations among components and different orders of extension over time-space are captured. Finally, chapter 5.3 will debate the concept of mental states and its relation to symbolic interactionism.

5.2.1 Practices in-sites

Site has been a re-occurring theme in the previous chapters and it is a central approach for analysis in his thesis. Pragmatist action theory refers to site as a specific action context, and symbolic interactionism specifies that a site is in-part made up of the cultural constraints for an interaction that are interpreted by *Me*. Chapter 3.2, introducing the capability approach, conceptualized of a site, as the constellation of conversion factors to achieve capabilities, similar to the elements of a social practice. Some of these are spatial, such as materialities, others, such as institutions and actionable knowledge, are not necessarily bound to the place where an action occurs. In chapter 7 of this thesis, each of the four grassroots initiatives will be situated in two specific kinds of *sites*. The first *in-site* introduces the time-space of an initiatives' emergence in Réiden, e.g. the context of action. The second *in-site* situates a grassroots initiative among the phenomena of which is it part, e.g. the respective scientific discourse (on regional currencies, alternative food networks, etc.).

This section specifies sites as contexts of social practices in Schatzki's ontology. "(T)he focus is on a special type of context, not wholes, *sui generis* realities, or abstract structures. Like all accounts of the social (...) site accounts underwrite analyses of social formations such as governments and economies (...) - for their accounts of the site of social life specify the material out of which these formations are composed" (Schatzki 2003, p. 178). Three types of site are distinguished, with the third type being a combination of the previous two. These will be used as approaches to introduce different aspects of the grassroots initiatives in the analysis.

The first type of site refers to the realm of phenomena as part of which a social practice, or a grassroots initiative takes place. At the example of the initiative *SoLaWa*, these are community supported agriculture programs, alternative food networks, permaculture strategies, or the wider agricultural transition. A second type of site captures the time-spaces within which specific social practices occur. An example of such a site is the weekly routine of collective fieldwork every Saturday in the community garden in Beckerich. Here, the same group of people meets in the same place regularly as part of the grassroots initiative *SoLaWa*.

The third type of site combines these two notions as the realm of phenomena of which a social practice is intrinsically part, or the realm of phenomena as part of which it occurs. At the given example, this would be the community supported agriculture program *Vun der Atert* as part of the wider alternative food network *SoLaWa* driving the rural agricultural transition in the canton Réiden. This type of site thus interprets and classifies the actual activities in a given place and time with respect to the realm of phenomena (scientific concepts, policy programs) of which they are

intrinsically part. This realm of phenomena is made up of concepts and comparative cases that elucidate the nature of the practice in Beckerich.

The analysis of the four initiatives in chapter 7 will follow this approach to contextualizing grassroots initiatives as PABs (see figure 1). After a brief description of the initiative, it will be situated in the realm of phenomena as part of which it takes place. This 1st site introduces scientific concepts and comparative case studies on similar initiatives (at the example: Short food supply chains, alternative food networks, food democracy, community supported agriculture etc.). The 2nd site portrays an initiative's emergence in time-space, introducing the historic development and current social, material, and institutional set-up of an initiative. Finally, the in-sites of both sections are merged, and a distinct conceptual approach is chosen (for example "SoLaWa as an alternative food network democratizing the agricultural sector in the canton Réiden").

To conclude, the concept of site refers to the different kinds of contexts that a social practice, or a grassroots initiative can be situated in. It is applied in the analysis chapter 7 to introduce an initiative's historic development, and related scientific concepts and policies, described as the *in-sites* of a grassroots initiative. The following conceptualizes the composition of grassroots initiatives as PABs, in their different degrees of relative extension across time-space. This will serve as a foundation to analysis of the community capabilities of the initiatives.

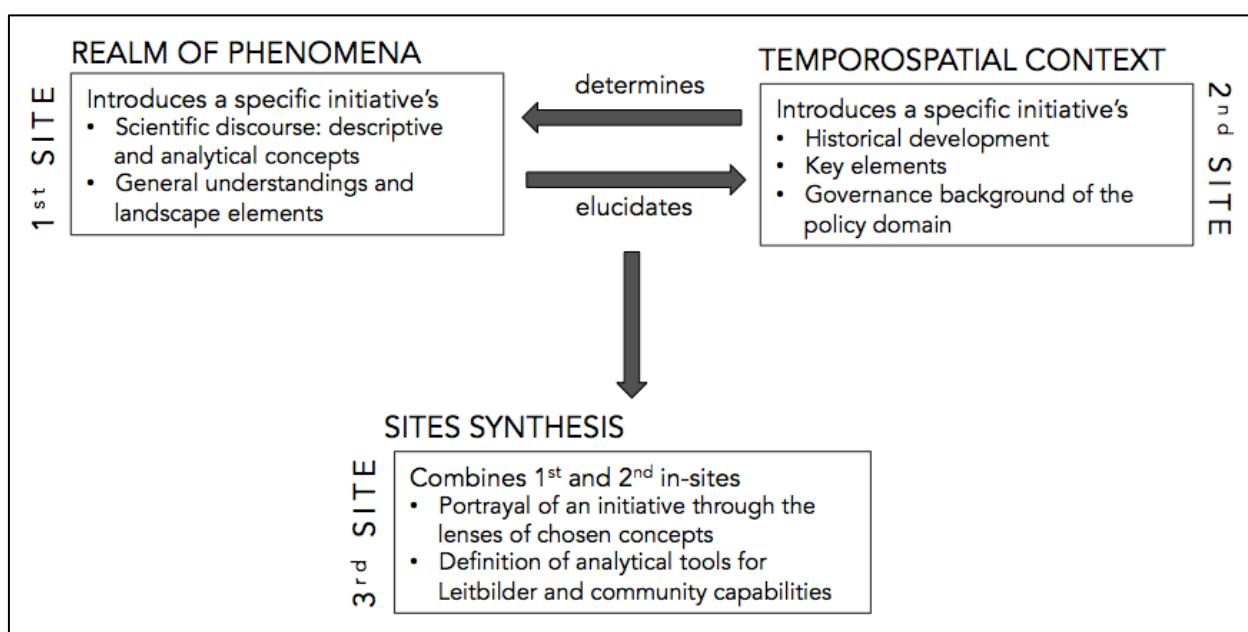


Figure 1: The different sites of a PAB, as applied in the analyses of the four initiatives in this thesis.
(Source: Author's own)

5.2.2 The components and constitution of a practice

The previous section discussed the site concept to address the context of grassroots initiatives. This section elaborates on the constitution of practices, and different forms of extension across time-space, such as *constellations* and *large social phenomena*. The composition of practice in site ontology will inform the analysis of community capabilities (internal composition) and Leitbilder (governing a composition), while the different forms of time-space extension elucidate how practices link to one another, affect their policy domain, and contribute to the rural development.

Schatzki (1996, 2002, 2013) conceptualizes of practices as nexuses of human activity and materialities, as open-ended sets of doings and sayings, organized by action understandings, understandings, rules, and teleoaffectionities (a range of hierarchically ordered ends and tasks). He perceives of to aspects to, or levels of a PAB: The internal composition is thought of as a bundle of activities (doings and sayings) and material arrangements, which is governed by the mental realm. As figure 2 on the following page indicates, components can be part of several PAB simultaneously, and thus establish links and variations among PAB (see section 5.2.4)

This is an important difference to other social practice approaches, like the ones from Shove, Pantzar, and Watson (2012) and Chilvers and Longhurst (2014) introduced in the previous chapter. These perceive of the constitutive components, such as knowings, doings and sayings, organizations, and meanings as part of the practice, which are carried by the individual practitioner. Schatzki perceives of a realm of components of that are enacted in a PAB (material arrangement and activities), and a realm that governs this enactment (mental states). Again, in this thesis, the internal realm is captured by the four community capability dimensions, while the governing, or mental realm is addressed with the Leitbilder-concept. The following address the internal realm, while the latter will be subject of a separate chapter 5.3.

In recent years, Schatzki's works can be seen as a continuously refining the role materiality and spatiality in his approach. The intention is to combine practice theories such as approaches of Taylor and Bourdieu, with what he calls arrangement theories, like assemblage and actor-network approaches (see Schatzki 2002). The latter do not assign ontological primacy to human practitioners or inherently human domains such as the mind, but examine networks of entities in general (such as things, thoughts, norms, etc.).

Schatzki (2002, 2013) argues that networks of entities are arranged and ordered in practices. In other words, he argues that social practices produce and stabilize specific constellations of artefacts, bodies, meanings, and so on (see also Everts, Lahr-Kurten, and Watson 2011). Most practices would not occur without material engagement, and most material entities that are arranged in practice are products of other social practices. He concludes that their relation is so intimate that materialities and their arrangement (inducing people, artefacts and organisms) need to be included in the analysis of social phenomena: "Practices and material arrangements "bundle" in the

sense that practices transpire amid particular arrangements and are moulded by them in various ways, while arrangements anchor the spatialities of practices and are set up and altered to varying degrees by the actions that compose practice" (Schatzki 2013, p. 73). Specifically, "to say that practices and arrangements bundle is to say (1) that practices effect, use, give meaning to, and are inseparable from arrangements while (2) arrangements channel, prefigure, facilitate, and are essential to practices" (Schatzki 2003, p.2).

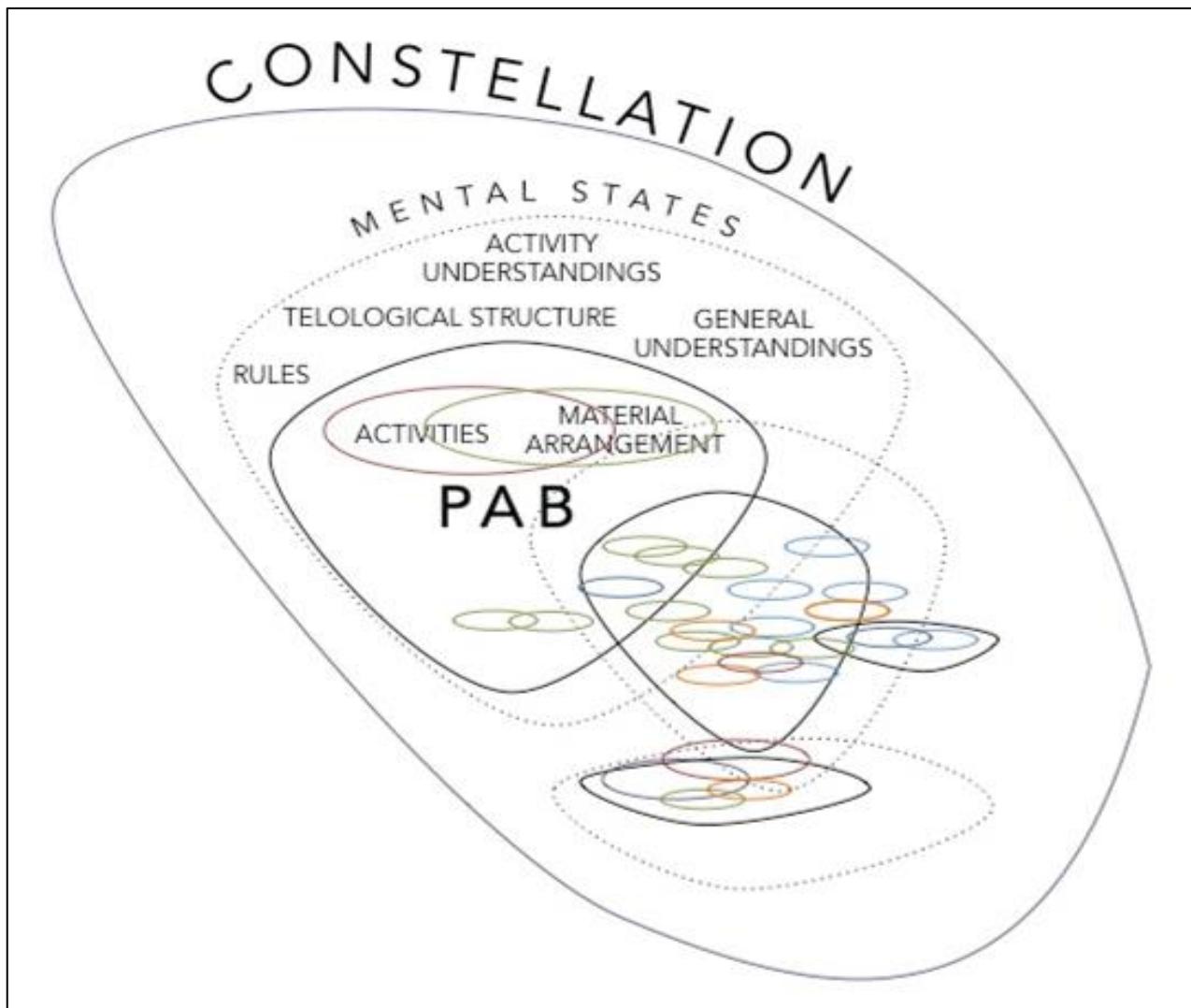


Figure 2: The conceptualization of a practice arrangement bundle (PAB), related to other PAB and constellation through its constitutive components. (Source: Author's own)

The perception of social practices and material arrangements as being inherently intertwined is central to site ontology's spatiality. Similar to the approach of Shove et al. (2012), material entities are regarded to be part of objective space, persisting regardless of their engagement in practices. These entities are anchors and pathways of various activities in time-space. For example, a shed on the field of the SoLaWa initiative may be part of practices of storing vegetables, holding meetings, arranging and storing tools, and vending produce. It is a nexus of a variety of activities, and each

may ascribe a different meaning and purpose to this materiality. This may appear an obvious assumption, but it is crucial for examining how the different grassroots initiatives link through the use of common infrastructure, or the integration of entities produced by one initiative in another. Thus, PABs have a distinct place-making effect. They produce space in the sense that they produce specific artefacts, determine meanings, and anchor social interaction. The physical aspect of a site is moulded by PABs that occur in and through it.

Schatzki's conceptualization of materialities and activities intertwining in PAB makes for a compelling spatial awareness, or anchoring of practices, but does little to elucidate the composition of such a bundle. This, however is part of RC1, which hypothesizes that *The diverse grassroots initiatives in different sectors are linked, and prefigure one another (through people, materialities, understandings, norms, activities etc.). Understanding these links is the key to understanding the entire transition.* It then asks *Through which elements are the initiatives linked (understandings, people, materialities, activities) and what is the character of these links (constitution, prefiguration, causation)?*

The previous chapter 4 briefly discussed examples of social practice approaches in grassroots and social innovation research, notably the category system proposed by Longhurst and Chilvers (2014). However, these approaches merely allow for inventories of practice-elements: They make little indications to the relations between elements, and they assume these elements to be of ontological quality. Further, they do not attend to the qualities that emerge from the interplay of distinct elements within a social practice (section 4.4.3). Similarly, Schatzki's conceptualization of a PAB consisting of a material arrangements and social practices governed by mental states does not allow for a differentiated and qualitative account of the constitutive components of a practice and their relations. Therefore, this thesis linked the community capabilities concept to social practice research on grassroots initiatives in order to address the grassroots initiatives as social practices with a more qualitative framework that perceives of the capability of an initiative to reproduce itself and to stimulate and stabilize other initiatives in four dimensions:

- *Cultural conversion factors:* Legitimacy of sustainability objectives in the light of the history and values of a community. How they are brought together in narratives of a place.
- *Organizational conversion factors:* Values of the formal organizations active within a community, how they align with attempts to encourage sustainability, and resulting support available for community action to stimulate change.
- *Infrastructural conversion factors:* Provision of facilities for sustainable practices by government, business, and community groups. Infrastructures that are integral or conducive to sustainable lifestyles in the community.
- *Personal conversion factors:* Members' resources for community action. The understandings individuals have on sustainability issues, their willingness and skills for action.

Figure 3 visualizes the way these categories capture the qualitative effects that emerge from the interplay of elements in a PAB (see section 4.5). Each capability in a given dimension is made up of the interplay of actions, material arrangements, and the governing mental states. Therefore, unlike most similar studies drawing on social practice theory, this thesis will skip the assessment of a practice's constitutive parts in the analyses and will directly code for conversion factors. This will not cause a loss in explanatory power or transparency, because the analysed data will mostly consist of practitioners' narratives, where initiatives are addressed with qualitative characteristics anyway.

To conclude, grassroots initiatives, such as SoLaWa, are in the following considered *practice arrangement bundles* (PAB). With this concept, this thesis perceives of the initiatives as nexuses of diverse activities, organized by understandings, rules, and teleoaffectionities, and co-constituted with material arrangements. To facilitate the operationalization of the concept, the internal realm of an initiative of perceived as a constellation of community capabilities, which emerge from the relations of such composite elements, whereas the mental realm will be addressed with the Leitbild-framework. The specific analytical tools, such as codes, and interpretation methods are introduced in the following chapter 6. PAB, however, are not the only ontological unit in Schatzki's framework. The following section shows how grassroots initiatives, perceived as PAB, can be thought in the context of policy domains, and the rural development.

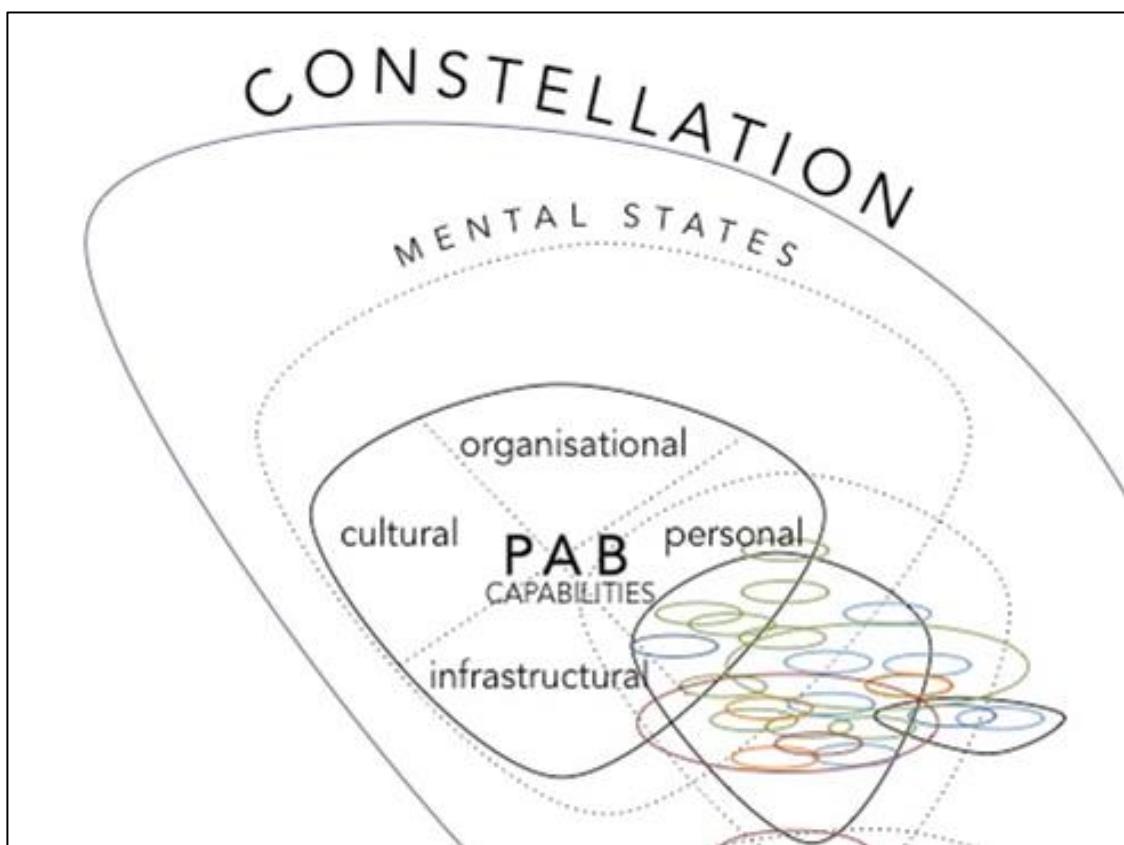


Figure 3: Conversion factors constituting a PAB. (Source: Author's own)

5.2.3 Practice arrangement bundles, constellations, and large social phenomena

In his more recent works, Schatzki (2015) introduces different levels, or "sizes" of PABs. The criterion for this distinction is surprisingly simple: It is their relative extension over space and time. He asserts that a PAB, for example the SoLaWa, is part of large social phenomena, such as the CAP. Conversely, "slices" of the large social phenomena exist in PABs, for example elements of as agricultural subsidies in this example. The term constellation, the mid-level in this terminology, indicates that several PAB "bundle", or are bundles to larger entities extending further across time-space. In this example. Such a bundle could situate the SoLaWa as part of ecological farming associations in Luxembourg. However, the categorization between PABs, constellation, and large social phenomena is relative to the respective phenomenon they describe. This thesis perceives of the individual grassroots initiatives as a PABs. Several PABs within and across policy domains are imagined to bundle to the constellation that is the rural development (such as energy, agriculture, policy-making, and ecosystem governance). The rural development emerges among large social phenomena, such as climate change.

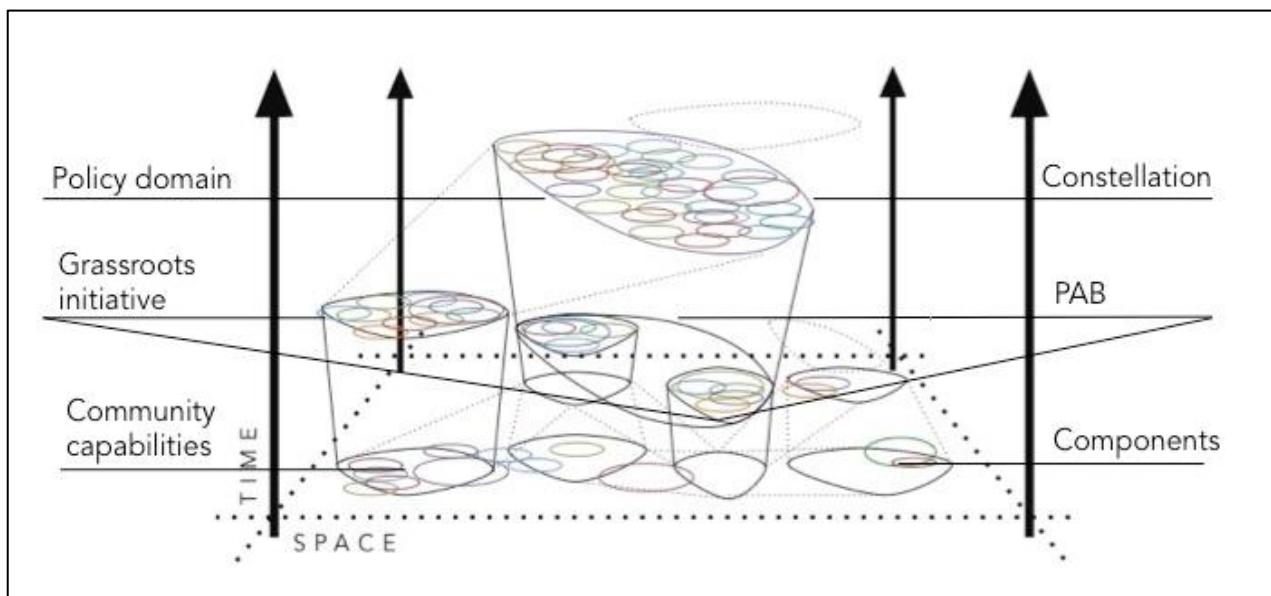


Figure 4 : Three ontological levels and the corresponding mid-range concepts. (Source: Author's own)

Figure 4 is a simple representation of the different elements introduced above. The coordinate system symbolizes the site as the entities' context in time-space, with the ordinate axis representing time and the abscissa axis space, both being continuous. The difference between a PAB and a constellation is that the latter it a larger extension over time-space, and is constituted of several PABs, or grassroots initiatives. In this thesis, I assume PAB to be analogous to grassroots initiatives, and a constellation analogous to the rural development. Naturally, a grassroots initiative, such as SoLaWa is not confined into one policy domain, such as agriculture, but may play in several action-

sites (agriculture, energy, ecosystem governance). Further, several PABs constitute a constellation, and can change the character of the rural development. This acknowledges the conceptualization of grassroots initiatives as markers and drivers of transformations in given policy domains and the rural development (chapter 4.2). A flat ontology acknowledges this interrelatedness between these entities and does not assign ontological primacy to either. Rather, it acknowledges that the difference between grassroots initiatives and the rural development is the latter's wider expansion over time-space, reaching over the entire canton for 40 years. The variation within and between PAB and constellation is subject of the next section. These analytic levels will lend the categorization of grassroots initiatives in given policy domains in chapter 7.

5.2.4 Links and variations of social practices in a flat ontology

Both RC examine relations among elements within and among initiatives. Whereas RC1 looks at the qualities that emerge from the interplay of grassroots initiatives constitutive elements, RC2 examine the character and relation of the mental realm and the grassroots initiative as a PAB. This section will briefly discuss the conceptualization of relations between social-practice entities in site ontology. This will not directly inform analysis of the four initiatives, but it will render insights for the interpretation of findings and the theorization in chapter 8.

Ontologies such as assemblage and site ontology are described as "flat", because they do not assume qualitative differences in the character of links between elements of any unit of analysis. Unlike structuralist approaches, for example, which perceive of higher-order institutions as determining the actions available to entities on ontologically lower levels, site ontology does not assume a vertical ontological hierarchy. The types of relation between the constitutive elements of a PAB are the same as between PABs and constellations, or large social phenomena. For example, in the context of this thesis, the European CAP can be regarded as a constellation, because it has a longer expansion than the grassroots initiatives regarding time and space (since the 1970's, over all member states). The SoLaWa is however not "nested" as a niche within this constellation, as for example transition studies drawing on the MLP would assume (see chapter 4.2), but merely integrates several elements, such as subsidies and directives, of this constellation. Consequently, a PAB, or grassroots initiatives integrates elements of several constellations simultaneously. Also, if the focus of analysis would be a distinct social action of one grassroots initiative, this action could be regarded as a PAB and the initiative as a constellation, because its expansion across time-space would be larger in relative.

This ontological "flatness" is highly relevant for this case for two reasons. First, it corresponds to the character, or physiology of the narrative of the rural development as interconnected initiatives, which may prefigure or constitute one another, but are regarded as being qualitatively equal. The focus in this thesis is not the relation of initiatives to different scales of social order, or

institutionalization, but the relations among elements across initiatives on an even ontological plane. Second, and as a consequence of this, a flat ontology shares this thesis' perception of the impact of initiatives. Particularly, it does not focus on how a niche may affect a regime, or how local policies and practitioners enter national policy arenas or affect distant others. Rather, it perceive of initiatives' impact as their capability to stimulate similar initiatives in the same or adjacent other policy sectors, and in the same temporo-spatial site (see chapter 4.4).

Schatzki (2012) distinguishes four types of relation between elements and ontological levels of expansion (see table 2 on the following page). These are not directly relevant for the analysis of the initiatives themselves, but are constructive for the theorization of the entire development (see chapter 8). Regarding the relations among grassroots initiatives, *prefiguration* and *constitution* may be the most relevant links, as they describe how elements of one initiative (as a PAB), become part of another, thus potentially linking the two in practice. Further, as grassroots initiatives produce material elements, skills, knowledge, meanings, and so on that are constitutive to others. The rural development can be described as a process of grassroots initiatives prefiguring, co-constituting, and causing one another, by producing capabilities that prefigure or become constitutive for others in adjacent policy domains. Relations characterized as *intentionality* and *intelligibility* are mostly relevant to RC2, the examination of Leitbilder and their alignment and deliberation (see chapter 5.3).

Table 2: Types of relation among elements in site ontology based on Hui (2016) and Schatzki (2013).

Type of relation	Meaning	Relevance for the case
Causality	Causal relations between practices and arrangements take two prominent forms: activities altering the world, and entities and the events befalling them inducing activities.	Events such as national policies stimulating grassroots initiatives Local needs stimulate grassroots initiatives
Prefiguration	Prefiguration refers to the difference that the present makes to the nascent future. Contrary to the widespread analysis of prefiguration as a matter of enablement and constraint, Schatzki conceives of it as present states of affairs qualifying forthcoming activity along categories as easier and harder, more and less expensive, etc..	Positive experiences of grassroots initiatives create skills, trust, confidence etc. that may facilitate the development of further initiatives in other policy domains.
Constitution	Elements of arrangements constitute practices either when they are essential to these practices or are pervasively involved with them.	Elements produced in one grassroots initiative may become parts of others.
Intentionality	Practices are intentionally related to arrangements through the thoughts and imaginings participants have about them and the actions they perform toward them (including using them).	Grassroots initiatives purposefully address a range of local needs and aspirations.
Intelligibility	Arrangements and practices have meanings for practitioners. These meanings, as will be discussed below, need to be congruent to a certain extend to allow for intelligibility in practice.	Practitioners need to have certain common understanding of the purpose of an initiative and be able to indicate one another how to perform specific activities to achieve these purposes.

5.2.5 Variations of social practices social transformation

Another aspect of addressing rural development and social change within a site ontology framework is to look at forms of variations in and among PABs. This issue is rarely discussed in the literature (Hui 2016), but important to consider when following the emergence and change of initiatives over time. Sociologist Allison Hui (2016), who works mainly on cultural consumption patterns, gives a concise overview of conceptualizations of variations in different geographic social practice theories (see table 3 on the following page)⁹⁵. Hui argues that any of these variations can be brought about purposefully by practitioners and change the development trajectory, or site, of a PAB⁹⁶. Applied to the conceptualization of grassroots initiatives as pragmatic problem-engagements, it can be assumed that such initiatives are to an extend purposeful variations and re-alignments of existing PABs, in order to satisfy specific needs, and/ or respond to changes in-site. This can occur through changes in performances and changes in meanings that can be explained by Peirce's theory of abduction and Oevermann transformation of interakts, respectively (see chapter 3.4). In each case, it triggers changes in the frame of reference of what is accepted and expected by participants.

Particularly relevant for the development in the canton is the variation of practitioners and elements. Since most of the initiatives are brought into live by the same group of people, although addressing different practitioner categories regarding the policy domains they address, changes within this group of practitioners would have strong effects across the entire rural development and affect various grassroots initiatives simultaneously.

To conclude, the way that relations among elements and PABs are perceived informs the conceptual framing of the processes of the rural development. Variations of grassroots initiatives capture the character of this process, particularly with regards to social change and sustainability transitions. Each initiative is regarded as a more or less purposeful variation of existing PABs within a policy domain to address specific local needs, or to solve local problems. These variations occur within the boundaries of a shared frame of reference among practitioners that define what practices and arrangements are acceptable and held constructive within the respective policy domains, but also within the wider rural development. The conceptualization of shared frames of reference, or mental states in PABs, will now be discussed in the last section of this chapter.

⁹⁵ Unfortunately, the book *The nexus of practices: Connections, constellations, practitioners* (Hui, Schatzki, and Shove 2017) had not been published when the conceptual framework in this thesis was developed.

⁹⁶ The analytic level here is practice-as-entities. On the level of practice-as-performance, variations are inherent: "(...) 'The potential to recognize either variation or similarity only ever exists in relation to particular categories that serve as shared points of reference.'" (Hui 2016, p. 53)

Table 3: Variations in PABs and constellations based on Hui (2016).

Variation in terms of	Meaning	Relevance for the case
Constituent elements	The practitioners and institutions involved in any performance negotiate and shape the set of elements that end up being incorporated, contributing to the combination of similarities and differences that distinguish it from other performances.	Several initiatives in the canton are brought forward by the same practitioners and through the same systemic instruments. This may increase congruency of norms across initiatives, but also decrease variety and perhaps flexibility if needed.
The nexus of practices	Variations within practices are not necessarily independent of those between practices- changes in one could affect the other.	Specific places or systemic instruments. The re-location of several initiatives in the Info-stuff in the municipality Réiden is an example of this.
Spatio-temporal intersections	Doings and sayings of practices are anchored at a range of paths and places that enrol past present and future through 'acting toward an end from what motivates'.	For example LEADER periods, stimulating a variation of initiatives' relation through phasing-outs, and emergence of new initiatives.
Practitioners or Materials at the intersection of practices	The situation of materials and practitioners at the intersection of practices is indicative of chains of interaction between practices- processes whereby inputs to one practice are transformed into outputs that may become inputs of another.	A highly relevant type of variation, since some practitioners are part of several initiatives simultaneously. Learned skills, shared meanings etc. may thus diffuse across practices. This may create dependencies
Groups and categories	General understandings of who is a member and who isn't are produced in practice. These categories may change throughout the practice, with changing practitioner-groups changing the qualitative character of PABs.	All initiatives are highly inclusive regarding their member-base, making for a potentially high internal variation.

5.3 MINDS IN INTER-ACTION

The mental realm of social practices is subject to RC2, concerned with the characterization of Leitbilder and their functional relations within the grassroots initiatives and their comparison across initiatives. Social practice approaches do generally not acknowledge the mind as an ontological realm in and of itself, although „mental patterns are necessary components of practices and thus of the social“ (Reckwitz 2002, p. 252). As the brief introduction of the works of Shove et al. (2012) and Schatzki (2003, 2013) showed, the mental realm is allocated differently across approaches: The former locate it as an integral element of practices, the latter perceives of it as a guiding entity that lies outside, or above a social practice.

Another determinant for the conceptualization of the mental realm in this thesis is data availability and the resources available for field work. Particularly, extensive ethnographic observation on social practices will not be possible, given the ambition to analyses and compare four rather complex grassroots initiatives. Grey literature on the case does not exist in sufficient quantity for analysis. Therefore, the main source of information are the accounts of individuals. (see chapter 6.2)

RC2 hypothesises: The initiatives are brought forward by heterogeneous actor groups, holding different motivations, beliefs, referred to as social perspectives. Unlike the dominant narrative on the development suggests, it is not the intentionality of the group that allows the transition to occur, but the capability to align at times divergent interests in practice. Following this hypothesis while taking into account the constraints for field work requires a conceptualization of the mental realm that allows inferring the Leitbilder of a group from the accounts of individual participants. Further, following the epistemological implications of pragmatism and social learning theory, the individual accounts must be rendered in practice.

The relation between the mental domain and social practices is subject to much scientific debate. Yet, researchers often attribute the mental realm special significance in characterizing practices ("Why do people do what they do?"). Empiric works on social practice theory face seemingly face a conflict between ontological rigor and empirical practicability: If social practice theory aims at overcoming, or consolidating the agency – structure dialectic, how can we research the mental domain without inferring from the agency of individuals or the formal institutions that guide practices?

5.3.1 The development of mental states in site ontology

In his earlier works on social practice theory, Schatzki (Schatzki 1996, 2002, 2003) builds the foundations of site ontology as a mid-way between individualism and societism. A central element in these works are *mental states*: These are intelligibilities, teleologies, and ends that organize practices and are "incorporated into minds (...) for instance, their understandings, desires, beliefs, and emotions" (Schatzki 2003, p. 192). He assumes that the organization of a practice "can (...) be portrayed as a normativized array of mental states" (ibid.). As discussed further below, this thesis regards mental states of PABs as the ontological equivalent to Leitbilder of grassroots initiatives.

In Schatzki's account, individualism assumes that individuals hold mental states that contingently connect to others in the realization of actions, and that social practices are mere aggregations of individuals' interactions: "Hence, the individualist matters that institute social phenomena or in which social phenomena exist in a context, namely, the encompassing tissue of interrelated individuals. According to individualism, consequently, an individual life is contextualized within other lives, and configurations, as well as mental and "actional" features of configurations, of lives are contextualized within further such configurations" (Schatzki 2003, p. 179). His criticism to individualist approaches to social practices is that they do not assume mental states to be tied to anything else but the individual's mind⁹⁷.

⁹⁷ Herein lies also Schatzki's critique on Blumer's symbolic interactionism: For Blumer, society would be merely an aggregate of individual interactions. Institutions and structures would only feature as objects of interaction.

Societisms (Schatzki discusses several strands) on the other hand assume social contexts to be composed of components that are not amenable to individuals and that determine their actions and mental states. However, "(t)he burden of these societisms has always been to defend a difference in being between individualist stuff and some distinct, irreducible component of the social. As a result, mental states and actions and so forth cannot be intrinsically part of these phenomena—inseparable from them, perhaps, but not an inherent component of the whole societies, social facts, or abstract structures that embed and determine them" (Schatzki 2003, p. 180).

In other words, since societisms assume mental states to be located on the societal level, they have difficulties explaining differences among individuals, whose actions are assumed to be embedded in and determined by these abstract structures. Schatzki (2003, p. 181) concludes that site ontology would join cause with societisms against individualism in contextualizing actions, mental states, and relations of individuals within wider social structures. Conversely, site ontology would join individualism against traditional societisms in espousing a continuity of being between this individualist stuff and the wider structure forming its context.

This is achieved, in part, by perceiving a mental state as an "objective mind" that governs a practice. Like the conceptualizations of Reckwitz, Schatzki assumes the mental states that organize a practice to be "out there, in practice". Like social learning theory (chapter 3.4) and Leitbildanalysis (chapter 4.3), Schatzki assumes that individual practitioners' minds would hold only *versions* of these that are assumed to be congruent enough to allow for intelligibility in practice. However, he assumes the mental realm, the objective spirit that guides and organizes elements of social practice to be outside, or above the practice. Schatzki (2013, p. 51) conceptualizes four elements to mental states governing practices:

- ACTION UNDERSTANDINGS: know-how on how to perform an action that co-composes the practice (regarded as analogous to actionable knowledge in this thesis).
- RULES: Formulated directives, admonishments, instructions to do or to leave of an action
- TELEOAFFECTIVE STRUCTURE: Acceptable or prescribed ends (or combinations of these), acceptable or enjoined projects to carry out these ends, as well as acceptable or prescribed emotions or moods
- GENERAL UNDERSTANDINGS: Of matters germane to the practice, such as climate change.

5.3.2 Researching mental states in this thesis

This section gives a practical example to clarify how the concept of mental states can be linked to Leitbilder of grassroots activities initiatives. Further, it will give epistemological clarifications on how the concept is operationalized for field work.

Table 4 on the following page gives an example of how the four elements of mental states could highlight different aspects of constitutive activities of the initiative SoLaWa. Naturally, just like not all participants of SoLaWa participate in all activities, the combination of actionable knowledge, rules, etc. in a given version of a mental state of a practitioner will differ depending on the activity

he or she is engaged in in a given moment. The principle of congruence means that certain aspects of these versions have to be similar between participants to allow for stable interaction: If rules regarding watering plans, or permaculture principles differ strongly between participants, plants will die. If general understandings regarding the effects of conventional farming differ strongly, the group may have problems defining quality criteria for the food-box scheme. Yet, given the complexity of an initiative, participants hold different motivations for participation, for example being in community, consuming ecological food, or finding new outlets for one's produce.

Schatzki assumes that there exists a plenum of normativised mental states that are required to stabilize a PAB, in this example SoLaWa. No participant possesses all the general understandings, knowledges, rules etc. of everyone involved, but all of these are essential to informing the various activities needed for stabilizing the PAB. The task of RC2 is to identify existing mental states of groups of participants of an initiative and examine functional relations between these mental states. At the example of table 4, it can be assumed that various mental states guide different, functionally interdependent activities within an initiative. This would then allow to characterize the heterogeneity of Leitbilder within grassroots initiative and understand how associative democratic rural development and sustainability transitions can come about in natural communities.

Chapter 6 will introduce the research design. Here, the mental states concept will be translated to the category system of Leitbildanalysis. This category system will be developed abductively, by applying the original Leitbild-category system to exploratory interview data. The resulting system will highlight certain dimensions of mental states over others. For example, *general understandings*, translated as *future projections*, will feature more dominantly than *actionable knowledge*. What the concept of mental states contributes to this thesis, then, is not so much a category system of mental states, but a basic understanding of how individual participants Leitbilder link to collective Leitbilder, and how these guides the social practice that is a grassroots initiative.

Table 4: Example of how activities link to elements of a mental state.

Activity	Actionable Knowledge	Rules	Teleoaffectionate Structure	General Understanding
Gardening "Gaart à Vous"	Treatment of plants, use of tools	Watering plans, Permaculture principles	Gardening as a collective task to maintain collaborative character of initiative	Conventional agriculture leads to soil degradation
Accounting for the food-box-scheme	Bookkeeping, prizing of products, running a cash machine	Time and place of distribution, prizes, "Payment before delivery"	The food-box-scheme of the garden as a pilot for a broader regional distribution network	Personal contact between producers and consumers increases transparency and quality
Recruiting new farmers and outreach	Communicating needs and potentials to farmers, speaking their language	Arguing without blaming, positive presentation of initiative	Member growth needed for diversification of product line and to stimulate the wider agricultural transition	Effects of conventional agriculture on small, family-owned farms

The above example indicated conceptual difficulties and even seeming paradoxes of the operationalization of the mental states concept for field work. Therefore, the remainder of this section will highlight that data generated may only render heuristics to address mental states. It will introduce the concept of operant subjectivity to bridge the paradox of examining meta-personal entities that only exist in practice through standardized accounts of individuals.

Mental states are highly elusive and dynamic entities. Whether a person is fully conscious of his or her mental states during practice, or even outside practice, is a epistemological question that was answered with pragmatist philosophy in chapter 3, and will define the constructivist research paradigm introduced in the following chapter 6.1. This thesis assumes *Leitbilder* to exist only in action, e.g. in given activity of a grassroots initiative. Further, the combination of general understandings, rules, ends etc. within in a practitioner's mind when conducting a practice is contingent and relational. It is highly depended on influences outside of the practice (if one has slept well, the conversations one had before, etc.). Therefore, researching mental states can only provide rough heuristics to better understand why and how someone is doing what he or she does.

The problem of examining mental states empirically, and particularly in a manner that allows comparison across practices, is a challenge to site ontological works. As indicated in section 5.1.4, the conceptual bridge between the phenomenon of mental states, and empiric analysis is built with the concept of operant subjectivity, which is the main theoretical underpinning of Q method (Brown 1980; also Watts 2011). An operant behaviour is defined by the impact it makes its immediate environment. It does not have a meaning outside of this specific action in-site. Perceiving subjectivity as operant therefore means that subjectivities – or versions of mental states – only exist in practice, and that the operant subjectivity only accounts for that very practice situation. "In other words, Q-methodology captures subjectivity in the very act of being an operant" (Watts 2011, p. 39) With the differentiation between social practice approaches given above, assuming subjectivities as operant requires their recording as practices as performances, while their interpretation and analysis, as will be shown in chapter 6.4 can be conducted by perceiving practices as comparable entities. Further, Q method will allow to infer from individuals' subjectivities, or versions of mental states, objectively rendered, to collective mental states by the means of factor analysis. This method, therefore, is a unique fit to the ontological and epistemological implications of the theory introduced above, and the resources at hand for pursuing the ambitious research agenda. Therefore, the link of RC2 to the concept of mental states, its translation as operant subjectivities, and its operationalization with Q method is a significant contribution to research on grassroots initiatives, and ongoing debates on social practice theory in general. It further is the central scientific accomplishment of this thesis.

5.3.3 Synthesis

To conclude, site ontology perceives of mental states as "objective minds" that govern practices. They comprise of general understandings of relevant phenomena (like climate change), activity understandings (like treatment of plants), teleoaffectionate elements (like perceiving SoLaWa to be an element of wider agricultural transition), and rules (like permaculture principles). Individual practitioners are assumed to possess versions of these mental states that are congruent enough to allow for intelligibility in practice. In this thesis, mental states of PABs are perceived as the site ontological equivalent to Leitbilder in grassroots initiatives (see section 4.4.3). Site ontology allows accounting for the mental domain of practitioners and groups, the subject to RC2 within a social practice framework. The following chapter 6, introducing the research design, will show how perceiving Leitbilder, or versions of mental states, as operant subjectivities (Brown 1980) allows for a coherent operationalization of this domain for fieldwork with Q method.

5.4 OPERATIONALIZATION AND SYNTHESIS

The previous chapter 4 resulted in a conceptualization of the case as interlinked grassroots initiatives that drive the rural development in the canton. These grassroots initiatives are constituted by community capabilities and governed by Leitbilder. The case is consequently understood as an emergent and relational place-making process. The purpose of this chapter is to link these mid-range theories to an ontology that allows operationalizing the RCs for fieldwork within the same ontology to answer the two research complexes:

RC1 hypothesizes that the diverse grassroots initiatives in different sectors are linked, and prefigure one another (through people, materialities, understandings, norms, activities etc.). Understanding these links is the key to understanding the entire transition. It asks: Through which elements are the initiatives linked (understandings, people, materialities, activities) and what is the character of these links (constitution, prefiguration, causation)?

RC2 hypothesizes that the initiatives are brought forward by heterogeneous actor groups, holding different motivations, beliefs, referred to as social perspectives. Unlike the dominant narrative on the development suggests, it is not the intentionality of the group that allows the transition to occur, but the capability to align at times divergent interests in practice. It asks: What are the social perspectives within the grassroots initiatives? Are there patterns in the constellation of social perspectives among the initiatives?

Figure 5 gives an overview on how the concepts of site ontology link to the mid-range theories in this thesis at the example of SoLaWa. The two research complexes address different realm of a grassroots initiatives: The inner composition is conceptualized of as community capabilities in order to address RC1. These are governed Leitbilder, which are addressed in RC2. Site ontology is

chosen, because allows to address both research complexes, which address different aspects of initiatives, within the same framework: RC1 addresses the realm of elements of PAB and their relations, while RC2 addresses the domain of mental states and individual versions governing these elements.

LARGE SOCIAL PHENOMENON ENDOGENOUS RURAL DEVELOPMENT		
CONSTELLATION	POLICY DOMAIN	AGRICULTURE
(MENTAL STATES)	(LEITBILDER)	Being in community, getting my hands dirty, supporting our farmers, Eating healthy food,
PAB	GRASSROOTS INITIATIVE	SoLaWa Gaart à Vous Wheat supply chain
SOCIAL PRACTICE ARRANGEMENT	COMMUNITY CAPABILITIES <ul style="list-style-type: none"> • Organizational • Cultural • Personal • Infrastructural 	<ul style="list-style-type: none"> • Field Management, Organizing food boxes, supply chain management • Protecting the soil, Providing reg. food • Networking, Outreach, Gardening • Field, Shed, Fruits, Tools

Figure 5: Linking theory ontology at the example of SoLaWa.

Consequently, a grassroots initiative is a PAB that is part of the constellation rural development. The domain of material arrangements and actions composing a practice is addressed with the community capability concept, to make for a more qualitative and interpretative analysis, instead of a mere inventory of PAB.

The Leitbilder of a grassroots initiative are perceived of as mental states. These are – just like the original Leitbilder concept – perceived as “objective spirits” of a practice, of which individuals hold versions. The category system of Leitbilder, and thus mental states, will be tailored to the case abductively in the following chapter. The mental states concept therefore informs the relation between Leitbilder and grassroots initiatives, rather than the understanding of their internal composition.

The concept of sites, finally, will be applied to introduce the contexts of initiatives. The first site will discuss the realm of phenomena of which an initiative is part, introducing scientific concepts, and relevant policies of the respective policy domain. The second site characterizes the actual

development of an initiative in time-space. These will be collapsed as a third *sites-synthesis* that puts the grassroots initiative in dialogue with comparative cases, policies, and scientific concepts. The analysis of a grassroots initiative in chapter 7 is performed in the following order:

- 1. Grassroots initiatives are situated *in-sites*, describing their particular characteristics in time-space and location in the constellation of the policy domain, and embedding them in the wider realm of phenomena they are part of.
- 2. Leitbilder of participation are introduced, giving an overview over all relevant mental elements that govern individual actions of the initiative.
- 3. Distinct mental states governing the grassroots initiatives are developed employing inverted factor analysis of Q method and presented as factor narratives.
- 4. The composition of a grassroots initiative is analysed in the dimensions of the community capabilities concept, and their relations among grassroots initiatives discussed.

6. RESEARCH DESIGN

This chapter links the above-introduced concepts and site ontology to research methods in order to address the two RC. The research design is structured in six work-packages, and the output one WP become the input of the following. Each WP is therefore a small case study in and of itself, employing methods of data gathering, processing, and analysis. Most WPs perform their analysis on each of the four grassroots initiatives.

Therefore, this chapter follows a rather unorthodox structure. In order to avoid repetition, all methods applied in this research project are presented as a “toolbox” in chapter 6.2. Here, Q method, which is a method to address the mental domain of grassroots initiatives, is given particular attention. It is a unique fit for the requirements of this research project, because it is a heuristic to explore meta-personal mental states from individual participants’ versions of these mental states. Further, it allows comparison of these mental states across grassroots initiatives, because it can be linked to the Leitbild-analysis framework. The method is also adequate regarding the resources available for this project. This mixed method is at the heart of the research design in the sense that all other WPs work either in preparation of, or build on data gathered from this method. Methods of sampling, data gathering, analysis, and validation are discussed after the introduction of Q method. Chapter 6.3 introduces the research design. It clarifies how the theory and ontology are translated to methods in order to address the two RC. The chapter then introduces a flowchart of the six WP to display the kinds of data sources, methods, and output of each package and show how they interlink. The explication of the research process then unfolds in detail research performed in each WP in order to provide an outmost transparency of the research process.

Finally, chapter 6.4 contains the method critique. The focus lies on conceptual and methodological reflections of the researcher, and suggestions for improvement for further research. Selected conceptual and methodological critique will also feature in the final theorization, and suggestions for further research in chapters 8. The author will share personal research experiences in this section. The first section of this chapter discloses on the positionality of the researcher regarding the case and the subject. Building on the theoretical works introduced in the previous three chapters, it argues for a constructivist research paradigm.

6.1 POSITIONALITY AND RESEARCH PARADIGM

This section discusses the underlying constructivist research paradigm of this thesis (Denzin 2009). It is chosen with regards to the requirements of the research interests and the researcher’s ethics. The author of this thesis holds that social science research is always already embedded in normative frames of reference (Habermas 1973), and can therefore never be neutral or objective (Ahrens et al. 2011). Since this thesis produces pictures of the world that this project is itself part of, and

that may affect the case, it is good practice to make this positionality transparent (Flick 2009; Merriam 2009). In the following, positionality is discussed regarding the relation between researcher and the researched (Brown 1980, Robbins and Krueger 2000), as well as between the researcher and the subject (Ahrens et al. 2011; Fahy and Rau 2013). Given the personal character of this section, the following is written in first person.

6.1.1 Positionality to the case

Throughout the four years of this research project, I have remained at a critical distance to the case. I have neither lived in the canton, nor participated in events and meetings unless for research purposes. However, through engagements in civil society associations in Luxembourg I am acquainted with several protagonists of the initiatives. This, and perhaps shared attitudes towards transition activities made it quite easy for me to gain access to engaged citizens, but also to critical voices. I feel welcomed and supported in my work by most people of the region, but I do not have personal relationships to people living there. I chose to research the case because the character of its development, and because the intellectual opportunities it promised intrigued me. However, positionality not only refers to the emotional involvement of the researcher to the population, but also to the positionality of the researched regarding the production of knowledge in this research project. I will discuss this assertion briefly from an ethical and a technical viewpoint.

Research creates meanings of the world and in the world, and thus affects power relations (Denzin 2009). As argued in feminist and post-colonial debates, approaching cases with ready-made categories is a form of dominance, and their use requires a careful balance between comparability and research efficiency, and the emancipatory, empowering societal purpose of the social sciences. Thus, the relation between the researcher and the researched in the creation of knowledge requires awareness on power-relations. Co-creating categories, as it is done in this project, may allow to democratize the research process and "challenge the power of the researcher over the researched and so allow for emancipatory 'surprise' in the process" (Robbins and Krueger 2000, p. 645).

Throughout the previous chapters, I have developed the argument that the research questions are best addressed through people's subjectivities. This makes a democratic research approach particularly significant. As Brown (1980, p. 30) states in his compendium on political subjectivity: "(...) We are apt to forget a basic principle, namely, that models ought not to be obtrusive. In the human sciences, (...) our subjects have their own operational definitions and models of the world, and the social scientist must avoid becoming so intrigued with his own constructions that he becomes insensitive to those of others."

Finally, the development of categories and models is mediated through language. Language conditions the creation and diffusion of knowledge (Gadamer 2010). This aspect is important for this

project, as I am a German researcher who examines a Luxembourgish case, yet I am writing in English. In interview situations, participants would often try to answer in German out of politeness, although it is not their native tongue, and their vocabulary may be poorer in German than in Luxembourgish, or in French. Therefore, their original accounts may not accurately represent what they want to say. Further, all data in this case is interpreted and represented in English. One could speak of a triangle of translation, and meanings may get lost in this triangle. As a researcher I certainly exert power over the population, because I produce a view on their life-world based on accounts they could often not give in their own language. I try to control for this problem with methods of triangulation and validation (see section 6.4.6).

6.1.2 Normativity and positionality to the subject

The research project is part of social science research on sustainability transitions, and thus inherently normative (Ahrens et al. 2011; Denzin 2013; Fahy and Rau 2013; Truffer and Coenen 2012). I agree with Denzin and Lincoln (2013, p. 23; also Ahrens et al. 2011) that social science research is always embedded matters of values and motivation and that social science should as a discipline be "committed to the issues of social justice, equality, non-violence, peace, and universal human rights. We do not want a social science that says it can address these issues if it wants to. For us, this is no longer an option." Personally, I would add sustainable human-environmental relations to this list.

This study is case-driven, and there are two main motivations for why I chose the case: I want to learn about socio-political mechanisms and strategies of sustainability transitions and rural in different sectors, and how they may amount to overall more resilient and sovereign communities. Doing so, I hope to contribute to expanding the capabilities for such transition and development in the canton by giving a critical appraisal of the achievements in the previous 40 years. Further, even though it is merely a single case, critical investigation of what is widely regarded a 'best-practice' may contribute to an already rich scientific debate on sustainable community development (Flyvbjerg 2006), and perhaps inform activism and politics by presenting another example of a social transformation journey (Sommer and Welzer 2014). As discussed in chapter 2, generalization is not the main aim of this thesis, and I would reject Flick's (2009, p. 124) position of perceiving this single case dialectically as "an individualized universal."

What fascinates me about the case is the realization of alternatives in community. By realization I mean the process of people indicating problems to each other and exploring common solutions with one another. At the example of energy transition, I am intrigued to learn how awareness about climate change diffuses among people, and manifests in the practical creation of real-world responses, whose impacts reflect in 'hard' impacts as CO₂ reduction, or in 'soft' impacts like an improved sense of belonging and empowerment. As pragmatist philosophy and theories of

transformative learning suggest (see chapter 3), the cognitive and the practice side of realizing problems and realizing solutions stand in a mutually constitutive, dialectic relation: While actions are (partly) guided by knowledge, we learn in practice.

6.1.3 A (local) relativist ontology

Garavan's (2013, p. 80) call for dialogical research on local sustainability transitions reflects the approach to fieldwork taken in this study: "The objective is to ensure that we are relating to the genuine view of the local people and not projecting onto them certain dominant perspectives." A prompt for this research project is the diversity of social perspectives on initiatives among protagonists in the canton. Chapter 2 indicated that to enrol people in projects that have positive impacts on a given phenomenon like the environmental catastrophe, such as combined heat and power plants, does not require them to acknowledge the phenomenon. What is required, however, is to design the initiative in a co-creative manner so that it satisfies the interests of citizens that can perform required actions (e.g. delivering the energy carrier, managing the site, maintaining relations between supplier and customer, organizing majorities for municipal policies). The case suggests that the participants of a grassroots initiative do not have to completely share opinions on a given phenomenon (referred to as general understandings in site ontology), in order to engage in such a social practice.

A (critical/ analytical) realist agenda would assume a reality out there, such as climate change and relate people's actions to that reality. This may help grasping the given phenomenon itself, but may not be sensitive to the various ways it is perceived by people and translated to practice. One working hypothesis of this thesis is that it is not a homogenous intentionality among participants of the initiative that drives the development, but the ability to align heterogeneous Leitbilder.

The ontological standpoint that best serves my research interest is to assume that there exist multiple realities in the perceptions of individual people. These are constructed relative to personal and group knowledge, norms and values, and local contexts of practice (sites). The study hence builds on a local relativism that focuses on local discourses on social practices, while acknowledging "the role of socio-historical, psychological and textual contexts in "truth" and "knowledge" claims" (Baghramian and Carter 2017, p. 4). Relativism is therefore an instrumental ontological choice to allow findings to emerge from the case, in dialogue with protagonists, and subsequently to be analysed reflexively in dialogue with scientific literature.

Epistemic relativism is in line with previous theoretical choices in this thesis, such pragmatism and transformative social learning, and allows translating these concepts to fieldwork. By choosing relativism, I do not aim to judge or establish truth about "right" solutions to problems, but opt for a paradigm that I hope grants mindful awareness for how problems are perceived and solutions constructed relative to the local context.

6.1.4 A subjectivist research agenda

This suggests that the most truthful source of knowledge about the case is the individual protagonist. Information about the case is gained via people's subjectivities (Brown 1980, see section 5.3): These are frames of reference along which people continuously construct their inter-subjective beliefs (Mead 1998, see section 3.3). I co-construct information with protagonists, as I learn about the case through their perceptions of the local practices and reflect these accounts with theories and comparative case studies (Brown 1980; Gadamer 2010; Mayring 2015). The research project consequently takes a subjectivist epistemological position in regarding inter-action as conveying and co-constructing subjectivities. As will be elaborated in-depth in section 6.4, interaction requires intelligible communication of beliefs between practitioners, but also between the researched and the researcher.

6.1.5 A constructivist research paradigm

To conclude: For this thesis I assume that there exist multiple, continuous and infinite perceptions of reality within and among us as individuals. I assume that people constantly synchronize their perceptions amongst each other to a degree of congruence that suffices for continuous interaction that is part of and stabilizes social practices. The population's subjectivities are my main source of gaining an understanding of the case. A relativist standpoint, drawn from pragmatism and symbolic interactionism, has as a consequence that I as a researcher am co-constructing my account, or version of the historic and contemporary developments in the canton Réiden with the people I interact with.

The study is constructivist as it "assumes a relativist ontology (there are multiple realities) and a subjectivist epistemology (knower and respondent co-create understandings) and a naturalistic (in the real world) set of methodological procedures" (Denzin 2013; p. 27). It aims to identify underlying structures and process of how development "is done" in Beckerich and the canton that may, keeping the particularities of the phenomenon and its population in mind, render insights for analysis on and practice in other places.

6.2 METHOD-TOOLBOX

This chapter introduces the methods used throughout this research project. Since several methods are used across the WP, they are presented as a toolbox. The practical application of these methods is discussed in the following section 6.3. This section sets out with a detailed introduction to Q method, because this mixed-method rather complex regarding the epistemological underpinnings, the use of statistics and the interpretation and presentation of findings, this is necessary to ensure the transparency of the research process.

6.2.1 Q method

Q is a mixed method for examining people's viewpoints on a phenomenon. Specifically, the aim is to develop and interpret shared viewpoints (*social perspectives*) on a subject, by correlating their sampled segments. This is achieved by having participants sort a set of statements relating to certain phenomenon in a bell curve (more what I feel like - less what I feel like) and generate "idealized" sorts symbolizing "How a typical person of this group of participants feels like" via factor analysis.

The method is at the heart of the research design of this thesis. It is a heuristic for answering RC2 and generates data to address RC1. Hence this pivotal role in the research design, its character of a mixed-method, and overall complexity, Q is introduced more extensively than other methods. Particular focus will lay on its theoretical foundation and the way it links to the conceptual approach, research questions, and the research paradigm of this study. The operationalization of site ontology with Q method is a central contribution of this thesis to the scientific discourse on social practice theory. The introduction of the method will in the following focus these aspects, and only briefly indicate its practical realization, as this is widely discussed in the literature⁹⁸.

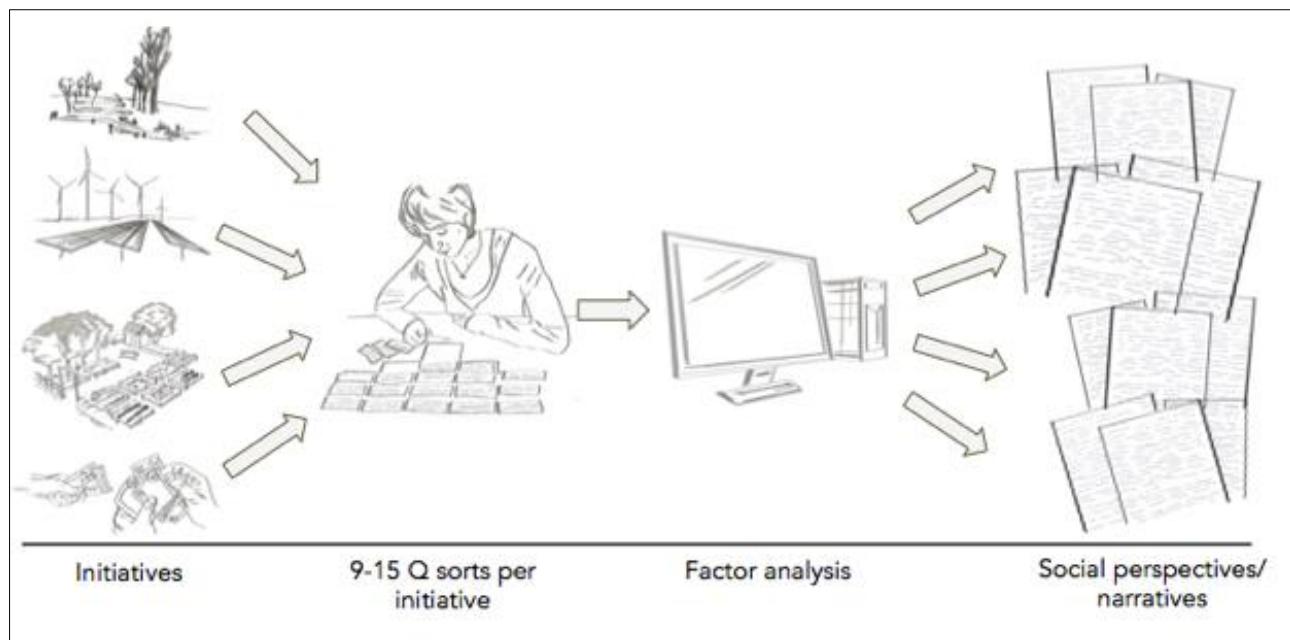


Figure 6: Method overview. (Source: Author's own)

⁹⁸ The online journal *Operant Subjectivity*, as well as the listserv have been of great help this thesis. See <http://www.operantsubjectivity.org>

Subjectivity as operant

The concept operant subjectivity has been briefly touched on in the previous chapter 5. It answers to the assumption developed in the chapters on pragmatism and social practice theory that knowledge only exists in practice. Subjectivity refers to the way a person perceives her (semantic or somatic) relationship to an object; it is her individual viewpoint on a phenomenon (see section 5.3). Consisting of a universe of experiences, emotions, norms and knowledges, subjectivities are contextual and conditioned multitudes. Physicist and psychologist William Stephenson (1953; 1977) sought a method "capable of studying and comparing the viewpoints of everyday people mathematically, holistically, objectively, and 'with full scientific sanction, satisfying every rule and procedure of scientific method'" (Watts 2011, p. 45). The aim was to examine the natural complexity of people's viewpoints and their relations, with little distortion from the researcher, and high scientific rigor.

To study subjectivities from an anti-essentialist standpoint requires a specific ontology and epistemology. Stephenson (1953; 1977) suggested to perceive subjectivity as operant, not located in the mind, but always in practice. "Relative to some topic, stimulus, or situation; it is conscious, behaved and lived by individuals and is therefore amenable to querying" (Robbins and Krueger 2000, p. 642). Operant is a behaviourist concept referring to behaviour that occurs without practice or induction, and only has meaning in its immediate context (Stephenson 1977). It does not have a meaning outside of the specific subject-object relationship. Understood in this manner, subjectivity is not a lasting mental state or a permanent disposition of any sort, but only exists in the immediate subject-object relation of the moment: "Q-methodology captures subjectivity in the very act of being an operant" (Watts 2011, p. 39).

Translating this concept to research practice requires the creation of a situation that provides a participant the tools to express her subjectivity towards a phenomenon with little to no interference of the researcher, in order to achieve a natural account of her viewpoint. The actions of the participant in the research situation, then, are the subjectivity being operant. In his compendium on Q method, the former student of Stephenson, Steven Brown (1980, p. 59) concludes: "A Q sort, in essence, reflects the impact of a mind in operation, a person thinking, evaluating, and interpreting in relation to the array of stimuli brought to his focus of attention in the form of a Q sample. (...) The relationship of thought to statement arrangement, like that of a musical score and the sound of an orchestra may be regarded *pro tem* as homologous." This radical approach to operant subjectivity softened in Stephenson later works (Watts 2011) and is widely ignored in contemporary Q method applications (Robbins and Krueger 2000). Today, shared viewpoints are commonly linked to permanent mind-sets and beliefs. Exploring operant subjectivities nonetheless requires a particular ethics from the researcher.

The researcher's role

As Brown (1980, p. 28) highlights, "operational definitions begin with concepts in search of behaviour; operant definitions begin with behaviour in search of concepts." To examine a population's subjectivities, the researcher must refrain from approaching the case with ready-made categories, to allow for natural data and explanatory concepts to emerge. At the example of a spectrum ranging from emic descriptions, referring to self-ascriptions of natives of a culture, to etic description by the scientist, Brown suggests to orient oneself as far as possible towards the former: "Ideally, we would prefer to affect our subject as little as a thermometer affects a hot day. In ethno-methodological terms, this means sticking as closely as possible to the person's way of expressing himself" (Brown 1990, p. 190).

As argued in the discussion of the research paradigm (chapter 6.1), a completely natural and comprehensive representation of subjectivities cannot be achieved, as "(a)ny interrogation of someone else's subjectivity (...) must ultimately be theory-laden" (Robbins and Krueger 2000, p. 642). The researcher unavoidably exerts force on a population by developing guiding categories, sampling statements, and interpreting findings. The research ethic of Q, perhaps more than for other aspects of the research design, is to at least democratize the process, "to relinquish modelling of the data, insofar as possible, to the respondent" (ibid., p. 640; also Watts and Stenner 2012). The aim is "to provide the subject with the opportunity to engage in the formation of his own opinion (...), subjectively rendered" (Brown 1990, p. 68). Further, the approach is supposed to allow for concepts and meanings to emerge from the data, and not to impose interpretative concepts a priori.

Also in this study, where Q is used as a heuristic to examine general understandings of PABs, subjectivity cannot be strictly perceived as operant for epistemological reasons, but also because of practical aspects: The Q sorts are used to generate more qualitative data as participants are asked to argue and for and reflect on their ranking. The subject-object relation of the sort is thus deliberately disturbed, as advocated in more recent guidelines on Q method (Watts and Stenner 2012; Webler, Tuler, and Danielson 2007; 2009). However, these theoretical foundations are a prerequisite for understanding how the method is conducted, how to treat findings generated with Q, and how it links a research paradigm.

From multitudes of subjectivities to factors

The purpose of Q in this study and in general is not to examine individual's viewpoints on the given phenomena, the grassroots initiatives, but to discover general commonalities and differences of views on them. Similar to site ontology thinking, if we imagine subjectivity as a multitude and want to explore relations among these multitudes, the way to go about it is by exploring the relation of its constitutive components.

In Q the statements that are sorted and ranked by the participants represent these components, and every participant ranks the same set. The entire set of statements ('concourse'), drawn from the local discourse about the phenomenon, is therefore a sample of the components of the populations' subjectivities. This is why a sort can be regarded as operant subjectivity. However, as subjectivities are in constant flux the sorts merely represent a still frame of aspects of a person's viewpoints: "A Q sort might (...) be thought of as the momentary rotation of a complex and changing figure-subjectivity- against a light, and a tracing of the result on paper" (Robbins and Krueger 2000, p. 644).

The individual statements that are given to participants for sorting, e.g. to design this complex and moving figure, are the medium through which subjectivities are made operant in Q method. The subjects of a Q study are the statements, the population of a study is the concourse, and the sorts of participants are the variables. This juxtaposes many other quantitative and qualitative methods, such as surveys, which look at the distribution of traits in people, or infer from social categories to people's opinions (Robbins and Krueger 2000). Q looks at the relation of the constitutive elements of these opinions, and, through factor analysis, indicates case-specific clustering's of opinions. This follows the theoretical assumption of *atomic uniformity*: "The principle of atomic uniformity holds that all viewpoints in the Q sample are of equal importance until shown to be otherwise, and that the placement of each Q sort item is a result of an almost infinite number of infinitesimal influences. The number of distinctly different sortings is not expected to be near-infinite, (...) but is expected to form a more limited number of patterns (factors)..." (Brown 1990, p. 62). As argued in section 6.4.4.1, the methodological focus on subjectivities' components is main argument why Q is a valid method in a practice-theory framework.

In order to develop shared views on a phenomenon from a sample of individuals' subjectivities, patterns of relations among the sorts of statements are explored. Similar to a study that develops social categories by grouping people according to correlating characteristics, Q develops shared viewpoints by grouping correlations among statements' scores, e.g. their rank on the bell curve. This is achieved by *factor analysis*.

Factor analysis is a statistical structure-discovering procedure⁹⁹, that is employed when the researcher does not have a fully developed explanation about the relation between variables (Kopp and Lois 2012). It reduces a large number of variables (the sorts of participants) to a smaller number of variables, called factors, or latent variables (the typified Q sorts, or social perspectives). A factor is thus "a cluster of related variables that are a distinguishable component of a larger group of variables" (Vogt and Johnson 2015, p. 155).

In Q, a factor represents a cluster of similar Q sorts based on the variation of statements' scores in the sorts. Robbins and Krueger (2000, p. 637) specify: "Stephenson suggested that the traditional

⁹⁹ German: strukturdeckendes Verfahren

factor analysis technique could be inverted so that rather than measuring a population of n individuals with m tests, Q mode factor analysis begins with a population of n different tests measured by m individuals. In other words, Q factor analysis examines the traits of a single person (holistically) rather than matching traits across individuals (atomistically)."

As sorts represent participants' subjectivities regarding a phenomenon, in this case a grassroots initiative, factors are patterns of participants' subjectivities, referred to as *social perspectives*. These are represented idealized Q sorts, a typical operant subjectivity of a cluster of sorts, or, put simply, the typical way a person of the group sharing this viewpoint would sort. They are latent variables as they are not directly measured, but offer an explanation of why a pattern of subjectivities occur (Kopp and Lois 2012, p. 83). However, Brown (1990, p. 70) argues "the factors are likewise natural, representing actual categories of thinking that are operant with respect to the issues under consideration." In this study, they describe commonly held views on an initiative in Réiden and are regarded as analogous to the terms *Leitbilder* in grassroots initiatives, and mental states in social practices.

Social perspectives are generalized sorts out of a group of similar sorts. The degree of similarity between any actual sort and the social perspective is referred to as *factor loading*. A factor loading of 1 means that the distribution of statements in a sort is the exact same as the factor's, whereas -1 means the opposite.

The relation between the individual Q sorts and factors is crucial to Stephenson's claim to provide a method that allows for outmost natural representation of subjectivities with high scientific rigor. As Watts (2011, p. 44) emphasizes: "It follows that any Q-sort which associates strongly with (or loads significantly on) a particular factor, does so because the viewpoint it captures has effectively reiterated and cohered with the viewpoint of 'others' taking part in this study. In other words, it associates with the factor precisely because its viewpoint is exhibiting a certain *objective quality*."

The relation between a sort and a factor it loads on can therefore be regarded as analogous to the relation of individuals' versions to mental states in site ontology: No participant's version will represent a collective's mental state exactly. Similar to the way a factor explains variations and clusters among subjects, a mental state captures congruence of their versions.

To conclude, Q examines shared viewpoints among a given group of people through (inverted) factor analysis of participants' Q sorts. A Q sort is a participant's ranking of statements (concourse) in a bell curve along the spectrum ranging from "most what I feel like" to "less what I feel like", sampled from the phenomenon in question. Since the act of sorting is regarded as the subjectivity on a grassroots initiative being operant, the Q sorts are regarded as still-frames of these subjectivities. Factor analysis generates latent variables (factors) that explain relations among participants' subjectivities. In Q terminology, these factors are referred to as social perspectives. In this thesis, the terms factor, social perspective, mental state, and collective *Leitbild* describe the same subject

in the different steps of the research design. In the context of this study, social perspectives generated in Q method are a heuristic to address research complex1: *What are the social perspectives within the GI in Réiden?*

Subject	Single statement
Population	Set of statements, also concourse. It is a sample from the discourse about a given phenomenon
Variable	Q sort done by a participant. This ranking of the concourse is perceived as operant subjectivity.
Factor	Social perspective
Factor loading	Relation between a sort and a social perspective. The higher the positive loading of a sort on a factor, the higher their similarity.

Text Box 3: Overview on Q vocabulary.

Doing Q

As there are various guides on how to conduct a Q study (Watts and Stenner 2012; Webler, Danielson, and Tuler 2007; 2009), this section will only give a general outline in order to introduce key vocabulary, methods, and quality criteria along the research steps. A Q study is generally introduced as a seven-step process (ibid.). The steps are nested in the six work packages (WP) of the overall research design (see section 6.3.3). In the following, the steps of a Q study are briefly introduced with regards to their application in the research process of this thesis. This section will introduce methods of data gathering and analysis that will be discussed in detail in the following chapter 6.3, introducing the methodological toolbox.

Doing Q Step 1: Determine objectives

The method is chosen because it is appropriate to address RC1 1 in the framework of site ontology. It is an instrument in a wider research design that has been selected after the research objectives were defined. In this regard, this step can be located in the very beginning of the research process, before WP1. Webler, Danielson, and Tuler (2007; 2009) suggest defining the research objective of Q following three questions. As highlighted in the literature, this guideline is not only important to lend structure to the Q study, but it helps to concisely explain the purpose of the study to participants.

1. In the context of rural development in Réiden
2. I want to understand the different social perspectives on the chosen grassroots initiatives
3. In order to examine the diversity and structure of reasons why people participate and explore how these are aligned in practice.

Doing Q Step 2: Conduct background interviews and create concourse

Analogous to WP1 and WP2, the purpose here is to deepen the overview over the local discourse on the phenomenon, to generate a database with natural statements, and to develop a framework that allows choosing statements accurately according the character of the discourse. It is suggested to conduct background interviews with various stakeholders holding different views on the phenomenon.

This study proceeds differently for two reasons: First, as the purpose is to conduct Q studies on four different phenomena, comprehensive interviews in each of them would be too time intensive. Second, this shortcoming is balanced by drawing on the various exploratory interviews conducted previously, by integrating grey literature, and by choosing interviewees wearing several hats. The latter point allows multiplying the number of perspectives, as one interviewee may participate in all four initiatives.

The data generated for each initiative is comprehensive enough to create largely natural statements for the concourses. Natural statements are words of the local discourse, thus ensuring a more truthful representation of local viewpoints than statements scripted by the researcher. As indicated above, all Q participants are asked about the comprehensiveness of the concourses and the large majority did not have anything to add.

In order to structure the gathered data and process it for the concourses, it is suggested to develop a category framework inductively from the dataset along which the statements of the concourses can be chosen. Brown (1980, p. 39) refers to this framework as a "launch pad" that needs to be wide enough to allow unexpected theoretical discoveries to occur. A suggested method here is Grounded Theory (Corbin and Strauss 1990). However, regarding time-constraints, the concept of Leitbildanalysis informs qualitative content analysis in the development of a framework (Mayring 2015). WP1 is concerned with tailoring the Leitbildanalysis framework to the case of Réiden, by repeatedly applying it to the data set of all initiatives, and to refine existing categories and add case-specific ones in-vivo.

Doing Q Step 3: Prepare Q statements

It is suggested to develop the final statement-sets in several coding cycles. In WP2, the Leitbildanalysis framework developed in WP1 is applied to case-specific datasets to fill the Leitbild-categories with mostly natural statements for the concourses. The set of statements is supposed to represent an initiative comprehensively, while allowing a variety of participants to rank statements evenly along the spectrum of the bell curve according to individual preference.

In this study, participants' viewpoints are expected to be less variegated than in most Q studies, because they participate voluntarily in the initiatives, and are therefore in principle in favor of them. This makes the construction of a concourse that allows everyone to evenly distribute statements

challenging. To facilitate participants' choices, natural statements were at times slightly altered, by amplifying their meanings (for example by introducing comparative forms 'The most important thing is...').

For statistical reasons, it is suggested to have concourses of around 50 statements. The nine Leitbildanalysis categories that render the framework for the concourses are developed along the criteria of thematic comprehensiveness, and their natural occurrence in the datasets. The slots of statements assigned to each category are determined by the latter criteria (see Leitbild-tables in chapter 7). As a result, each initiative is assigned a concourse of 48 statements.

Doing Q Step 4: Recruit Q participants

The number of participants is guided by the underlying statistical requirements of the number of factors one expects (e.g. the variety in social perspectives), and the amount of statements to be sorted. Since the participants are expected to share a variety of views on a phenomenon the expected number of factors is three. According to Webler, Tuler, and Danielson (2009) a number between 9 and 15 participants is statistically adequate regarding these constraints, and all four Q studies fulfil these criteria. The participants are recruited through the gatekeepers of the initiatives. Formal requests for participation are send to the gatekeepers, who distributed them in their member base.



Picture 14: Participants were visited by bike. (Source: commons.wikimedia.org)

Doing Q Step 5: Conducting Q sorts

Before the sort, it is important to explain the purpose and nature of the sort, to clarify that there is no right or wrong way of sorting, and that the scale is not absolute. Participants are made aware that the score, or location of individual statements is an expression of their relation to other statements, and that the nature of the bell curve is intended to force prioritization. Further, it is important to clarify the "hat" the participant wears during the sort. As participants tend to be overwhelmed by the amount of statements, they are advised to intuitively sort them in three piles along the spectrum, and to rank them afterwards.

In this project, the researcher met with the participants at a place of their choosing. The only requirements were that a place had to have two chairs and a table. The researcher brought the canvas with the bell curve and the concourse of statements to the meeting (see picture 16). For each initiative, there exists one canvas and one concourse. The participants are asked to intuitively pile the statements across the curve and then carefully allocate the statements to the slots of the bell-curve. Often, towards the end participants would begin to rearrange statements and explain their sorting decision. When all statements are allocated, they are asked to quietly revise their arrangement, and then asked question about selected sorting decisions. In this research project, the Q sorts took between 45 and 90 minutes. In the end, all statements are flipped to show the codes on their backsides (see picture 17). A picture is then taken of the completed Q sort, to be transferred to the computer program pqmethod.



Picture 15: Picture of a completed Q sort. (Source: Author's own)

It is important to find a balance between triggering conversations about the sort, and giving space for the subjectivity to become operant: "Each Q-sort can in itself be considered as a mini experiment, the structure being a kind of thought maze through which the subject's attitude wanders, attaching itself to this idea, rejecting that one, ignoring others (...)" (Brown 1990, p. 31). This process should be interrupted as little as possible. In this study, all sorts are recorded for further analysis in WP4 in order to address RC1 these recordings are referred to as *Q talks*. However, in order to reduce interference only few questions are asked, mostly referring to community capability categories. Few notes are taken, mostly referring to themes of the conversation and their location in the recording to facilitate transcription.

Doing Q Step 6: Analysing the Q sort data using factor analysis

This step includes the stages from data processing, over (factor) analysis, and representation of social perspectives as factor narratives. The freeware program pqmethod is used for data storage and processing. Factors are idealized Q sorts in the sense that they represent a latent variable describing a high positive or negative correlation with a cluster of similar Q sorts. They represent a typical sort of a group of participants. The development of factors in pqmethod¹⁰⁰ occurs in several steps.

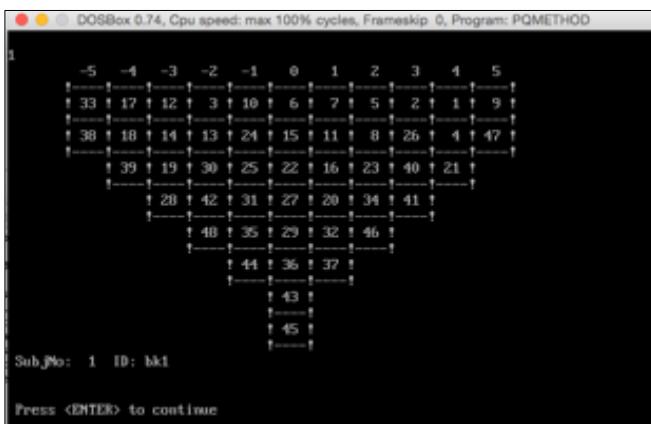
In this study, every statement is given a code (seen in picture 17), on the backsides of the statements. For each Q sort, these codes are entered into a project file in pqmethod. The sorts are displayed in a bell curve in the program (see picture 3). After inserting all sorts of an initiative into a project file, different methods of factor analysis are performed on the dataset. For this study, *principal component analysis* (PCA) and *Centroid analysis* (CEN) were run on each dataset for two, three, and four factors, each with *manual* (MAN) and *Varimax* (VAR) rotation. Rotation improves the factors solution. Whereas Varimax attempts to optimize factor loadings of all sorts so that each only loads for one factor, manual rotation helps to test hypothesis about the relation of Q sorts. The method of rotation is made transparent before the presentations of social perspectives in chapter 7.

In three out of four cases in this study, MAN rotation is chosen. Subsequently, the loadings of the sort on the chosen factors are displayed. By "flagging" sorts with the highest loadings are marked. Finally, the program produces a .lis file as a word document (about 50 pages) with extensive information about the project, e.g. the Q analysis on one grassroots initiative. This file is the basis for the analysis of the Q study. It gives criteria for determining the statistical quality of the project, and the data for the development of social perspectives as narratives. The final set of factors is chosen along four criteria. First, it is advised that fewer factors facilitate the interpretation of the study. This is especially relevant for studies with a low amount of variables like this one. Second, the number

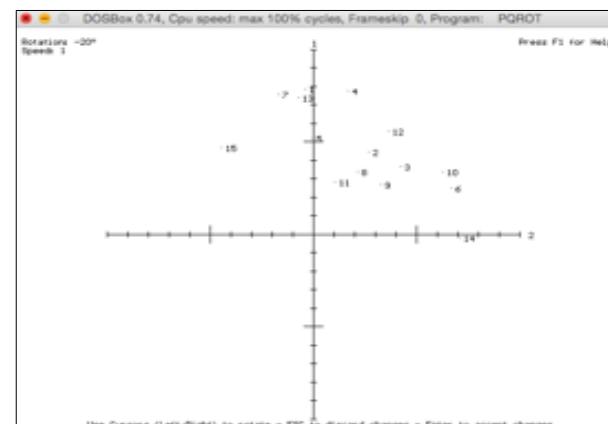
¹⁰⁰ online: <http://schmolck.org/qmethod/> (last accessed October 2018)

of *confounders* (sorts loading on multiple factors) and *non-loaders* should be minimized. Third, correlations among factors should be minimized so as to maximize their respective explanatory power for the study. Fourth, rotation will show re-occurring clusters of sorts. These can be taken as reference points, especially for manual rotation. These criteria are discussed at the beginning of each introduction of social perspectives in chapter 7.

The factors of a Q study are presented as *narratives*, in the case of this study as a first-person monologue. This is done by translating statements' factor scores, e.g. the specific ranking of statements in a factor, into a line of argument. In this study, each narrative begins with the highest-loading statements, and introduces high and low loading themes of the score, informed by theories discussed in the in-sites sections. Often, Q talks offer clarification and background information on why participants chose to sort in a specific way. To improve the narrative, natural statements from these transcripts are introduced. Finally, the narratives are sent for validation to the two participants who loaded most highly on them. The narratives are translated to German for this purpose.



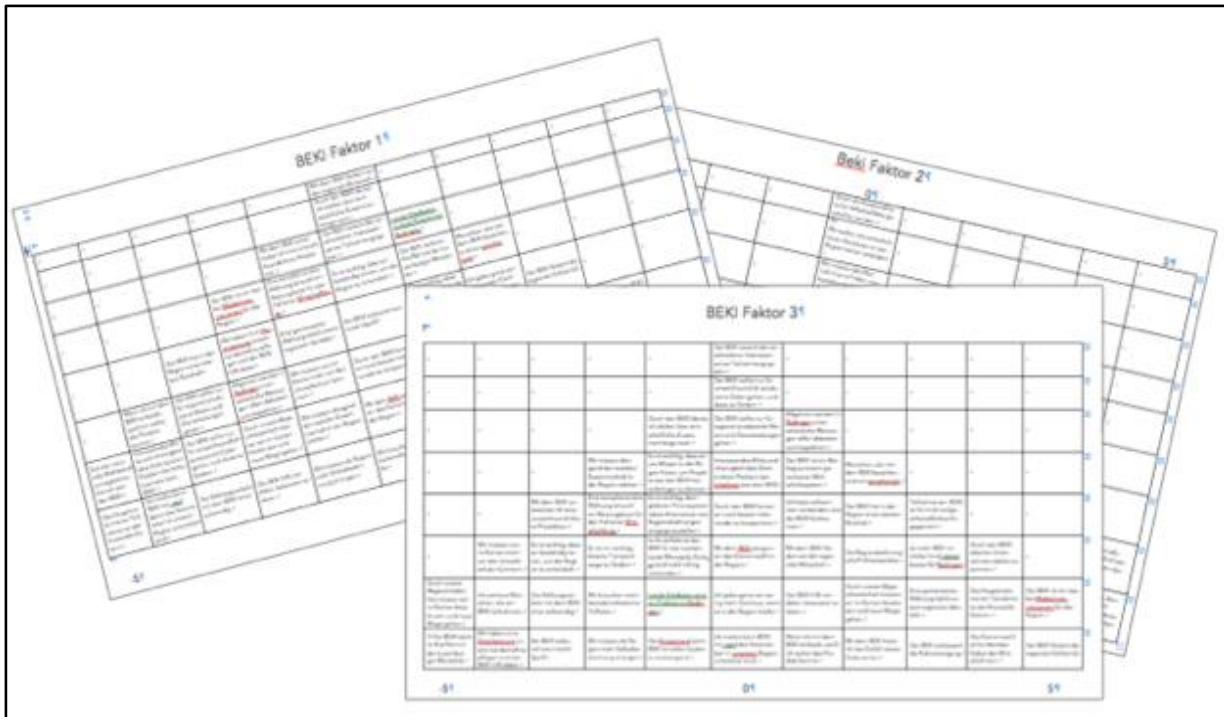
Picture 16: A Q sort in pqmethod.
(Source: Author's own)



Picture 17: Manual factor rotation in pqmethod.
(Source: Author's own)

Doing Q Step 7: Report findings and make recommendations

The results of the study are offered to the gatekeepers of each initiative. Regarding time constraints, no exhaustive analyses are produced for each participant individually. Rather, a file with the narratives, and points of agreement ("consensus findings"), and disagreement ("compromise points") is produced, which may then be disseminated at will.



Picture 18: Three factors as idealized Q sorts, to be translated in narratives.
(Source: Author's own)

The links between Q method and to site ontology

Schatzki deliberately refrains from proposing research methods and the operationalization of site ontology for fieldwork is widely discussed in the practice-theory community¹⁰¹. A basic problem is that practice theory aims to overcome the agency -structure dialectic, but information about the world can hardly be gained without following what actors do, and the underlying institutions that guide what they do. Inverted factor analysis, making statements the subject and people the variable, may provide an ontological and epistemological bridge to achieve this.

Operant subjectivity assumes that subjectivity is realized only in practice, in the act of sorting a set of statements that are representative of the possible viewpoints on a phenomenon. The sorts are still frames of viewpoints that can be examined and processed. Since the statements are the subjects, the research focus lies on the ontological category the mental state. People's agency becomes a variable. Following Stephenson's approach to operant subjectivity, it is thus possible to observe, record, and analyse aspects of PAB without having to interpret the action of agents.

The categories of Q method seem analogous to those of site ontology. Schatzki proposes the concept of mental states describing the cognitive realm a practice. Mental states would guide practice like "objective spirits", but no single practitioner holds the entire mental state. Rather, participants

¹⁰¹ The author has been member of the „Netzwerk Praktikentheorie“ of German-speaking scientists. The link of Q-method to site ontology has been presented at the Deutscher Kongress für Geographie 2018, in Tübingen, Germany.

of a PAB hold versions of them, which are assumed to be congruent to a certain extend to allow for intelligibility. It becomes clear, that the Q sorts can be regarded as analogous to these versions, and the social perspectives (factors/ latent variables) serve as an appropriate heuristic to grasp mental states. A factor loading of a sort may then correspond to the degree of congruency between a mental state and a general understanding.

Naturally, there are several problems with this conceptualization. For one, Schatzki distances himself from this approach to practices in his more recent works. Further, mental states of a practice, if they can exist in plural, cannot be diametrically different, like social perspectives can be, as the practice would be unstable. It is important to highlight in this regard that Q method is usually employed for case where member groups do not form communities of practice, and often disagree on a subject, such nature protection issues. The views among people within an initiative are probably less variegated. In this thesis, Q method serves as a heuristic and the results are reflected upon and validated with the participants.

6.2.2 Sampling and data gathering

The research design builds on three kinds of data: Interviews, ethnographic observations and grey literature. Interviews are the most relevant source, regarding the scarce documentation of the developments in the canton, and a variety of different interview methods are used in the process. These are introduced in the following, after a short discussion of sampling strategies.

Sampling of cases and participants

Sampling refers to the choice of certain research subjects over others. As discussed above, the empiric analysis in this thesis looks at three kinds of subjects: Individual initiatives, protagonists of the initiatives, and statements to be sorted by the participants of the four Q studies.

The four initiatives were chosen early on in this research project, following the advice of Flick (2009, p. 121) to sample according to *relevance*, instead of *representativeness* (see chapter 2.3). The first criterion is the significance interviewees attribute to initiatives during the research conducted of the Master's Thesis and exploratory interviews at the outset of this study. This was determined by how often initiatives were mentioned, and how long people talked about them. Second, the aim is to examine sustainability intervention in different social sectors. Therefore, instead of choosing several initiatives contributing to the low-carbon transition, which is the most prominent example of a transformed policy domain in Réiden, it is decided to sample initiates in the fields of ecosystem governance, energy, finance, and agriculture. These domains are chosen, because they are crucial playing fields of sustainability transitions in general, and central functions of rural areas at the same time. A third criterion was that the social practices of an initiative had to play out predominantly

within the canton. Some initiatives, such as CELL, are part of wider national, and international networks. While these initiatives contribute to the rural development as well, their predominant aim is not to transform a policy domain in a given territory. Finally, the chosen initiatives had to be brought forward in associative democratic arrangements. This means that they had to be collective efforts of diverse citizens, and not of single individuals.

Interviewees are sampled for four different purposes: A) Sampling of experts for exploratory interviews on the general rural development in Réiden (WP1), B) sampling of experts on the four chosen initiatives (WP2), C) sampling of the participants of the Q studies (WP3), and D) sampling of participants of the informal validation workshop (WP4). The aim for WP1 is to have a variety of perspectives on the development, to increase the validity of findings (Flick 2009). For WP2, members of the initiatives' governing boards are addressed for expert interviews. In WP3 these board members serve as gatekeepers to distribute a formal call for participation in my study (please see Annex). The population sample for the Q sorts of WP3 can be considered to be *natural groups*, as they belong to pre-existing communities of practice (Davies 2013). In this case, participants are chosen who are not only actively involved in the respective grassroots initiative, but who are active in different realms of constitutive activities. They are addressed through gatekeepers, e.g. key protagonists within an initiative who have participated in exploratory interviews, and who diffused my formal request for participation through their network. Since a large number of participants is needed for a Q study, most positive responses are selected for the studies. Membership categorization has been attempted, but the population is not diverse and large enough in either initiative to justify the effort of membership categorization analysis (Peräkylä and Ruusuvuori 2013). Further, most participants of the study wear several hats among and within initiatives, which makes a categorization very challenging (see Davies 2013, p. 61). However, in the syntheses of Q method social perspectives are tentatively linked to member's roles and activities within initiatives, to discuss patterns and functional among social perspectives.

Interviews

Interviews are the central method of data gathering in this thesis, and different interview methods are employed across WPs. There exists little documentation on the case in general and a large part of this thesis is concerned with initiatives' emergence in the past, and people's attitudes towards them. The only way to re-construct these events is through the accounts of people's memories. "By using interviews, the researcher can reach areas of reality that would otherwise remain inaccessible such as people's subjective experiences and attitudes" (Peräkylä and Ruusuvuori 2013, P. 277). Further, with relevance to the aspect of Leitbilder, Patton (2002, p. 340, in Merriam 2009) argues "we cannot observe feelings, thoughts, and intentions. We cannot observe behaviours that took place at some previous point in time. (...) We have to ask questions about those things". Interviews

are a method to ask these questions, determined by the researcher (Kvale 2007; Yin 1994). Three different interview methods were employed during the study: exploratory (WP1), semi-structured (WP2), and focused interviews (WP3). These are briefly introduced regarding their function in the research design.

WP1 provides an overview of the rural development in the past 40 years. The Master's Thesis that prefigured this research project (Doerr 2014) serves as a basis for inquiry, but the data is three years old at the beginning of this research project. Thus, an update on recent developments is necessary, and a deeper understanding of the narratives identified in the Master's Thesis needs to be developed. For this purpose, exploratory interviews are conducted with a range of actors having different roles in and positions towards the development. These interviews take the character of *oral history*, a method that explores the "native's point of view" by collecting memories and experiences the interviewees deem historically significant in the local context (Ritchie 2003, with reference to Clifford Geertz). The interviews are unstructured, open-ended, and subjective; the relationship between interviewee and interviewer is similar to narrator and listener. Shope (2013, p. 120) describes oral history as an act of memory and a subjective account of the past. "An interview, therefore, renders an interpretation of the past that itself renders interpretation."

In these accounts, life histories and biographical events are often intertwined with broader historical events. Garavan (2013, p. 79) highlights that interviewees tend to communicate in available frames or general discourses that may not accurately represent their own experiences or feelings. Therefore, elements of narrative inquiry are employed to synthesize a "red-thread" from the information gathered. Narratives are socially situated and constrained ways of making sense of the world (Gubrium and Holstein 2009). Denzin (2013, p. 61) specifies that narratives are distinct from discourses, as they are a form of individuals' meaning making through the shaping or ordering of experience, a way of understanding one's own or others' actions, of organizing events and objects into a meaningful whole, of connecting and seeing the consequences of actions over time."

In WP2, semi-structured interviews are conducted with key protagonists from each initiative (Kvale 2007; Yin 1994). The purpose of these interviews is twofold: First, they serve gaining background knowledge on the grassroots initiates regarding historical developments and social organization by asking descriptive and evaluative questions. Second, they provide the natural statements for the concourses of Q method, generated with Leitbildanalysis. For the latter part the interviews are opened up to allow for interviewees to freely vocalize their attitudes, meanings and experiences. To achieve this balance between structure and openness, while ensuring all relevant aspects are covered, interview checklists are prepared for each interview (Mattissek, Pfaffenbach, and Reuber 2013; please see Annex).

The Q talks in WP3 can be regarded as a mix between an *semi-structured* and *focused* interviews (Gray 2009; Flick 2009; Kvale 2007). As the participants sort the statements, they are asked to

recount experiences, or to elaborate on the relations between statements. Especially when the participant has difficulties prioritizing statements, these questions trigger insightful explanations. Similar to focus interviews, the statements serve as a stimulus, although they are given during and not before the conversation (Flick 2009, p. 150).

All the interview strategies require a trusting relationship with interviewees (Gray 2009; Mattissek, Pfaffenbach, and Reuber 2013). Regarding local sustainability initiatives, Garavan (2013) suggests that it may take time to develop these relationships with activists, as they are often careful to reveal positions to avoid scrutiny from opponents (see chapter 6.1. for positionality). Finally, *postscripts* are written for all interviews in the research diary, and they serve as data in different research steps. Further, the postscripts are an important component for the critique on the research design and methods (see the final section 6.5 of this chapter).

Observation

Within each initiative observations of board meetings are conducted to refine information gathered in the interviews, and to test hypothesis. As suggested in chapter 4, an ethnographic approach seems feasible to address RC2, but it is dismissed because of time-constraints. Therefore, observations are only a complementary method for fieldwork, and used to develop a better feeling for initiative's decision-making cultures and relations between participants (Gray 2009). Certainly, more participant observation in the initiatives would have been very constructive for analysis.

Following the chosen constructivist research paradigm (chapter 6.1), observations are an essentially ethnographic method to explore local cultures in-site (Crang and Cook 2007; Denzin 2009; Gray 2009; Till 2009). Unlike the scholar activist approaches that are often applied in ethnographic research on grassroots initiatives (see Till 2009), the approach taken in this study is that of a passive observer, rather than a participant observer (Crang and Cook 2007). It is in this regard not used as much to co-create knowledge with the population (Angrosino and Rosenberg 2013), but to triangulate and validate assumptions and hypotheses (Gray 2009), acknowledging that observation is not giving objective accounts of situations, as the researchers is situated in-site, embedded in local relations and frames of meanings (Denzin 2009; Till 2009). The situations observed are not daily activities, but annual general assemblies of initiatives' members, which are rare events outside of the routinized relations of participants. These events are arenas where the practices of the group are reflected, and strategies evaluated.

The observations are performed on informed consent, upon invitations of the initiatives' governing boards (Angrosino and Rosenberg 2013; Crang and Cook 2007). At the beginning of each event, the researcher introduces himself to the group and explain the purpose of my attendance (*ibid.*). The meetings are not recorded; only written notes are taken along a prepared framework (see Annex). This framework is held rather open. It categorises the attending participants' regarding

their positions in an initiative, notes the order and content of presentations and talks of the meetings. They further leave open space for notes on the main points of discussion and the atmosphere. These notes are integrated in the analyses of both RC (Crang and Cook 2007; Till 2009).

Literature research

Documentation on the developments in Réiden is scarce and unevenly distributed among the initiatives, with the energy transition receiving by far the highest attention (see chapter 2). Two kinds of literature are analysed in the research process: grey literature on the initiatives in the canton is introduced in WP1 and in WP2. In both cases, the documents were analysed together with the interview transcripts, and treated in the same way. Scientific literature presenting comparative cases from similar conceptual angles is consulted to ensure that a comprehensive range of relevant categories and statements is covered¹⁰² (Charmaz 2006). The data-set of the prefiguring Master's Thesis provides a substantial part of the grey literature introduced. However, for the more recent initiatives, as the regional currency and SoLaWa a new literature review is conducted (Parker 2004; Wolff 2004).

Most Luxembourgish newspapers are digitalized since 1997 and can be accessed through the web-portal of Luxembourgish libraries¹⁰³. The archives of the newspaper Luxembourger Wort and the monthly magazine forum have been researched with the initiatives' names and concepts as key words in German. After this review in fall 2016, Luxembourgish newspapers and magazines were followed routinely, but not systematically, as the purpose of this review was mainly to generate data for Leitbildanalysis. The regional publication Synergie, a monthly magazine informing citizens of the canton on events and activates is reviewed in the same manner. This source offers much more diverse and case-specific data than the publications of Luxembourgish newspapers, as protagonists of the initiatives themselves write many of the articles. Finally, the documentation of the community council-sessions of Beckerich is reviewed between the years 1990, and 2005. These, however, are written in French, and serve mostly for background information, and cross-checking dates of events.

6.2.3 Data processing and analysis

The analysis of the qualitative material is informed by *qualitative content analysis* (Mayring 2004; 2015). In WP1 this method is applied to generate codes/ categories from the data in three cycles. In WP4 the transcribed Q talks are analysed with regards to the four community capability categories. Here, Lamnek's (1995, p. 209) advice is followed to first identify category-relevant parts of the text and interpret them in a second step to avoid excess work.

¹⁰² As will be discussed in chapter 9, all participants of the Q study are asked whether they held the concourses representative for their initiative, and the large majority did not have anything any other subjects to add.

¹⁰³ See www.a-z.lu (last accessed October 2018)

In all cases, the single sentence was the smallest unit of analysis, a paragraph the largest. In WP2, the Leitbild-categories developed in WP1 are used as codes on single, or two sentence units. The codes are presented to and discussed with experienced researchers, but no inter-coder reliability test is performed (Saldana 2010). A detailed account of category development is given in the explication of the different WPs in section 6.5.

All interviews conducted in WP1, as well as most Q talks in WP3 are transcribed by the author and coded together with respective literature on an initiative (Mayring 2015). Transcription is performed orthographically for the most part; at times passages are translated from Luxembourgish to German. "A code in qualitative inquiry is most often a word or short phrase that symbolically assigns a summative, salient, essence-catering, and/ or evocative attribute for a portion of language-based or visual data" (Saldana 2010, p. 3). Within a heuristic framework, such as the Leitbild-categories in this project, Saldana (2010) suggests coding to be the first step to a more rigorous analysis. Coding is performed for three purposes in this project: To develop Leitbild-categories in WP1 with descriptive and in-vivo coding, to apply these categories as codes for developing the concourses in WP2 with descriptive coding, and to develop insights on initiative's community capabilities in WP4 with structural coding (ibid.). Transcription, coding, and data analysis is performed in the computer program *MAXQDA*.

6.2.4 Documentation and transparency

Documentation in this section refers to the strategies and technologies used to generate, process, and store all data relevant to this thesis. For this purpose, four different kinds of data are distinguished: Theoretical and conceptual literature, personal ideas and thoughts, qualitative case-specific data, and Q method data.

The writing program *Scrivener* has been used since the beginning of this research project for all aspects of writing. Three files have been developed: A library of summaries and notes of key theoretical works, a research diary on a weekly basis (during fieldwork, an entry was made after every interview), and a general folder structure with notes on articles, theories, collections of thoughts and ideas, as well as essays. The program is helpful not only to collapse and structure large amounts of text into single files, but also to cross-reference sections, and make annotations.

Qualitative case-specific data is stored and processed in three different *MAXQDA* sessions, for WP1, WP2, and WP4. Although the first two contain the same data, they were broken down to ensure the development of the coding tree for Leitbildanalysis could be tracked-back easily. The file for WP4 contains the same data as the previous two, plus the transcripts of the Q talks.

The Q sorts have been transferred from picture files to the freeware program *pqmethod*. All 16 attempted factor rotations are exported as .rtf files and stored. Participants of the study were given codes regarding the initiative they are part of. The list of participants names and related codes is

stored separately from the data. All data is stored on the university's servers, and on the author's laptop, as well as on a hard-drive stored in the author's office on campus. The data is secure in the sense that the author is the only one who has access to his server account, and to his laptop, while the hard drive is locked in a drawer.

6.2.5 Validation, dissemination and ethics

Validation is the construction of knowledge by warranting assumptions and findings about the case (Denzin 2009; Lamnek 1995; Mayring 2015). In this work, focus lays on *ecological validation*, the appropriateness of assumptions, findings, and resulting context theories for a given community of people (Lamnek 1995). Generalization is not the aim of this research project.

Two strategies of validation are performed in this work. *Communicative validation* warrants findings by feeding them back to participants (*ibid.*). For example, the social perspectives are send to review to those participants who loaded most highly on them, and the in-sites of initiatives are sent to respective key protagonists (WP3). Their remarks are reflected upon and integrated when appropriate. Second, *data triangulation* informs all steps of the research process, but is not followed in a structured manner (Lamnek 1995; Mayring 2015). This strategy holds particular relevance for community capabilities (WP4), as participants' accounts on group-dynamics and atmosphere are reflected repeatedly with those of others, to judge the framing of the information.

As discussed under positionality in section 6.2, one aim of the research project is to contribute to the development in the canton with a critical analysis. On one hand, this may help groups to improve capabilities internally, as well as to contribute to the regional awareness and acknowledgement of their efforts. Thus, findings regarding the community capabilities are discussed with key protagonists of the initiatives in an informal feedback workshop (WP5). Further, each initiative is offered a meeting to debate findings personally. Finally, after the defence of the thesis, there will be a public presentation of the research project in the canton. As this thesis is written in English, there are plans to publish a non-scientific account of sustainability events in Réiden in German, in cooperation with local citizens.

The ethical research guidelines of the University of Luxembourg have been followed. All participants have been informed beforehand by email of these guidelines and have obtained a signed ethical agreement guaranteeing these guidelines before each interview (please see the Annex).

6.2.6 On interpretivism

The research design ensures scientific rigor. However, the choices of theory, concepts, and methods remain to a certain extend guided by the researcher's intuition, which is formed by experience and preference. Especially in the final step of this project, the theory-led discussion in chapter 8, the researcher is essentially alone with the data and theories and creates a new assemblage of

thought by linking what intuitively feels right. To produce new understandings of the world, qualitative research must not only be rigorous, but also artistic.

As summarized by the quote from Foucault in the preface, writing is a process of ordering the mind, of explaining things to oneself that cannot be understood without putting them in words, in order. This certainly holds truth for PhD students: We learn how to apply theories and methods to explain the world to others and ourselves. This research project could be described as examining how people come up with new ideas and practices in face of problems. Transformative learning theory suggests that such problems require a fundamental reframing of our world-relations, while symbolic interactionism helps to understand their communication. These theories elucidate the case, but also my research experience: Along each step of the process new problem are overcome, which, in the end, will lead to a fundamentally new perspective on the subject. The author reflects this emerging perspective with fellow researchers, friends, and people in Réiden. This research project is a transformative learning in and of itself for me, but the exact moment when and where new understandings and knowledge emerges cannot be determined.

On a more technical note, the opportunities to support such mystical and artistic moments are arguably far greater for students today than they have been a few decades years ago. Nowadays researchers are able to access, digest, store, and reference more information in a much faster way by strategically introducing technology to the research process. As mentioned in the previous section, this work builds on the use of a range of such software that made the analysis data, and of the author's own thoughts, much more effective. Intuitive moments during research, of which there are many, can be outsourced from the mind, stored just a click away, and held readily available with cross references, links, keywords, or hashtags. In comparison to the famous example for such practice, Niklas Luhmann's *Zettelkasten* system, today's technologies are much more advanced. This can be a tremendous advantage to support the researcher's creative process.

6.3 RESEARCH DESIGN

The research design consists of six interlinked WP that all draw on a variety of methods introduced above. The workflow is designed in a way that the outputs of one WP become the input of the following. To clarify this process, the research design is introduced in two ways in this section: The presentation of the six WP in a flowchart in section 6.3.2 clarifies how the WPs interlink and build on one another. Section 6.3.3 presents the actual research process. This section contains all methods and data sources used in each WP and presents the timeframe of this research project. Before the research is presented, however, section 6.3.1 will clarify how the concepts developed above link to methods in order to address the two RC.

6.3.1 From concept to method

This section introduces the conceptual structure of the research design. It orders the concepts and methods along the two lines of inquiry, following the two RCs. Q method sits at the heart of the research design, as most work will either prepare this method, or build on data gathered through this method. It shows how the RCs structure the research design

The previous chapter 5 linked the mid-range theories grassroots initiatives, community capabilities, and Leitbilder to site ontology. This helped to elucidate specific characteristics of the overall development, such as the character of links within and across initiatives' elements, and to clarify the relation between the mental domain, individual practitioners, and the initiatives. Therefore, this step operationalized the theories for field work.

Figure 7 gives an overview on how theory is translated to the research design. The structure of the research design is developed along the two RCs. RC1 looks "at" the PAB, by analyzing the community capabilities with the interview data (Q talks) gained in Q during the Q sorts in each initiative. RC2 looks "above" the initiatives, examining the realm of Leitbilder, or mental states with Q method.

RC2 addresses the question: "*What are the social perspectives within the initiatives?*" Site ontology suggests that grassroots initiatives, perceived as PABs, are held together by mental states (general understandings, action understandings, rules, and the teleoffective structure.). Site ontology further suggests participants hold different versions of these mental states (people do not participate for the same assemblages of norms, beliefs, and motivational knowledge) that are harmonized in symbolic interaction. Thus, to address RC2 a method is needed that allows meta-personal mental states, drawing on individual participants' subjectivities.

Q-method serves this purpose: It generates heuristics to characterize mental states (*social perspectives*) from empiric data of individuals' subjectivities, or versions of mental states. Those versions are gathered by asking participants to sort a set of 48 statements (concourse) regarding an initiative in a bell curve from "most what I feel like" to "less what I feel like". Factor analysis of participants' sorts then generates typical sorts of 'what a typical representative of this stakeholder group feels like'.

Another aim of RC2 is to compare the mental states among the four grassroots initiatives in the canton Réiden, to examine patterns in the characteristics and functions within initiatives. To achieve this, the Leitbild-framework lends standardized categories of citizen-engagement that are "filled" with case-specific 48 statements on a given grassroots initiative gathered from exploratory interviews.

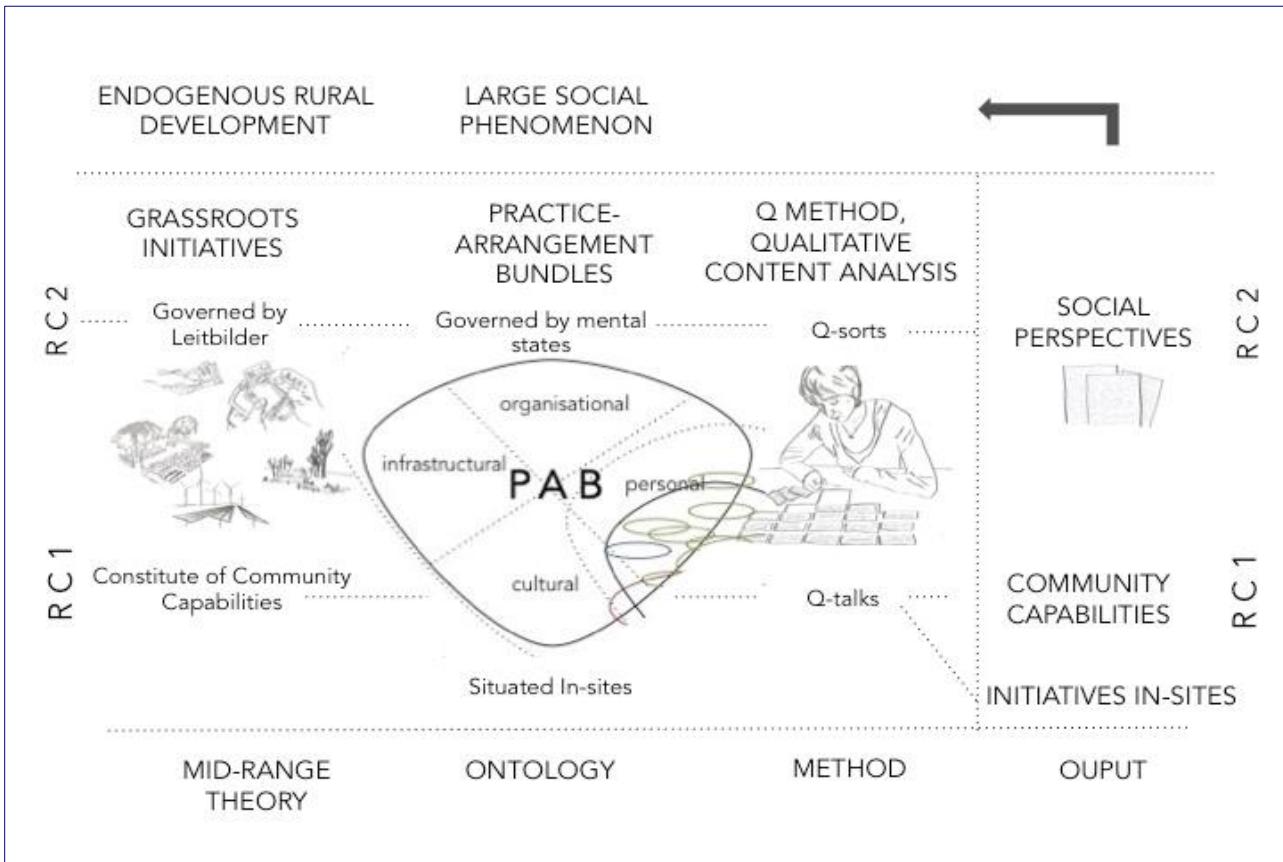


Figure 7: The links between concepts, ontology and research design. (Source: Author's own)

Between 9 and 15 Q sorts are performed on each of the four grassroots initiatives, and each sort is recorded. These conversations between the participant and the researcher during sorting, referred to as Q talks, render very rich qualitative data, as participants immerse themselves in the mental states of an initiative, and articulate detailed and personal experiences and opinions. This data is the main input of the analysis of an initiative's community capabilities to address RC1. Specifically, the community capability dimensions are used as codes for qualitative content analysis on the Q talks.

The in-sites of a grassroots initiative introduce the historic development, relevant participants, organizations, and institutions of a grassroots initiative. Further, it puts these in dialogue with scientific. In-sites therefore characterizes the initiatives' development in time-space and contextualizes it among phenomena of which it is part (such as regional currencies and ecology of money for the case of Beki). The in-sites are based on all available data on an initiative, including Q talks, exploratory interviews, and grey literature. They serve as a curtain-raiser for the analysis of each initiative in chapter 7.

To conclude, Q method is at the heart of the research design, meaning that all other steps either prepare the Q studies, or build on data generated through the Q studies. Leitbildanalysis serves to develop the sets of 48 statements (concourses) to be sorted by participants of the Q studies. The analysis of the initiatives' community capabilities is performed as a qualitative content analysis

of interview data of the Q talks. The term 'in-sites', drawn from site ontology, refers to situating the initiatives in the respective realm of phenomena of which they are part, and their location in space-time. Among the validation procedures is a workshop with key protagonists in Réiden. This occasion is used to discuss hypothesis for the theorization of the case.

6.3.2 Six interlinked work-packages

Figure 8 on page 208 depicts the research design in a flow-chart. It indicates the methods applied within six work-packages (WPs) in the centre column and clarifies how they link to one another (right hand side). The columns on the left display the research complexes of which the WPs are part, and the level of analysis they address. The explication of the research process in the following section will give in-depth presentations of the work performed in the WPs.

Q method (WP3) is in the centre of the research design. It is the central method of data gathering and analysis. WP1 and WP2 prepare for this method, as they produce the four sets of statements (concourses) to be sorted by the participants within the four grassroots initiatives. WP4, the analysis of community capabilities and in-sites builds on the transcribed recordings of the conversations held during the individual Q sorts (Q talks). The validation in WP5 focuses on the results of the Q study and elaborates on aspects of the theorization of the entire rural development. WP6, finally is the interpretation of findings with regards to theory introduced in chapters 3, 4, and 5.

Q method can be regarded as the smallest level of analysis: WP1 sets out at the constellation level of the entire rural development, WP2 looks at initiatives as PABs, Q method examines the mental states guiding these PABs, WP4 analyses the community capabilities at the level of PABs, and WP6 'zooms back out' by synthesizing all findings to discuss the entire constellation "rural development in Réiden". The following elaborates briefly how the WP interlink. A detailed explication of the research process will be given in the following section.

A condition for the preparation of Q method set by RC2 is to allow for comparing social perspectives between the initiatives. Consequently, a framework is needed that allows filling concourses for each initiative with case-specific statements along standardized categories. This is the purpose of the Leitbildanalysis framework. As it is too generic for the case of Réiden in its original form and contains too many categories Q method in its original form (see chapter 4.3), it is tailored to the case. WP1 therefore applies original framework of de Haan, Kuckartz, and Rheingans-Heintze (2000; also Giesel 2007) to a data-set of the entire constellation, e.g. the exploratory interviews on all initiatives combined. In three rounds of coding, categories from the original framework are dismissed, collapsed, and combined with codes that emerge in-vivo. The Leitbild-framework for this study is thus developed abductively (see section 4.4).

This resulting framework has nine categories, to be filled with altogether 48 statements for each grassroots initiative (WP2). To achieve this, the nine Leitbild-categories are applied as codes to

exploratory interview data and grey literature on each grassroots initiative. The output of WP2 are the four concourses of each 48 statements to be sorted by the 9 - 15 participants of the four Q studies on the grassroots initiatives.

WP3 includes the conduction of sorts within the four initiatives, the transcription of Q talks, factor analysis, and the writing of factor narratives, or social perspectives. The result of WP3 are the three social perspectives, or mental states, written as one-pages narratives representing what a typical person of a group of participants feel like. Further, most Q talks held during the study are recorded and transcribed for further analysis. With the end of WP3, RC2 is concluded, and the data to address RC1 is gathered.

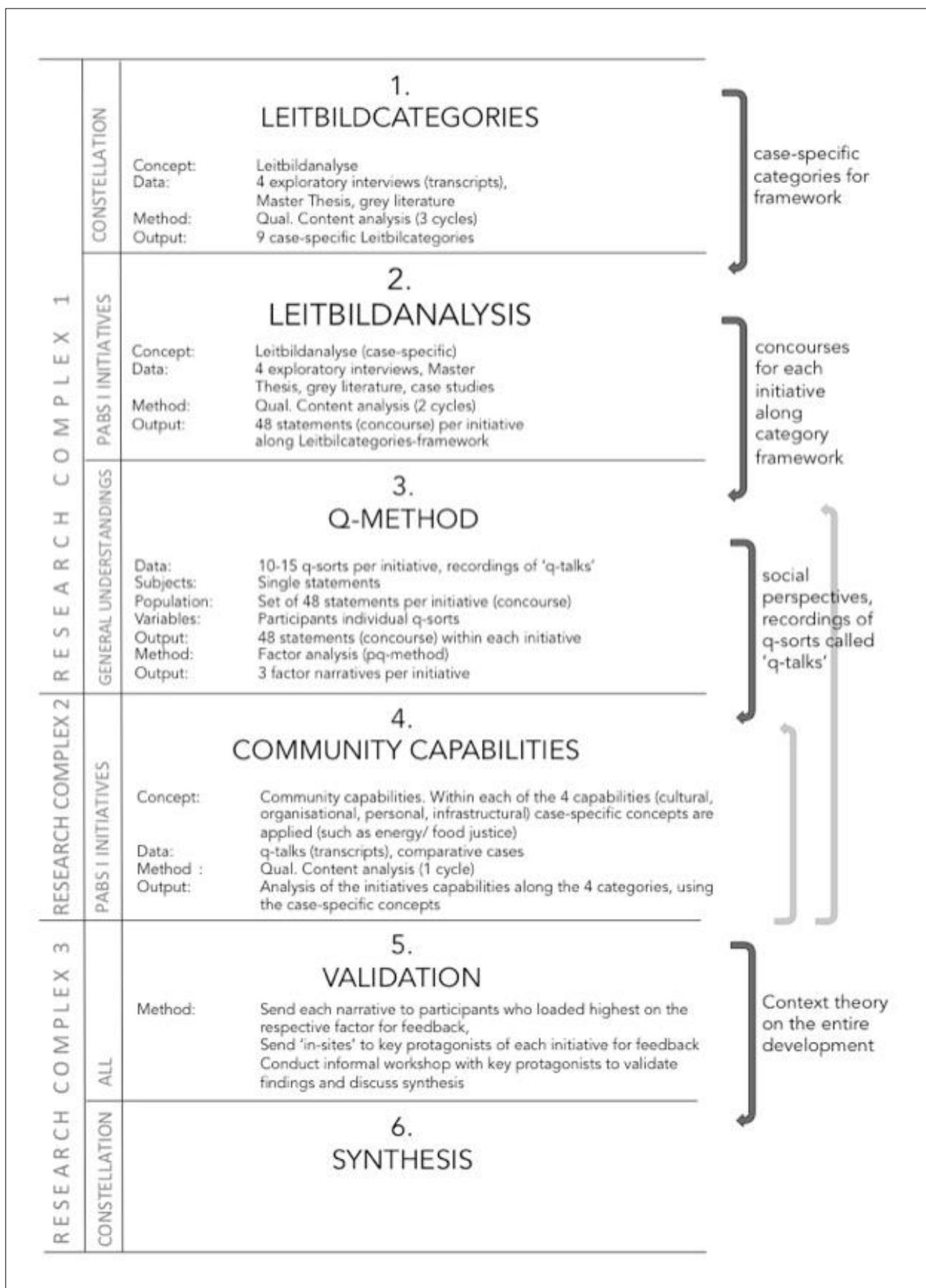


Figure 8: Research design flowchart. (Source: Author's own)

The analysis of community capabilities in WP4 addresses the initiatives as PABs. The four community capability dimensions applied as codes to the transcribed Q talks on a given initiative and complemented with case-specific concepts (such as energy democracy, food justice, ecological citizenship, etc.). The analysis of community capabilities is based on these coded segments. RC1 is therefore answered based on a qualitative content analysis along the four community capabilities dimensions, based on Q talks and grey literature.

The nature of social practice theory, and the community capabilities concept developed in chapter 4 would suggest an ethnographic approach exploring people's routines and collective meaning-making in sites. Given the scope of research and the resources at hand this is not possible, because extensive observations would have to be made in four initiatives simultaneously.

The validation WP5 refers to the factor narratives of WP3 (analytical level: general understandings), the results of WP4 (PAB), and to hypotheses on the entire rural development (constellation). The results of WP3, the one-page narratives representing the mental states of a grassroots initiative, are send for review to participants whose sorts correlate most with them. Further, in a concluding workshop in Beckerich with key protagonists, hypotheses about the relation of the mental states and the overall rural development are discussed.

The findings of the workshop inform the synthesis of findings in WP6. This last work-package does not follow a strict methodological framework, but is interpretative, as findings are aligned intuitively at the backdrop of all introduced theory.

6.3.3 Explication of the research process

This section introduces the actual research process along six WPs. These correspond to the actual workflow of the project. Each WP is a small study project in and of itself, with a specific purpose and function in the overall research design, having its own data set, concepts, and analytical methods. The outputs of one WP become serve as data or analytical instruments for the following.

Table 5 on the following page summarizes gives an overview on the concepts and methods used in each WP. It leaves out WP6, because this is mainly a interpretative procedure, where concepts and findings are liked intuitively (see chapter 6.3.5).

The presentation of findings in the following chapter 7, presents the findings on the four initiatives as individual case studies, even though in the actual research process the all initiatives are addressed simultaneously in each WP. The following section 6.4.1 gives an overview on the work packages. In the following, each will briefly be introduced, including the underlying data and methods. The section also presents the timeline of the research project.

Table 5: Overview on the work-packages.

RESEARCH COMPLEX	What are the social perspectives within the four chosen initiatives?			Are there patterns of 'doing transformative practices' in Réiden?	
WP	1. Leitbildcategories	2. Leitbildanalysis	3. Q-method	4. Community Capabilities	5. Validation
LEVEL OF ANALYSIS	Constellation/ all initiatives	PAB/ individual initiatives	General understandings within an initiative	PAB/ individual initiatives	The core group/ local action group Participants who loaded strongly on a factor
PURPOSE	Develop a category framework of why people participate in the initiatives in Réiden	Develop sets of statements within the framework categories for each initiative	Generate social perspectives on each initiative	Generate social perspectives on each initiative	Validation and feedback
ANALYTICAL FRAMEWORK	Leitbildanalysis (original)	Leitbildanalysis (tailored)	-	Community capacities, case-specific concepts	-
DATA/FORMAT	Exploratory interviews, grey literature, case studies of all initiatives	Exploratory interviews, grey literature, and case studies for each initiative	10 – 15 q-sorts for each initiative	10 – 15 q-talks for each initiative (appr. 45-90 min recordings, mostly transcribed)	Informal feedback group (10 – 15 participants) Commentaries on factor narratives
ANALYTICAL METHOD	Qualitative content analysis	Qualitative content analysis	Factor analysis	Qualitative content analysis	-
OUTPUT	Leitbildframework-categories tailored to the case Réiden: Future projections, factors of (internal/ external) group (de-) synchronization, knowledge and learning, self-referential motifs	48 natural statements characterizing the Leitbilder within the framework categories for each initiative. Each set of statements is a 'concourse'	3 social perspectives within each initiative, portrayed as narratives. Recordings of the sorts, the 'q-talks'	Descriptions of the capacities of the communities of practice to act on their social perspectives in their given contexts. They are conceptualized in four dimensions: Cultural, organisational, personal, and infrastructural capabilities	Exploring the existence and character of 'meta-practices' of doing initiatives in Réiden More accurate social perspectives

6.3.4 Introduction of the six work-packages

WP1 LEITBILDCATEGORIES

Purpose: This WP develops a framework of categories describing the general motivations and experiences of participation in Réiden. These categories need to be wide enough to accommodate natural case-specific statements for each initiative, yet concise to allow for the coding of these statements. In order to fulfil statistical requirements, 48 statements have to be developed for each concourse. Therefore, the premise for the Leitbild- framework is to consist of no more than 10 categories.

Data: Transcripts of 13 exploratory interviews informed by the oral history approach. The interviewees comprise of 4 key initiative protagonists, a researcher with experience in Beckerich, a long-standing community council member, 3 mayors from the canton, a manager of a cultural centre, a manager of a biogas plant, a representative of the regional LEADER office, and a green MP from the canton.

9 interview notes from the master's thesis.

17 articles from the regional magazine Synergie.

Framework: Leitbildanalysis (de Haan, Kuckartz, and Rheingans-Heintze 2000; Giesel 2007) proposes 11 dimensions to characterize people's Leitbilder of participation in Agenda21 initiatives: (economic, ecological, social) possibility-projections¹⁰⁴, coenaesthetic resonances¹⁰⁵, community-founding imaginations¹⁰⁶(internal/ external) (de-) perspective synchronization of views and convictions¹⁰⁷, success criteria¹⁰⁸.

Analysis: Three rounds of coding in MAXQA. Round one and two apply the original Leitbildanalysis categories as codes to the data, while new codes emerge *in vivo*. The code system is altered based on the codes' segment numbers, intersections, and overlaps between codes. The emerging coding tree is tested in a final round, leading to a balanced outcome of codes. Since economic future projections display significantly more coded segments than any other code, it is decided to give this code twice as many slots for statements in the next round. Descriptive *in-vivo* codes that do not necessarily relate to the initiatives, informing the final synthesis, such as *background information 80's*, or relation to *national government*, are applied for the in-sites of each initiative, but not for the statements of the concourses.

¹⁰⁴ German: „Wunsch und Machbarkeitsprojektionen“

¹⁰⁵ Coenästhetische Resonanzen. This Leitbild refers to bodily experiences of participation.

¹⁰⁶ Soziétätsstiftende Imaginations

¹⁰⁷ interne/ externe Perspektiven(de-)synchronisation

¹⁰⁸ Erfolgskriterien

Output: Case-specific Leitbild-framework (for coding tree see, please see the Annex): (economic, social, ecological, cultural) future projections, (internal/ external) factors of group (de-) synchronization, self-referential motifs, knowledge.

WP2 LEITBILDANALYSIS

Purpose: This WP applies the Leitbild-categories developed in WP1 to initiative-specific data to generate concourses for the four Q studies. This coding process results in about 48 single/ two sentence statements per initiative that are the concourses to be sorted in WP3.

Data: Contrat Rivière Atert: transcript of 1 exploratory interview with key protagonist (same as used in WP1), Objectives and program of the original documents of the *Contrat de l'Eau*¹⁰⁹, 17 articles from *Synergie*.

Energieatelier: transcripts of 2 exploratory interviews with key protagonists (same as used in WP1), 9 articles from *Synergie*.

SoLaWa: transcript of 1 exploratory interview with a key protagonist (same as used in WP1), LEADER project description, 3 articles in *Synergie*, 6 scientific articles on members' attitudes towards the CSA¹¹⁰.

Beki: transcripts of 2 exploratory interviews with key protagonists (same as used in WP1), 9 *Synergie* articles, one scientific book about people's attitudes towards regional currencies, four newspaper articles

Framework: The Leitbildcategories developed in WP1.

Analysis: One round of coding. For each initiative all coded segments are printed, cut out, and sorted by hand on piles of each category. Representative statements are chosen from each pile.

Output: For each grassroots initiative, a set of 48 mostly natural statements (concourse) is developed.

WP3 Q-METHOD

Purpose: This WP analyses the mental states, or social perspectives. These are presented as factor narratives for each initiative, e.g. as constructed monologues of 'what a typical person of this group feels like'. Q talks are recorded and those of the highest/ lowest loadings transcribed to refine the narratives, analysis the in-site section of each initiatives' analysis, and to serve as the main data source for WP4.

¹⁰⁹ translated from French to German

¹¹⁰ When this WP was carried out, the CSA had just been established. Since there was very little documentation available, comparative cases were included in the data to ensure a comprehensive coverage of Leitbilder.

Data:	Contrat Rivière Atert: 9 Q sorts, 8 fully transcribed Q talks (between 32min.-71min.), 7 post-scripts. Energieatelier: 11 Q sorts (excluding one invalid), 9 fully transcribed Q talks (between 32 min. and 80 min.), 11 post-scripts. SoLaWa: 12 Q sorts, 9 fully transcribed Q talks (between 39min. and 85min.), 11 postscripts. Beki: 15 Q sorts (excluding one invalid), 11 fully transcribed Q talks (between 27min. and 76min.), 8 postscripts.
Analysis:	12 different factor rotations are performed for each initiative: For 2, 3, 4 factors principal component analysis (PCA) and centroid analysis (CEN) with Varimax rotation (VAR) and manual rotation (MAN). With exception of Water governance project (PCA_VAR3), all chosen rotations are PCA_MAN3, based on the criteria presented in section 6.3.1. Each factor (3 within each initiative) is given a signifier and translated into a narrative, by including natural statements from the transcripts of participants who sorted highest and lowest on them.
Output:	Three factor narratives for each initiative build on natural statements and the feedback from communicative validation. 35 transcribed Q talks.

WP4 COMMUNITY CAPABILITIES

Purpose:	This WP analyses the capabilities of each grassroots initiative in the dimensions organizational, cultural, infrastructural, and personal capabilities. This analysis includes the analysis of each initiatives' in-site.
Data:	Contrat Rivière Atert: 8 transcribed Q talks (between 32min.-71min.), transcription of 1 exploratory interview, 8 post-scripts, Objectives and program of the original <i>Contrat de l'Eau</i> ¹¹¹ , 17 articles from <i>Synergie</i> . Energieatelier: 9 transcribed Q talks (between 32 min. and 80 min.), 11 post-scripts, transcriptions of 2 exploratory interviews, 9 articles from <i>Synergie</i> . SoLaWa: 9 fully transcribed Q talks (between 39min. and 85min.), 13 post-scripts, transcripts of 2 exploratory interviews, 3 articles in <i>Synergie</i> . Beki: 11 transcribed Q talks (between 27min. and 76min.), 10 post-scripts, 2 exploratory interview transcripts, 9 <i>Synergie</i> articles, four newspaper articles.
Analysis:	One round of coding in MAXQDA with the community capability-codes, and codes for statements referring to sites and method ¹¹² in each initiative.
Output:	Analysis of the in-sites of each initiative and the four community capabilities.

¹¹¹ translated from French to German

¹¹² for coding tree, please see Annex.

WP5 VALIDATION

Purpose: This WP warrants and refines findings of the previous WPs with the population. It further generates data for the final WP6 by discussing hypotheses in a workshop with protagonists from the rural development.

Data: Oral feedback on comprehensiveness of concourses from participants of the Q study (WP2). This does not change the data, as it is done during sorting, but is necessary to estimate the quality and representativeness of the Q study.
Written feedback on each factor narrative by highest-loading participant (WP3).
Written feedback on in-sites by key protagonist of each initiative (WP4). Audio recording of world-café workshop with key protagonists on hypotheses (WP6).

Analysis: Validation of WP2 does not affect the concourses as it is performed during the sorts. Rather, these insights are subject of the method critique in the following section.
Validation of WP3 serves to improve the factor narratives. Comments are integrated in the factor narrative, if they reflect attitudes that can be found in the transcripts of other participants who loaded on the factor.
Validation of WP4, the community capabilities and in-sites for each initiative, is largely performed by integrating additional comments on an initiative.
The data generated in the workshop is subject to WP6.

Output: Improved and warranted analysis along the research design.

WP6 SYNTHESIS

Purpose: Bring findings of all WPs together and link them in face of theory

Data: The output of the previous WPs. Findings of the world-café workshop.

Analysis: Interpretative

Output: Concluding synthesis of findings. Outline of context theory describing the development in Réiden. Indication of further needs for research on Réiden. Contribution to GI and transition discourse.

Table 6: Timetable of the research project.

6.4 METHOD CRITIQUE

This chapter reflects and evaluates the research design in three steps. First, it will discuss the effectiveness and explanatory power of the methods. Second, it will comment on the appropriateness of concepts and ontology with regards to the RCs. The third section reflects on the experience with particular methods, notably Q method.

6.4.1 Research experiences and explanatory power of the research design

The research design allowed addressing the RCs satisfactorily. No significant problems occurred through the interplay of the conceptual approach and the research design. An advantage for this research project is that it builds in on previous research in from of a master's Thesis conducted by the author. This allowed a quick and more concise development of the research complexes and provided a comprehensive database in the exploratory phase of this project.

The RC address very different aspects, or facets of the initiatives. They require different conceptual approaches, methods, and rather complicated ontological arrangements. Consequently, the research design has become somewhat convoluted. Each of the six WP is a small case study in and of itself, and most WPs run the respective methods on each grassroots initiative separately, e.g. four times.

For example, for each initiative under analysis, a separate exploratory research cycle was performed to then collapse the findings in a coding system, the Leitbild-framework, that would apply to the entire canton. The abductive development of the Leitbild-framework could have been avoided by drawing on ready-made concepts. In hindsight, this would have probably not affected the explanatory power of the data.

There were no complications during coding of the exploratory data for the generation of statements for the Q sort. The author had been worried that the concourses of the Q study would not cover the entire width of participants' Leitbilder, because they were based on the data of either one or two exploratory interviews. In order to assess the representativeness of the concourse each participant was asked at end of a Q sort to think of statements that were missing, but only very few of them made suggestions.

The sampling of Q participants was very effective, due to the kind support of the gatekeepers in the initiatives, who forwarded formal interview requests to their member base. Conducting Q method, however, has been very work-intensive, because all participants were visited in a place of their choosing in the canton. The researcher travelled by bike from one appointment to another, which required considerable planning and continuous adjustments to the schedule in case people cancelled or rescheduled. On the other hand, the travelling times in between gave the researcher much needed moments for reflection. The participants of the initiatives are very diverse, and the researcher had to be prepared to talk with government representatives, entrepreneurs, activists,

and farmers in short intervals. In hindsight, the bike-tours did gain the researcher sympathy from most interviewees and they opened up quickly to the interview situation when he could tell them about the routes he had taken. The following entry in the research diary from the third week of July 2017 depicts both the annoying, and the inspiring aspects of this research experience:

"Interview bk38: To get into the interview, I had to climb what felt like the highest mountain of the country in relentless sun, sweating heavily while sportscars with people who apparently didn't have to work flew by and blew dust in my face. As I took a break half-way my bike fell, leaving my white shirt in the dirt, which I had taken off to dry. It was only 7km on the map, but I had not accounted for the 160m of height difference. The company was set in (...), on top of the plateau stretching from Ettelbruck to the west, on the very eastern border of the canton. I was greeted with kindness and pity by the three employees who were working in an office under the roof of the storage hall, which was cosy and had a beautiful view over the valley through a small window in the far end. They gave me a bottle of cold water and I waited for (...) The test developed a long and heated discussion on the regional currency's meaning and standing for businesses, and anecdotes about local politicians. Sometime into the test, the other guys in the office joined the conversation, when we were talking about the statement referring to the "Luxembourgish mentality". It was a very lively discussion between the three of them, about what the BEKI does and doesn't do, on the Luxembourgish mentality of staying in the past and being sceptical to new things, on being self-absorbed and not thinking about the other. It seemed to me that through my presence they could discuss a lot of things that had been concerning them for a long time."

A significant mistake in planning the research process was not accounting for the harvesting times of farmers. The researcher had planned to do the fieldwork for spring and summer, because he needed to ride by bike, but in this season several farmers were not available for interviews. Certainly, the analysis of the energy transition and the SoLaWa would have been more refined had more farmers participated in the study.

6.4.2 Reflections on the conceptual approach

The main reason why the conceptual approach of this study is rather convoluted, is because the author tried to answer two very different research questions within one ontological framework. The purpose of site ontology is to render awareness both on the cognitive realm and perceive of the initiatives as related entities. However, this leads to terminological confusion as the same research subject is described with various terms. The best example here is the mental states concept, which is also referred to as Leitbilder, social perspectives, factors, and operant subjectivities. All these terms address the same research subject from different conceptual perspectives. The problem here is that once site ontology had been chosen, the researcher needed make conceptual adjustments for each new step of the research process. Had the researcher adhered to symbolic

interactionism from the very beginning, which could easily be integrated into a social practice framework, much of the confusion could have been avoided, perhaps even with an increase of explanatory power.

Another problem of operationalizing the conceptual approach has been the standardization of the four initiatives. Regarding initiatives as diverse as the ones in this thesis, the conceptualization of practice-arrangement bundles complicates coherent analysis, since the lines between research subjects and different levels of analysis are drawn rather arbitrary (for example the distinction between managing institutions and grassroots initiatives). This resulted practical problems, for example with the definition of member bases of initiatives, and the sampling of participants for the study. The sampling process was performed through gatekeepers, so the participants in the sample are only those people, who the protagonists think are part of the initiatives in some way. For example, the SoLaWa is essentially becoming a service provider in the canton, but most participants of the Q sorts are mainly part of garden project. Finally, the author did not assign specific practices or routines to the grassroots initiatives and the participants of the study, even though he used a social practice theory approach. Here, the explanatory power of the Q study would have certainly been higher, had he focused on fewer initiatives, but examined each with more care. This, on the other hand, is a central methodological finding of this study: The explanatory power of Q studies within a social practice framework could be much increased, if the social perspectives, or mental states, could be linked to existing activities. This, as will be argued in more detail in the review of contributions of this thesis to scientific debates in chapter 8, would allow to explore the functional relations between mental states, and test the hypothesis of advantages of heterogeneity in associative democratic problem engagements.

Ethnographic approaches are indispensable for such empiric work with social practice theories, particularly to validate the findings. In hindsight, the author may have chosen a network approach instead of social practice theory to avoid these methodological shortcomings. Various theoretical lenses presented in this thesis, such as social learning, which assumes actionable knowledge being operant in practices, could certainly be addressed more rigorously with ethnographic approaches. Finally, the translation of the research complexes to the two mid-range theories used for analysis, notably Leitbildanalysis and community capabilities, posed challenges to the qualitative content analyses. Especially the codes for the community capabilities were too vague and produced many double-bookings. In most cases, these double bookings lead to a section being used in several capability dimensions.

6.4.3 Reflections on methods

The methods for data gathering and analysis served the requirements of the research project well and resulted in a high explanatory power of the research design. The interview situations have generally been free of problems and the data gathered allowed the researcher to gain comprehensive understandings of the case, as the feedback on the Q method showed. On the other hand, literature reviews, especially regarding grey literature, could have been performed more comprehensively and continuously. The researcher had no routines in place to systematically review relevant newspapers on a regular basis. The storage and processing of data with MAXQDA was performed without significant problems.

This thesis is the first time that the researcher worked with Q method. He is very grateful for the support he has received from colleagues of the Institute of Geography and Spatial Planning. However, working through the underlying statistics and relating the different methods employed in Q to their sociological meanings was very time-consuming. Further, learning the software, preparing the study, conducting the interviews and running the analysis took substantially more time than anticipated.

However, in retrospective the effort was rewarded in different ways: First, the explanatory potential of the social perspective is high. This became particularly apparent in the vibrant discussions they triggered in the validation workshop. The hypothesis of patterns of social perspectives among participants of an initiative stimulated heated debates that significantly improved the author's understanding of the stakeholder constellations within the groups, and the subject of norms and ethics in grassroots initiatives in general. In this regard, Q method is a very effective heuristic to address Leitbilder, or mental states of practices, if they are made subject to the population in workshops and discussion groups. Further, the author has the impression that people take results more seriously when they are at least partly generated through quantitative methods. This is of course not a value in and of itself, but an important factor to be considered for validation and dissemination of findings.

Another purpose of Q method in this thesis is to generate qualitative data through recordings of the conversations during the Q sorts, referred to as Q talks. These rendered very rich data, because participants "dive in" the world represented by the statements. The researcher had the impression that after 5 or 10 minutes of silent arranging and ordering statements, people would be truly immersed in the initiative. In this sense the assumption of subjectivity being operant in the act of sorting does not seem too far-fetched. Particularly important here is that the statements were on physical paper and not on a tablet computer. Several interviewees highlighted that they enjoyed the process of sorting and that they were glad that the researcher had chosen a simple physical form of this method. This was much more work intensive, because each sort had to be photographed, and then carefully transferred into the program pqmethod. However, several participants

stated that they felt the physical engagement with statements was a stronger stimulus for thought processes than virtual sorting, for example on tablet computers.

Since statements are never treated individually, but always in the relation to others, they stimulated insightful memories and opinion statements of participants. Further, it was very interesting for the researcher to see how different people relate the same statements in very different manners. A banker, a farmer, a mayor, and an activist can have very different explanations for a similar statement-arrangement. In some cases, the researcher experienced that as the test went on, participants would discover new facets about an initiative for themselves.

On the other hand, two kinds of problems occurred during the Q studies: One concerns the perspective people convey when sorting, and the other to their relation to the concourse. The first issue occurred particularly with entrepreneurs who found it difficult to sort the statements, especially the idealistic future projections, from the perspective of their company. In one case, a participant finished the sort saying: "Yes, I think that is what my clients think, unfortunately¹¹³." Even though he had been asked to answer from the perspective of his business. The sort remained in the data-set, but was not included it for the analysis of factor loadings.

A second kind of problem experienced in Q sort situations concerns people who had a critical attitude to the initiative itself, or other participants of the initiative. Before every sort, the participant was informed that the statements were mostly natural, meaning that they were derived from exploratory interviews. In several cases participants would inquire whose interviews had generated the statements, which the researcher had not told them. In one case, the participant exclaimed: "I know this statement if from (...). That's typical! That's so esoteric! (...) This doesn't have any relevance for what we do, it doesn't help anyone.¹¹⁴" This statement the participant referred to, however, had been not been taken from the person the interviewee was referring to, which he did not believe. In this regard, Q method may have contributed to stereotypes that are harmful to this initiative.

The validation achieved mixed results. The in-sites from each initiative were sent to the respective protagonists for review and the narratives were sent to persons who loaded highly on them. However, only half the documents were returned to the researcher, which may be due to the fact that the versions were sent in English. The validation workshop on the other hand, which 9 protagonists of different initiatives attended, deepened the author's understanding of key aspects of the development substantially. The discussions centred on strategies of member acquisition, the integration of diverse Leitbilder, and the relevance of the systemic instruments in the rural development. The researcher had prepared different workshop techniques for the two-hour program. He began with a presentation of findings, which ended with a few discussion points. However, these points

¹¹³ „Ja, ich denke so sehen unsere Kunden das. Leider.“

¹¹⁴ „Also das ist ne Aussage von (...), da bin ich sicher! Das sind die Aussagen, die ich nicht mag! Das ist zu esoterisch! (...) Und das ist eben auch, Esoterik hat bei dem was wir machen nichts verloren, das bringt niemanden weiter.“

triggered such a dynamic discussion that touched nearly all subjects the researcher had foreseen for the subsequent world café, that the workshop did not move to any other program points. The insights of these discussion informed the theorization of the case in chapter 8.

7. ANALYSIS OF THE FOUR GRASSROOTS INITIATIVES

This chapter contains the analyses of the four selected grassroots initiatives in the canton Réiden. Each section is small case study in and of itself and each follow the same structure. The order of this chapter follows the initiatives' sequence of emergence since the 1990's: Contrat Rivière Atert (section 7.2), Energieatelier (section 7.3), Beki (section 7.4), and SoLaWa section 7.5). The synthesis of findings and the discussion of the two RC is presented in the following chapter 8. The following gives a brief introduction to the structure of each section.

7.1 THE STRUCTURE OF THE ANALYSES

The four analyses follow the same structure, along analytical categories that have been developed in the previous chapters: In-sites, Leitbilder, social perspectives and community capabilities, followed by a concluding discussion. These categories are now briefly introduced.

In-sites	The introductory section situates the initiatives in a scientific in policy discourse (e.g. the realm of phenomena of which it is part) and presents an initiative's historic development. It concludes with a conceptualization of the case with specific mid-range theories (such as alternative food networks and eco-system governance).
Leitbilder	This section discusses elements of the mental states of a grassroots initiative in the Leitbild-categories, based on exploratory interviews and case studies. It further discusses aspects of initiatives' group dynamics from case studies. The section presents the full concourse of statements that are sorted by the participants of the Q studies.
Social Perspectives	This section presents the findings of the Q studies. It discusses statistical indicators of the study and interprets these regarding the group dynamics. The identified social perspectives are presented as narratives, which serve as heuristics to answer RC2. These narratives are developed from the typified Q sorts, or factors, and the interview material of the Q talks. Each social perspective is given a signifier.

Com. Capabilities This section discusses an initiative's cultural, organisational, personal and infrastructural conversion factors. The presented findings stem from qualitative content analysis of the Q sorts and grey literature. Findings are put in dialogue with scientific debates introduced in the in-sites section. Cultural conversion factors refer to the legitimacy of sustainability objectives in the light of the history and values of a community and how they are brought together in narratives of a place. Organisational conversion factors capture the values of the formal organizations active within a community, how they align with attempts to encourage sustainability, and the resulting support available for community action to stimulate change. Personal conversion factors capture member's resources for community action, the understandings they have on sustainability issues, as well as the willingness and the skills they draw on to act. Infrastructural conversion factors capture the materialities of an initiative, such as facilities and their locations.

7.2 THE COLLABORATIVE ECOSYSTEM GOVERNANCE PROGRAM CONTRAT RIVIÈRE ATTERT

Contrat Rivière Attert (CRA) is Luxembourg's first trans-border river basin governance scheme and the NPO Maison de l'Eau is its executive body. River basin governance is regarded as a case of *collaborative ecosystem governance*, a literature closely intertwined with works on *adaptive governance*, and *resilience of socio-ecological systems*, as well as *ecosystem management* literature. CRA aims at fostering a more ecologically benign management of the river basin area of the river Attert, the main water body of the canton. As the ecosystem of the river shed area is affected by a variety of competing land use interests, the development of a common agreement and action plan in the 1990's has been a complex multi-stakeholder process. Today, many activities of CRA are pre-defined by EU legislation, and the task of Maison de l'Eau has changed from supervising a plethora of projects to advising and monitoring the implementation of this legislation, whilst it still focuses on environmental education and lobbying at the regional and national level.

CRA has been selected, because ecosystem governance is known to be highly conflict-laden, especially in agricultural areas as the canton Réiden. It requires a high degree of cooperative capacity by diverse stakeholder-groups, and moderating skills by the managing agents. Since it emerged in the mid-1990's, before the energy transition, it is assumed that the learning effects of this project may have prefigured following initiatives.

GRASSROOTS INITIATIVE	Contrat Rivière Attert
FORMAL INSTITUTION	Maison de l'Eau (NPO networking between signatories, policy lobbying, awareness rising & education)
POLICY DOMAIN	Agriculture, environment, infrastructure
PHENOMENON	Collaborative Ecosystem Governance, river basin governance, resilient socio-ecological systems
EXPLORATORY INTERVIEWS	2 transcribed (employee of Maison de l'Eau, president of CRA)
Q PARTICIPANTS	9 participants (representatives government agencies, syndicates, and communes), 8 fully transcribed Q talks
GREY LITERATURE	18 articles in the magazine <i>Synergie</i> , 1 project presentation, the Charta and project catalogue
OBSERVATION	attendance of annual CRA board meeting in 2017
VALIDATION	In-sites reviewed by employees, social perspectives review-

Text Box 4: Overview on concepts and data of the analysis of the grassroots initiative CRA.

7.2.1 The sites of Contrat Rivière Attert

River basins¹¹⁵ are lifelines for humid biotopes, which in turn are essential for biodiversity and often deeply intertwined with the lives in adjacent communities in rural areas. Competing land-uses may stress these ecosystems at times beyond tipping points. This can trigger interrelated effects such as depletion of flora and fauna, reduction of the water holding capacity, or pollution of groundwater. To protect this public good, or common, and ensure a just use, adaptive and reflexive governance is required to consolidate conflicting interests. Socio-ecological systems are complex, interrelated, and constantly changing. As they span across time-space, governance institutions and practices need to be inclusive and resilient regarding stakeholder power plays, and adaptive towards changing social objectives and socio-ecological dynamics.

The state of the waterbodies and their respective ecosystems in Europe and Luxembourg requires urgent and thorough action. Before the different sites of the CRA are introduced, the following section will give a brief introduction to ecosystem governance in Luxembourg¹¹⁶.



Picture 19: The Attert near the village Beiwen. (Source:commons.wikimedia.org)

¹¹⁵ Literature refers to the areas from which rivers draw water as watershed or river basins. This thesis refers to river basin, because it is the terminology of EU legislation, such as the WFD.

¹¹⁶ The research project *NEXUS river basins- Sustainable governance for water and land* currently conducts a comparative study on six river partnerships in Luxembourg. Informal exchanges with researchers from this project have been very helpful for the development of this chapter. For more information see: <https://sustainabilityscience.uni.lu/river-basins/?lang=en> (last accessed March 2018)

Pressures on waterbodies as socio-ecological systems and mitigation problems

In a country such as Luxembourg, the landscape has over centuries been cultivated to an extend that scientists concerned with these systems' resilience suggest referring to them as socio-ecological systems (Folke et al. 2004; Folke 2006). The biotopes' condition is so deeply intertwined with human culture that management of nature requires management of culture, and vice versa. Consequently, it is suggested that interventions to improve the system's resilience should aim at re-naturalization, instead of restoration (Rhoads 1999).

Such measures, which are at the heart of CRAs action program for the river basin of the Attert, aim at mitigating the most significant pressures on the water bodies. For the Attert, which is among the flattest river-flows in the country, these pressures are hydro-morphological interventions like straightening of river flows and bank reinforcements, diffuse source pollution and intakes from agriculture and atmospheric deposition from the heavy industry and water abstraction (European Environment Agency 2018; Administration de la Gestion de l'Eau 2013). As will be discussed below, mitigating these pressures requires a variety of carefully orchestrated interventions. According to interviewees, the most significant measures identified in CRA are hydro-morphological measures and the reduction of diffuse intakes.

Re-naturalizing hydro morphological interventions essentially means giving the river more spaces to meander and creating retention areas. In practice, this requires landowners, in most cases farmers, to either sell or swap land of the riverbanks, or to refrain from growing crop or cattle in these areas. The reduction of intake requires changing farming practices, such as reducing fertilization and fertilization periods, or allow for continuous natural covers of the fields to avoid erosion. Another measure is the establishment of a water treatment system, which requires sewage infrastructure to be put in place across private land. Ecosystem governance often is politically charged.

On the vertical institutionalization of water regulation

The Water Framework Directive (WFD, Directive 2000/60/EG), adopted by the European Commission in 2000, is the crucial legislative document for the management of the watershed management of Attert and surface water bodies in the EU in general. The document aims at achieving "good" statuses for all EU surface water bodies by 2015- a target that Luxembourg failed because of "technical complications" (Administration de la Gestion de l'Eau 2013; European Environment Agency 2018).

Naturally, several other jurisdictions affect CRA, such as the Habitats Directive. However, the WFD stimulated fundamental changes in the Luxembourgish administration and improved the recognition of river basin management, or watershed governance, as a key aspect to establish local contact points for agencies, to mitigate conflict, and to build social capital (European Commission 2008; 2012). Furthermore, it encourages citizens to request transparency regarding the condition

of their water bodies at local administration and to participate in its monitoring. The implementation of the WFD was rather slow in Luxembourg, as a national water law had been adopted only in 2008¹¹⁷ (Sikharulidze 2018). The central agency Administration Gestion de l'Eau, created in 2004, bundles water-related competences regarding water from different ministries and it is responsible for following up in the achievement of the directives (ibid.).

The condition of surface water bodies in Luxembourg

Different kinds of waterbodies are distinguished in the ecosystem management literature, and the focus in this section lays on surface water bodies and groundwater bodies. In Europe, only about 40% of surface water bodies have a good ecological and chemical status (European Environment Agency 2018). Surface water bodies in Luxembourg have among the worst chemical status of all European countries (ibid.), and in 2009 only 7% of them were in a good chemical condition (Administration de la Gestion de l'Eau 2013, p. 99). This situation is mostly due to mercury intake emitted by the steel industry in the south of the country, and diffuse source pollution from agriculture in the north of the country (European Environment Agency 2018). Here, intake of an-organic nutrients such as phosphorous and nitrogen regularly leads to eutrophication in surface water bodies (Bunusevac 2007). Groundwater pollution in Luxembourg is less severe, with the predominant stressors being heavy industry and agriculture (Administration de la Gestion de l'Eau 2013). However, groundwater has a much longer "memory" of pollution, as it only reduces slowly or partially. In the canton Réiden, the river Attert shows a comparably good hydro-biological quality and a medium quality regarding organic pollution due to agriculture. Furthermore, in a review of Luxembourgish water bodies, Administration de la Gestion de l'Eau (2007) attributed Attert a good potential for improvement.

The watershed-area of the Attert

The river Attert springs in Belgium and flows into the Alzette. About three quarters of its 38km-long river flow run through Luxembourgish, and one quarter through Belgian territory. The Attert's watershed area extends over ca. 300km². About 90% of its length on the Luxembourgish side runs through privately owned agricultural land. At the eastern border of the canton, the Attert passes a production plant of the wheel producer Continental in Bissen. The canton Réiden is known as Luxembourg's granary. Soil acidity is very high, and topsoil organic content is low due to intensive agriculture. Extensive agriculture therefore has strong negative effects on the water quality and therefore the entire ecosystem. The watershed area of the Attert is increasingly regulated by nature and water protection legislation.

¹¹⁷ For an overview of relevant Luxembourgish jurisdiction before this law, see Bunusevac (2007)

7.2.1.1 A phenomenon of (collaborative) ecosystem governance

River basins are a frequent subject to ecosystem-governance literature. These sensitive biotopes are under pressure of a variety of competing land-uses, such as (conventional) agriculture, forestry, manufacturing industries, housing, and infrastructure. Negative effects like the loss of biodiversity, groundwater pollution, or mitigation of absorption capacity are complex, interrelated, and may trigger re-enforcing feedback loops (Folke 2006; Howells et al. 2013). Empiric and theoretical work on the resilience of socio-ecological systems vividly shows how systems may jump from one stable state to another ("regime shift"), and can change characteristics such as water retention capacity, should crucial functions of the system be disturbed (Folke et al. 2004; 2010).

Ecosystem governance as a multi-scalar, transdisciplinary process

Most river basins are public goods in the sense that several people have user rights, while the repercussions of their actions may affect entire communities and landscapes. Protecting what some refer to as *eco-system services*¹¹⁸, or stable states of being in the environment, require governing social objectives that exist around socio-ecological systems. This governance is highly complex as water systems transcend human-constructed boundaries, whilst interventions' effects are spatially dispersed, and temporally delayed. It crosses policy domains and requires the simultaneous integration of various levels of government, the private sector and civil society. Because of the systems' complexity and the changing of social objectives, mere technological fixes do not suffice to guarantee long-term stability and predictability (Gunderson and Light 2007). Therefore, governance approaches need to be institutionally flexible and adaptive (Folke et al. 2004; Gunderson and Light 2007; Pahl-Wostl et al. 2007, 2012). A comprehensive framework to evaluate the sustainability of these systems does not yet exist (Ostrom 2009), however, and may not be achieved as the term applies to a variety of temporo-spatial scopes, and cultural and natural contexts: There are qualitative differences in the socio-ecological systems of a river basin in the Amazon and the Attert.

Optimal forms of *ecosystem governance*, and *river basin governance* are contextual. With Ostrom (1990) governance in this context be conceptualized of as cooperatively determined rules and norms regulating individual and group behaviour, or social practices. Ecosystem governance is a continuous and collaborative process that has to be responsive of changing social objectives while being stable enough to absorb disturbances (Gunderson and Light 2007; Pahl-Wostl et al. 2012).

¹¹⁸ The term ecosystem services capture pre-conditions, or resources provided by ecosystems for human action, such as clean air, healthy food, or flood protection. This approach argues for nature protection based on the economic value of such services (Constanza et al. 1997). This thesis does not follow this terminology, because the author regards the economization of nature as a "service provider" as ethically flawed. Also, the quantification of the ecological environment, even it is intended to enable the internalisation of externalities, is often the first step to its commodification and commercialisation. This may lead to adverse effects, e.g. increasing exploitation instead of stewardship (see Dierksmeier 2016).

Views go apart as to who is to be included in these process and how: *Bioregional approaches* argue that management should include citizens from the place where problems manifest, supporting a decentralized, “taking back control” approach that is sensitive to asymmetries of power (Cook, Benson, and Couldrick 2016; Meijerink and Huitema 2017).

A *collaborative governance regime* approach on the other hand includes various levels of administration and government, as well as civil society and private stakeholders (Ansell and Gash 2007; Emerson et al. 2012; Gunningham 2009). Research suggests this latter approach to be most successful in the long-term achievement of groups sustainability visions (Carr 2015; Gunningham 2009). On the other extreme, Hoekstra (2010) argues for a global integration of ecosystem governance systems, which, regarding the laggard implementation of WFD in Europe, seems highly ambitious. Imperial (2005) adds that collaboration may only be effective in situations where stakeholders have the strength to sacrifice some of their constituents’ interests to find agreement.

Collaborative ecosystem governance

The introductory section highlighted the WFDs strong support for local participatory and collaborative approaches to balance context-specific economic, social and ecological objectives. This is intended to build social capacities, resolve conflict, and create efficient contact points for higher order administration (European Commission 2008). However, as the scepticism of bioregional approaches indicates, these processes are set in constellations of diverse stakeholders with different interests and power resources. It thus may be difficult to assemble them behind a common vision for a future state of the system. Such processes take time and are prone to attempts of manipulation from powerful stakeholders as government agencies or private companies, as Ansell and Gash (2007) conclude in their study of 137 collaborative governance cases.

Collaborative governance literature generally agrees on the following criteria for successful process (see Carr 2015; Gunningham 2009; Lubell 2004; Pahl-Wostl et al. 2012): Participatory dialogue and cooperation, flexibility, inclusiveness, transparency and institutionalized consensus-finding practices. Adaptive governance literature further highlights the process character of the projects (see Lubell 2004; Leach, Pelkey, and Sabatier 2002; Pahl-Wostl et al. 2012). Leach, Pelkey, and Sabatier's (2002) review on 44 river basin governance projects in the US suggests that stakeholders tend to be successful with the most pressing common problems to then quickly lose momentum and fall into stagnation. The authors therefore suggest a mix between policy development and capacity building to enable the network to stay adaptable to change long term.

In order to achieve this long-term adaptive capacity, Lubell (2004) urges to avoid disjunction between the creation of visions and the agreement of plans and implementation. He further stresses that cooperative attitudes of stakeholders need to be considered throughout the process of policy development and redefinition. For example, research would show that farmers would be very sensitive to reciprocity and equal treatment with other farmers. Once their participation is secured,

cost considerations would become more important. Government agencies on the other hand may be more project-oriented rather than committed long-term, and leverage knowledge-monopolies in negotiations (also Ansell and Gash 2007).

Criteria for successful adaptive capacity building

Capacity building is a red thread through most ecosystem governance approaches. Besides normative arguments, capacity building in the level of the affected communities and social learning on the level of the management groups are essential to achieve adaptive and flexible institutions that can respond to systems' change (Gunderson and Light 2007; Gunningham 2009; Pahl-Wostl et al. 2007). This is strongly reflected in EU guidelines for WFD implementation (European Commission 2008).

Regardless of where the initiative for a ecosystem governance process came from, be it the grassroots level of immediately affected citizens (Meijerink and Huitema 2017), or government agencies (Ansell and Gash 2007), capacity-building in local communities is regarded crucial in all literature reviewed. This requires citizen inclusion in the re-occurring cycles of problem identification, vision development, project design and where possible execution, as well as monitoring and post-collaboration evaluation.

EU institutions strongly support public participation in river basin management programs to achieve the goals of WFD. The European Commission (2012) proposes a catalogue of practices to achieve this. Among the listed measures are the development of explicit summaries of the main pressures on the socio-ecological system, mapping protected areas, creating monitoring networks, listing environmental objectives, publishing regular summaries of public consultations, and listing competent authorities as contact points. In a review of public participation in river basin management programs in 13 countries, Jager et al. (2016) come to mixed conclusions, in part because transparency and reporting criteria are very uneven across member states. Whether this is the case for the CRA will be discussed in the following section.

7.2.1.2 In-sites of Contrat Rivière Attert

This section portrays the grassroots initiative CRA. It elaborates on the initiative's historic emergence, and the objectives and action plans that were developed in multi-stakeholder workshops. The section further discusses key stakeholders and portrays the managing institution Maison de l'Eau.

History

In 1993, Luxembourg was inflicted by flood, most severely the Mosel region. Even though the damages in the canton Réiden were comparably minor, the experience remained in the collective memory throughout the 1990's. Several interviewees stated that the flood made the general public aware on humid biotypes' capacity for water retention and raised attention to the lack of inter-municipal capacity for coordinated flood reaction, such as collective early warning systems. Consequently, the Luxembourgish association Oekofonds looked for partner municipalities to pilot a river basin governance program to address these issues. The LEADER LAG Redange/ Wiltz had at the time already been involved in EU projects for exchanges of regional good practices concerning water governance. On behalf of the communes Beckerich and Redingen, the LEADER office agreed with Oekofonds to pilot a water governance project inspired by those already in place in neighbouring municipalities across the Belgian border.

Consequently, multi-stakeholder work groups were formed around the themes flood protection, sustainable tourism, nature protection, and water quality improvement. Several Luxembourgish agencies and institutions concerned with water participated: The syndicates for nature protection (SICONA¹¹⁹) and waste water treatment (SIDERO¹²⁰), the regional provider of drinking water (DEA¹²¹), the Chamber of Agriculture and *Centrale Paysanne*, as well as the national water management administration¹²² and representatives from 23 Belgian and Luxembourgish municipalities surrounding the Attert. Interviewees stated that participation in the workshops was comprehensive and dynamic, and that all relevant agencies and associations were represented. Citizens, however, were not directly included in this process.

In 1998, all parties signed Contrat Rivière Attert. It is a trans-border agreement between communes of the valley of Attert, different national agencies and regional syndicates with the aim of fostering sustainable development in the river basin area of the river Attert. It defines visions for development around core categories: Flood mitigation, improvement of the water quality in river streams, promotion of "quality agriculture", environmental protection of Attert's water catchment area, improvement of tourism, environmental pedagogy, and the establishment of a networking agency,

¹¹⁹ *Syndicat intercommunal du Centre pour la Conservation de la Nature*, swaps land with farmers to enlarge biotopes, conducts hydro-morphological measures.

¹²⁰ *Syndicat intercommunal de dépollution des eaux résiduaires de l'Ouest*, responsible for waste water treatment.

¹²¹ *Distribution d'Eau des Ardennes*- responsible for the provision of drinking water.

¹²² *Admnsitration de la Gestion de l'Eau*- monitors water quality, conducts -large hydro-morphological projects.

Maison de l'Eau. A catalogue with over 100 projects has thereupon been elaborated and signed in 2001, around 80% of which were accomplished within the first 10 years according to interviewees. The projects described a variety of measures ranging from hydro-morphological interventions, diversification of forestry, reduction of diffuse intakes from farms, protection zones of riverbanks, and social capacity building. Several of these projects pose strong interventions in traditional practices in the region, especially regarding farming.

Most of the projects were designed so that they would fall directly within the competence of a specific participating agency. For example, the nature protection agency SICONA's task in CRA is hydro-morphological intervention. To achieve this, the agency either arranges purchases of land at riverbanks for municipalities, or arranges land swaps, to then pursue with construction. The water treatment agency SIDERO continuously expands a water treatment system in the area, which in turn requires developing sewage infrastructure on private land. Few of the projects required co-ordinated actions of these agencies.

Maison de l'Eau had been established as a networking agent between participating agencies and in order to build social capital among the citizenry in the canton. Until recently, *Maison de l'Eau* had one employee, working on a 20-hour contract, who focused on environmental education, awareness raising campaigns, and influencing policies on the regional and national level.

Organisation of CRA and responsibilities of Maison de l'Eau

A governing board administers CRA. Its current president is Gerard Anzia, a former MP and member of déi Greng from Useldange, who has also been president of the LAG Attert-Wark in the 1990's. The governing board holds annual meetings to reflect on past initiatives and decides on future projects. However, there are no continuous work groups that could propose projects to the board, and idea generation is said to occur informally. Administration de la Gestion de l'Eau and the inter-communal syndicate finance the budget of CRA.

Maison de l'Eau is an NPO that has been established as the executive body of CRA. It has the purpose of forging a network between the signatories, raise awareness on projects conducted around the Attert and foster environmental education around the socio-ecosystem. However, considering that *Maison de l'Eau* until recently consisted of only one employee and has no budgetary power of its own, it can be questioned whether it has sufficient capacities to fulfil this function. Activities of *Maison de l'Eau* have therefore focused on awareness-raising around sustainability challenges on the regional and national level, educational programs for children, and workshops promoting human-ecological relations and selected citizens-science projects to monitor aspects of the socio-ecological system's state.

In recent years, the function of *Maison de l'Eau* has changed, as it is now responsible for monitoring and managing the implementation of water protection areas in the canton. Therefore, the NPO

has hired a second employee with a background in agriculture. The office of Maison de l'Eau has recently relocated from the building of the inter-communal syndicate to *Infostuff* in the main street of the village Redingen, where it shares an open workspace with the staff of Klimapakt, and the Energieatelier. *Infostuff* is a one-stop shop for sustainability-related public services in the canton.

Recent developments

About 20 years after its adoption, the role of CRA has changed significantly. EU legislation such as *WFD* (2000) and *Habitats Directive* (1992)¹²³ have over-moulded the original objectives regional stakeholders around the river basin had defined themselves. Most significantly, in 2015 80 new water protection areas for drinking water have been established in Luxemburg, several of them in areas of communes participating in CRA. It is now the responsibility of Maison de l'Eau to manage and monitor the implementation of these protection areas. The second position that has recently been appointed is supposed to facilitate contact with farmers, as the relation with them reportedly grew worse with increasing legislative restrictions. Maison de l'Eau has thus become more a body for monitoring higher-order legislation than being a facilitator for common project development.

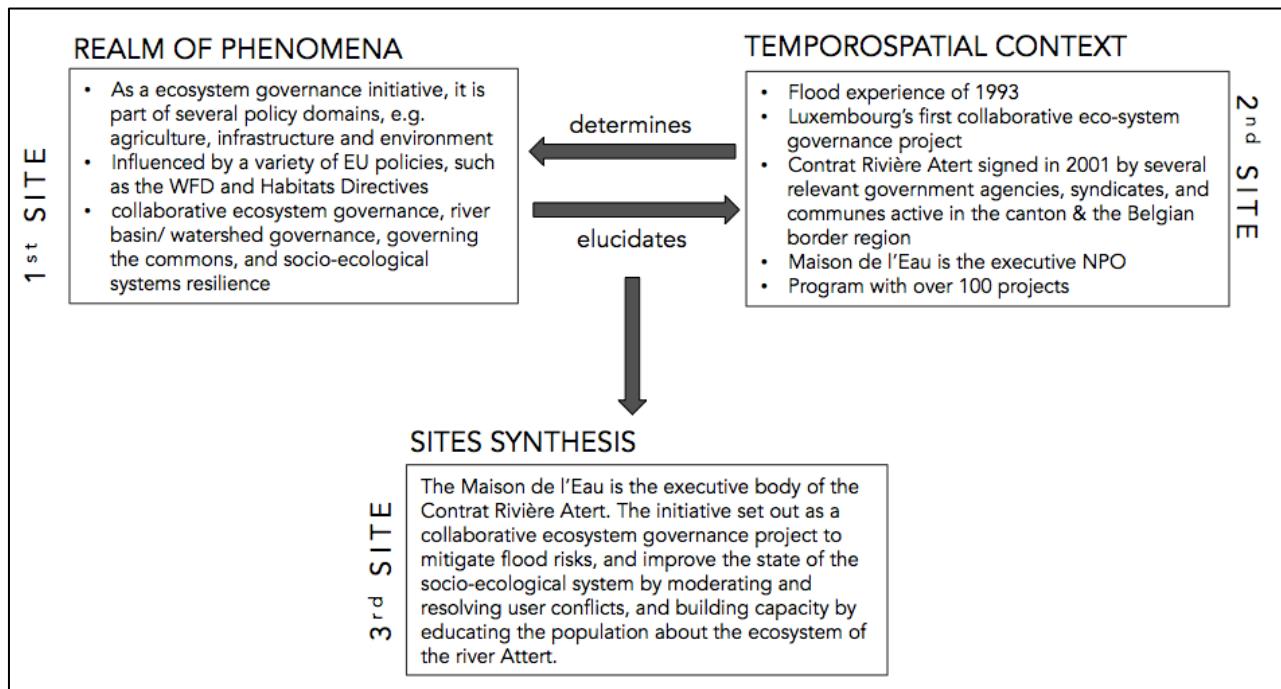
7.2.1.3 Synthesis in-sites

CRA is the first of now six river basin governance projects in Luxembourg. It emerged in the early 1990's in a bottom-up multi-stakeholder process as a response to collective problems river-basin area, most notably the flood experience. Subsequently, visions for the improvement of the river basin's state were developed and materialized in a range of projects, most of which have been accomplished. Citizens and farmers have only been indirectly included in the development of these plans and there have not been follow-up events to calibrate the goals of CRA, or to formulate joint new projects. The grassroots initiative Maison de l'Eau was endowed with the task to facilitate such processes, but arguably not with sufficient capacities to pursue them. Until recently, its focus thus lay on local capacity building, while respective agencies have carried out their projects separately.

Regarding the literature introduced above, the initial phase of CRA can be regarded as a collaborative governance approach to the socio-ecological system of the river basin Attert. The flood experience that contributed to this initiative was partly a lack of land-use coordination that decreased the self-regulating capacity and resilience of the socio-ecological system. However, as there has been very little subsequent network-building and further project development, there is little indication of a long-term adaptive governance process. Rather, agencies have carried out projects in

¹²³ The initiative has been adopted by member states already in 1992. However, the network of the Natura 2000 areas has only taken off in the 2000's. See also the Natura 2000 Barometer: http://ec.europa.eu/environment/nature/natura2000/barometer/index_en.htm (last accessed March 2018)

their respective realms of institutional responsibility mainly independently of one another. Public outreach, for example through continuous inclusion of the public in decision-making process and monitoring has not occurred. Farmers have been included only indirectly via Centrale Paysanne in the collaborative process in the beginning. This seems curious since long sections of the river flow through private farmland, which creates a constant need of negotiation with farmers. In the appointment of a new employee of Maison de l'Eau, CRA's governing board has recently addressed this issue. However, there are no new structural mechanisms for the different stakeholder groups to negotiate their interests and to create a common vision.



Text Box 5: Sites-synthesis of CRA.

7.2.2 The Leitbilder of collaborative ecosystem governance in the canton

Leitbildanalysis on CRA addresses the entire stakeholder network of Maison de l'Eau. It centres on three groups of data: Scientific papers with comparative studies, exploratory interviews with 2 employees of Maison de l'Eau, and the project catalogue that defines the initiative's objectives and projects since 2001¹²⁴. Leitbildanalysis results in the concourse of 48 statements for Q study.

Collaborative ecosystem governance literature advises against top-down technological fixes, and for situated closely-knit multi-stakeholder networks with institutionalized monitoring and public adaption mechanisms. This informed statements in the categories *knowledge* and *group (de-) synchronization*. Collaborative governance argues that for governance to be successful, networks require autonomous administrative structures, clarity of responsibilities and obligations, and

¹²⁴ The project catalogue has been translated from French to English.

inclusion and dissemination of local knowledge throughout the network. Biological factors for measuring a governance network's performance range from groundwater quality, to biodiversity, and to climate change awareness. Bioregional approaches and resilience literature informed the categories *self-referential motifs* and *ecological future projections*. Longitudinal case studies on river basin management rendered valuable insights on the adaptive capacity of river governance networks, which contributed the category group *(de-) synchronization*. It is here argued that adaptive capacity depends on the related factors shared decision-making, levels of social capital (such as leadership and trust), social learning through shared knowledge generated through experimentation and the flexibility to reconfigure rules and norms.

With the above-mentioned works in mind, case-specific data from the exploratory interviews and grey literature were analysed with the category framework of Leitbildanalysis. The exploratory interview with two employees of Maison de l'Eau has not been as informative as anticipated, because they do not have regular contacts to all agencies of the network. Until recently, their contribution to CRA has mainly been awareness raising and education of the regional population. They denied actively forging the network and stated to not have much contact to other members of the contract besides the annual board meetings of the NPO. The interview mostly informed statements of *group (de-) synchronization*, *self-referential motifs*, and *knowledge*.

Since it was stated that there would not be a re-modelling of projects in the foreseeable future, and that the objectives would still be up to date, the catalogue of projects gained more weight in the analysis. This document states ten objectives and each of them contains several sub-categories of place-specific challenges and measures to be taken to address them. The objectives define desired future states of several aspects of the Attert's socio-ecological system, and thus rendered most statements in the four *future projections* categories. Compared to the case studies on the other three initiatives, coding for the Leitbildcategories rendered much more ecological future projections. However, the distribution of statements across the framework was maintained to allow for comparability across initiatives (see the overview of the concourse on the following page).

1. Reduction of flood impacts
2. Improvement of water quality at sources and in rivers
3. Joint management of the Attert and its inflows
4. Promotion of agricultural quality and respect for the environment and rivers
5. Improvement of the natural environment of the Attert's catchment area
6. Valorisation of existing buildings along the Attert and promotion of sustainable tourism
7. Adaption of forestry to the requirements of nature
8. Creation of a structure for the implementation of the defined goals (e.g. Maison de l'Eau)
9. Sensitization of the administration for the avoidance of trash in the Attert valley
10. Implementation of activities for nature education

Text Box 6: Objectives of CRA (translated from French).

Table 7: The concourse of Leitbilder of Maison de l'Eau's network.

FUTURE PROJECTIONS				GROUP SYNCHRONIZATION				SELF-REFERENTIAL MOTIFS	KNOWLEDGE
ECONOMIC	ECOLOGICAL	SOCIAL	CULTURE	INTERNAL	INTERNAL DE-	EXTERNAL	EXTERNAL DE-		
Das oberste Ziel des Flusskontraktes ist der Hochwasserschutz.	Das Ziel unserer Projekte ist es, dem Fluss so weit wie möglich seine eigene Dynamik zu gewähren.	Mit dem Flusskontrakt sollen Arbeitsplätze in der Region geschaffen werden.	Durch Instandsetzung alter Bauten und Plätze fühlen sich die Leute in Redingen mehr beheimatet.	Beim Flusskontrakt ziehen alle Interessengruppen an einem Strang.	Interessenskonflikte und Meinungsverschiedenheiten treiben die TeilnehmerInnen auseinander.	Es herrscht ein sehr kooperativer Geist in Redingen.	Lokale Eitelkeiten sind ein Problem in Redingen.	Ich nehme an den Projekten des Flusskontraktes teil um über meine Region zu lernen.	Über die Aktivitäten des Flusskontraktes lernen die Menschen besser miteinander zu kooperieren.
Hochwasserschutz ist vor allem wichtig, um finanziellen Schaden von Gemeinden, Firmen und Privatleuten abzuwenden.	Ein intaktes Biotop im Einzugsgebiet der Aa ist ein Wert an sich.	Naturschutz ist vor allem Gesundheitsschutz.	Wir sind Teil unserer natürlichen Umwelt, wir sind ihr verantwortlich und von ihr abhängig.	Beim Flusskontrakt werden Konflikte gelöst und unterschiedliche Interessen und Ansichten zu vereint.	Es herrscht Misstrauen zwischen den Teilnehmergruppen.	Ohne die Förderung vom Staat oder der EU könnten wir unsere Objektive nicht erreichen.	Ich denke, die Leute haben langsam genug gehört vom Umweltschutz.	Teilnahme am Flusskontrakt ist zivilgesellschaftliches Engagement.	Es ist wichtig, dass wir beständig neue Ideen und Methoden zum Umweltschutz entwickeln.
Wir müssen den nachhaltigen Tourismus entwickeln, um unsere Wirtschaft zu fördern.	Die Renaturierungsmaßnahmen sind unser natürlicher Schutz vor Hochwasser.	Wir müssen dringend den sozialen Zusammenhalt in der Region stärken, der Gewässervertrag hilft dabei.	Wir müssen unser kulturelles Erbe für unsere Kinder bewahren und fördern.	Unter den CRA Mitgliedern werden unterschiedliche Meinungen offen diskutiert und respektiert.	Der Arbeitsaufwand an den Projekten ist zu groß, gemessen an ihren Effekten.	Richtlinien von der EU und vom Staat helfen sehr unsere Objektive zu erreichen.	Veränderungen in der Gesetzgebung, zum Beispiel der Wasserrahmenrichtlinie, erschwert unsere Arbeit.	in einer intakten, vielfältigen Landschaft zu leben macht mich glücklich. Deshalb nehme ich an den Projekten des Maison teil.	Für den Landschaftsschutz ist es wichtig, Experten in die Region zu holen.
Der Wandel zu ökologischer Landwirtschaft sichert die Zukunft der Betriebe in der Region	Das Biotop soll sich so weit wie möglich selbst regulieren können.	Aus Solidarität mit der Generation unserer Kinder müssen wir unsere Landschaft schützen und pflegen.	In Redingen herrscht eine besondere Kultur der Nachhaltigkeit.					Durch die Aktivitäten des Maison de l'Eau verspüre ich Einklang mit der Natur.	Bildung und Lernen sind die wichtigsten Aktivitäten für den Umweltschutz.
Über den Flusskontrakt sollen Investitionen in unsere Region gelangen.	Der Klimawandel und Verlust der Biodiversität sind eine große Gefahr für die Zukunft unserer Kinder.	Nachhaltigkeit muss auch sozial gedacht werden.	Redingen soll autonomer werden.					Ich nehme am Gewässerkontrakt teil um konkrete Projekte umzusetzen.	Über die Aktivitäten des Flusskontraktes lernen Menschen voneinander, die sonst wenig Kontakt miteinander hätten.
Ohne Verbesserung von Boden- und Grundwasserqualität wird die Landwirtschaft große Probleme bekommen.								Die Aktivitäten des Gewässerkontraktes machen Spaß!	Jede/r ist Experte für irgendetwas- wenn wir Zusammenarbeiten finden wir Lösungen für die Herausforderungen der Zukunft.
Durch CRA sollen neue Partnerschaften zwischen Betrieben entstehen.									
Zur Verbesserung der Boden- und Wasserqualität müssen sich Land- und Forstwirtschaft umstellen.									
Eine gesunde und vielfältige Landschaft bringt auch wirtschaftlichen Gewinn.									
Unsere Landschaft muss besser vermarktet werden.									

The table shows the original statements of the Q sorts. Since these are part of the data presentation, they are not translated into English.

7.2.3 Social perspectives on collaborative ecosystem governance of Attert

The Q study resulted in 3 factors, or social perspectives. Factor loadings of the nine sorts are unevenly distributed: While five sorts load higher than 0.6 on factor 1, only two load significantly on factor 3. Factor 2, showing almost no correlation with factor 1, and little negative correlation with factor 3, represents the single viewpoint of ca9 with a factor loading of 0.88, whilst ca12 loads negatively on it. Thus, ca9 is a singular viewpoint in the sample that barely relates to any of the others, while factor 1 represents a shared viewpoint of six out of nine participants.

This picture is confirmed by the correlation between the sorts. The viewpoint ca9 does not correlate significantly with any of the others. Ca1 and ca15 have the highest rate of correlation ca12, ca15, and ca20. A slight correlation could be identified between ca20 and ca15. The factors are introduced as narratives, with each one being assigned a signifier that describes a social perspective on CRA:

Factor 1	<i>Nurturing the environment is an inter-generational responsibility and a value of itself</i>
Factor 2	<i>Higher-order interventions are needed to break project gridlock of a dormant network</i>
Factor 3	<i>Technological fixes for flood protection suffice for improving the socio-ecological system</i>

Number of sorts:	9
Methods:	PCA, Varimax
Number of factors:	3
Correlations between factors:	F1-F2: -0.005; F1-F3: 0.275; F2-F3: -0.125
Consensus statements:	10

Text Box 7: Technical details of the Q study on the initiative CRA.

7.2.3.1 Social Perspectives

Factor 1 *Nurturing the environment is an inter-generational responsibility and a value of itself*
"We must change to more environmentally benign practices for the sake of our children's futures in all aspects of life- privately and economically. The loss of biodiversity, and climate change are the biggest threats to our children's future, and I feel a strong responsibility to enact change in my relation to the immediate ecological environment. I believe that agriculture and forestry must change towards more ecologically friendly practices. This is for their own advantage, as it

guarantees the long-term economic well-being of the region. I think the ecosystem of the Attert is a value in itself, but it also needs to be supported because of its services: flood protection and as an economic resource.

I see the partnership around the Attert rather pragmatically, I don't think relations between stakeholders have to be revived or improved. Member agencies do not join because they want to carry out projects together, but mostly participate because they have done so for years. Individuals representing the agencies partake in the meetings because of convention. Agencies like the syndicates SICONA and SIDERO, as well as the water administration, would carry out their respective projects regardless of the support of Maison de l'Eau.

Most projects, such as hydro-morphological measures to naturalize river flows, source protection, and the extension sewer-system grid, require the cooperation of farmers. I think that this is a challenge to several projects, as farmers feel overwhelmed by regulation. They fear loss of income and are generally reluctant to acknowledge different ways of working their land. Therefore, most projects could not be carried out without support of EU legislation, as well as EU and Luxemburgish subsidies.

I think the educative and awareness raising work of Maison de l'Eau is important since it promotes long-term change in attitude towards the ecosystem among the people in the canton. While most projects of the catalogue signed in 2001 have been completed, and new regulations from the EU are increasingly taking defining new projects, I believe that educative measures help to increase acceptance for these ecologic interventions. Thus, the addition of the new member to Maison de l'Eau team is an important contribution to facilitate the implementation of the new EU directive on source protection in the future."

Factor 2 *Higher-order interventions are needed to break project gridlock of dormant network*
"It is very difficult to put forward concrete projects along the Attert, because these often require consent from farmers for construction on their land. EU legislation and subsidies are necessary for the implementation of projects, because they provide the carrot and the stick we need to push things through. Further, education and awareness-raising are needed to increase acceptance amongst the population, although there already is a special sustainability culture in the canton Réiden. I think, however, that flood protection and the protection of groundwater bodies are more important and urgent issues than social and cultural activates around the ecosystem.

From my experience, most participating agencies are carrying out their respective projects by themselves, without much relation or connection to others. Even though there is a culture of open discussion and deliberation amongst the member agencies, and interests and opinions are discussed openly, most of us remain concerned with our respective domains. At the moment, I do see a tendency of conflicts of interest pulling the network apart."

Factor 3 *Technological fixes for flood protection serve the socio-ecological system*

"In my opinion, the main purpose of the water governance program is flood mitigation, and an intact and diverse ecosystem provides this service. Floods are first and foremost an economic risk. Protective measures therefore serve the economic well-being of the region. In this regard, hydro-morphological interventions, aiming to allow the river to run in its natural bed, serve two functions: Flood protection and increasing biodiversity.

Naturally, communities' in the canton are embedded and depended on the ecological environment. I also believe that protecting the environment and helping to improve biodiversity is a responsibility we hold for our own well-being, as well as for solidarity with future generations. Pragmatic technical interventions are the most important means to get there.

I think that education and the awareness raising activities of Maison de l'Eau are necessary, but less so than physical interventions. I do however believe that the spiritual approaches taken in some of these activities don't really serve the purpose of CRA."

7.2.3.2 Conclusion of the Q study

The social perspectives differ their understanding of Maison de l'Eau's, as well as CRA's purpose, but share viewpoints on the character of its network. However, as most participants load on the rather idealistic factor 1, *Nurturing the environment is an inter-generational responsibility and a value of itself*, it can be argued that there is a consensus on their motivations to act. The shared viewpoint represented by this social perspective represents of 6 out of 9 participants. Motivation for action here stems from the abstract challenges of climate change and loss of biodiversity, while the other two perspectives emphasize regional challenges of flood protection, which is believed to have the positive externality of serving the socio-ecological system as a whole. Thus, the latter two perspectives emphasize on the importance of technical interventions, or "practical projects", while the first highlights cultural change.

All three perspectives acknowledge the difficulties for the implementation of projects because of the dependence of agreements with farmers. They deem EU regulations are crucial as they provide "stick and carrot" in negotiations with the farmers. All perspectives agree that the network is rather disconnected. Participating agencies are seen as carrying out their respective projects regardless of the CRA, and most participants do not perceive of it as a concerted organization of projects.

Relating sorts to the roles and activities of individual participants within CRA supports emerging assumptions on the character of the governance network. The sort of the president of the network's governing body has the highest correlation with all the others', e.g. his viewpoint on the initiative shows the most overlap with other participant's. Further, the sort of the long-term employee of Maison de l'Eau does not correlate much with the other participant's, which supports the assumption there has been little network-management initiated by the NPO- although this was it's task as

formulated in the objectives (see box 2, Objective 7). The participants of this study were chosen based on their membership of the CRA. Therefore, no private citizens or farmers participated in the study. It can be assumed that the view of the NPO's employee would have correlated more with civil society representatives than with representatives of government agencies.

Interestingly, Q analysis does indicate a positive interpretation of the appointment of its new employee: The main reason for the appointment was to facilitate implementation of the new source protection directive by improving communication with farmers and the national water administration. The new employee's sort highly correlates with that of a representative of this administration; both load heavily on factor 3. As both share similar viewpoints, it can be assumed that the relation between the agency and the NPO might be improved, and the implementation of the new directive, which has been characterized as the central task of the initiative in the following years, facilitated.

7.2.4 Community capabilities for ecosystem governance in Réiden

This section assesses the community capability for ecosystem governance in Réiden. It translates the literature introduced in the in-sites section to the community capability framework. Specifically, it defines ideal, or required functionings of ecosystem governance, and puts these in dialogue with the existing conversion factors in Réiden. These conversion factors are derived from coding the transcribed Q talks, as well as grey literature for the four kinds of conversion factors.

Section 7.2.1 introduces literature on collaborative ecosystem governance. It presents case studies and policy frameworks that convey good practices and success criteria. The aim of ecosystem governance is to restore or maintain a socio-ecological systems' resilience, particularly to absorb negative effects of land-use, or natural phenomena like floods. Significant pressures on systems such as Attert valley are loss of biodiversity, groundwater pollution, erosion, and, most significantly, a loss of water absorption capacity. These tend to stem from a lack of land-use governance. Research on water bodies in Luxembourg suggests that several of these indicators have slightly improved in Réiden since the 1990's, particularly in comparison to other Luxembourgish areas. However, in comparison to other regions in the EU, the Attert-valley still has a bad chemical status, mainly due to diffuse intakes.

With the community capability approach, a range of functionings for successful ecosystem governance can be derived from the literature. These functionings can be achieved and become community capabilities, if a range of conversion are in place in a given community. The central functionings for successful ecosystem governance in the reviewed literature are:

- Cooperatively developed norms and rules regulating individual and group behaviour (contextuality)
- Common visions that assemble stakeholders
- Transdisciplinary stakeholder networks that include various levels of administration and government, businesses, civil society, and private citizens
- Flexible, transparent, and institutionalized consensus-finding
- Continuous collaborative processes that are responsive to changing objectives
- A mix between policy development and capacity-building to enable adaptivity long-term
- Capacity building by including citizens in re-occurring cycles of problem identification, vision development, project design, and execution
- Systems' thinking among involved participants

7.2.4.1 Cultural conversion factors

As indicated above, several interviewees referred to the flood experience in the early 1990's as the catalytic event that allowed assembling the different stake-holding agencies around the socio-ecological system of the Attert river basin. CRA's network committed to a joint Charta in 2001, which was developed collaboratively. This Charta, functioning very much as a common vision, has however not been updated since. Further, interviewees suggested that the increasing influence of EU legislation would impose (rather quantitative) visions on the network.

Most stakeholders widely share a similar perspective on CRA, as represented by factor 1, with climate change and inter-generational justice being their most defining motivations. *Nurturing the natural environment is inter-generational responsibility and a value of itself* is a vision shared by about two thirds of the participants of this study. Flood prevention scores high on factor 3, which is the shared viewpoint of the representative of the water administration and the new employee of the networking NPO Maison de l'Eau.

The Q talk generally suggests that this wide correlation of perspectives on CRA does not manifest in a coordination of practices, or a community of practice of stakeholders forged and coordinated by Maison de l'Eau. Municipal administrations rarely cooperate on water issues (cf. ca1, ca7, ca19). This has been partly assigned to the general political culture in Luxembourg, referred to by local politicians "Luxembourgish dunghill politics" (ca12) of people sitting on their property and "not wanting anyone talk into their business" (ca1). Several interviewees stated that inter-municipal co-operation would be better in the canton Réiden than in other Luxembourgish regions. However, most participants do not believe that there exists a particular sustainability culture in the canton. Today, representatives of agencies regard CRA as a tool to facilitate their individual projects, without necessarily involving the Maison de l'Eau (ca9, ca11, ca15). Employees of the agencies would generally not want to participate in the board meetings, with ca9 suggesting that it was because many of them do not identify with the region.

An adjustment of objectives formulated in CRA is not foreseen (ca1, ca7, ca14). A representative of CRA stated: "The objectives are not going to be renewed in the near future. I have to admit that we do not monitor the compliance of the various projects to our guiding principles"¹²⁵. Employees of Maison de l'Eau stated that the agenda from 1998 would contain "everything relevant" and there would not be a need for re-negotiating. However, ca12 stressed that workshops and debates, which once produced the agenda, brought people together: "Projects are running, but we do not talk anymore. When we had to, we had long and beautiful discussions with one another."¹²⁶

Interviewees representing municipalities and agencies emphasized that a basic problem for many projects is the reluctance of farmers to give property for purposes of re-naturalization, sewage pipe construction, or source protection. It was suggested that this aversion to cooperate is caused by overregulation: "We did not use to speak so much about nature protection, and now I feel the pendulum swings in the other direction. We need to be careful that people do not close up. I believe there is too much regulation. However, we should not hope for people's own initiative either" (ca19). Others highlighted stubbornness and conservatism of "wild famers"¹²⁷ (ca12) as the largest problem (ca1, ca15, ca19, ca20). In this view, EU subsidies are indispensable to put forward environmental protection measures (ca1, ca9, ca12, ca20), with ca1 stating: "Regarding environmental protection, without EU regulation Luxembourg would still be a developing country". No representatives of farmers' associations attended the CRA's annual board meeting in 2017, nor did not they respond to interview requests for this study.

Finally, interviewees saw the focus of Maison de l'Eau's activities on education ambivalently. Several highlighted that it may prospectively loosen the gridlock among farmers by increasing awareness for the eco-system, and generally to increase acceptance amongst the population for its protection. The effects were regarded as high by most interviewees. Ca11 however, representing the perspective of the technological fix, bemoaned the rather "esoteric" character of Maison de l'Eau and held that "education measures (...) don't get us anywhere"¹²⁸. Projects of CRA are in his opinion a "subsidized get-together"¹²⁹, unlike other Contrats Rivières in Luxembourg, which for him have by a more pragmatic, project-driven spirit.

Several interviewees states that the most significant constraints for their projects would be the reluctance of municipalities to cooperate, and dependence on farmers' consent to projects. These are commonly found in case studies on similar programs (Ansell and Gash 2007; Gunderson and Light 2007). Therefore, the focus on the work of Maison de l'Eau lays on education to foster environmental awareness and acceptance of projects. Capacity building is actively pursued by the

¹²⁵ Ca1: „Die Objektive werden in nächster Zeit nicht mehr verändert. Ich muss auch gestehen, dass wir eigentlich ausgehend vom Grundgedanken auch die Vielfältigkeit der Projekte nicht mehr so regelmäßig überprüfen.“

¹²⁶ Ca12: „Es laufen Projekte, aber wir diskutieren nicht mehr viel. Als es sein musste, haben wir schön und viel miteinander diskutiert.“

¹²⁷ Ca12: „Die wilden Bauern, die begreifen einfach nicht (die Notwendigkeit von Umweltschutz)!“

¹²⁸ Ca11: „Bildungsmaßnahmen haben ja auch ihre Daseinsberechtigung, aber sie bringen nichts Konkretes.“

¹²⁹ Ca11: „Das ist doch alles eher subventioniertes Beisammensein“ (referring to projects of Maison de l'Eau)

Maison de l'Eau and may eventually lead to higher awareness and changing practices among citizens. However, these activities centre on the education of youngsters, nature expeditions, and selected projects of citizen science. There is no indication of development of visions for the state of the socio-ecological systems, or concrete project development with citizens in the Q talks.

To conclude, the participants of the analysis do share a vague common vision of the state of the river basin Attert, but not of the purpose of the governing agency Maison de l'Eau. Interviews indicate that there is no close cooperation between member agencies of CRA and each would pursue their own projects individually according to their ends and standards. Essential routines for successful collaborative governance such as institutionalized consensus-finding practices, participatory dialogue, and feedback of monitoring results to the stakeholder group and the wider public seem lacking (see Carr 2015; Gunningham 2009; Lubell 2004; Pahl-Wostl et al. 2012). Interviewees suggested that closer engagement of the members in workshops, or re-working of the objectives might bring members closer together. This however is not foreseen, mainly because increasing influence of EU regulation renders joint decision-making superfluous.

7.2.4.2 Organizational conversion factors

Q analysis suggests that there is a common understanding, or vision for an improved state of the ecological system, as most participating agencies load on factor 1. However, this does not translate to concerted, joined practices, or a vision for a mode of collaborative governance that would be required for achieving this state. Rather, the purpose of CRA, and Maison de l'Eau seems to be seen in supporting each agency's specific realm of duties, while the agencies work in parallel instead of cooperatively. Interviewees suggested this to be a general phenomenon of administration in Luxembourg. A representative of a syndicate stated: "The administrations do not work together. The water administration, nature protection agencies, land register, everything there is. Everyone has their own interests, and they are at war with one another. This might be normal for administrations. But in the Attert valley, there is a lot of nature and a lot of water, and there have been many wars in the past. (...) Everyone works in their own corner. Luckily, there is Maison de l'Eau that tries to bring people together"¹³⁰ (ca9).

A representative of CRA conceded this to be a problem: "The cooperation does actually not work. Everyone only sees their own issues with the water and works on their own problems. Cooperation in CRA is very difficult. That is something we really have to work on. Eventually, we have to think about the causes of this problem"¹³¹.

¹³⁰ Ca9: „Die Verwaltungen arbeiten hier auch nicht zusammen. Die Wasserverwaltung, die Naturschutzverwaltung, Gemeindeverwaltung, Kataster, alles was es gibt. Jeder hat seine Interessen (...) und ist im Kleinkrieg. Aber das ist wohl normal für Verwaltungen. Und im Attertal ist viel Natur und sehr viel Wasser. Da haben sich schon viele Kriege abgespielt zwischen Verwaltungen (...) Jeder arbeitet in seiner Ecke. Glücklicherweise gibt es das Wasserhaus, das versucht alle zusammenzubringen.“

¹³¹ Ca1: „Die Kooperation funktioniert eigentlich nicht. (...) Jeder betrachtet seine eigene Problematik am Gewässer und bearbeitet seine Problematik. Und dieses Kooperieren im Gewässerkontrakt ist sehr schwierig. Da müssen wir sehr stark dran arbeiten. Die Ursachen müsste man sich mal überlegen.“

There are several roots to this problem. Maison de l'Eau is designed as an agent between government agencies, syndicates and the public, and not between agencies and other members of the network. It neither has the capacity, nor the human or financial resources to initiate projects. Besides the annual board meeting of CRA, which has very poor attendance, there are no regular institutionalized forums for members to meet to discuss conflicts and develop strategies. Further, as CRA does not have its own budget for large projects, it is dependent on initiative from the communes. As citizens (despite students) are only engaged in the voluntary leisure activities of Maison de l'Eau, and not effectively represented in the network, they can only influence projects indirectly through addressing community councils.

Despite the lack of networking among the member agencies, Maison de l'Eau is actively working on capacity-building in the canton and has reportedly a strong impact in civil society. For example, educative programs in cooperation with schools, and workshops for the general public are reportedly well received in the canton. Further, interviewees stated that members of Maison de l'Eau have successfully lobbied for policy change in communes and partook in the national initiative to mitigate pesticides.

To conclude, organizational conversion factors seems to be constrained structural set-up of CRA. Even though most participating agencies share a similar vision for the socio-ecological system, this does not lead to practical cooperation, or even regular meetings. The initial set up of the CRA aimed more for a one-shot project agenda, rather than an on-going, collaborative and adaptive governance process as described by Gunderson and Light (2007), or Pahl-Wostl et al. (2012). Further, Maison de l'Eau does not, or cannot, harness the (theoretical) willingness of members to cooperate. Although it is endowed with the task of forging the stakeholder network, the NPO does not have initiative power for projects that could assemble different stakeholder around a common theme. With the recent shift in its tasks, notably the management and monitoring of new water protection directives, Maison de l'Eau has moved one step more towards an executive body. Further, the although there exists a latent collective vision for the socio-ecological system, this vision is not formalized, for example through a renewal of CRA's objectives. Finally, although Maison de l'Eau main focus lies on capacity building, citizens and farmers, two stakeholder groups that are very much the centre of attention of successful socio-ecological governance schemes, have no direct opportunity to influence projects of CRA.

7.2.4.3 Personal conversion factors

The mayors of Redingen and Beckerich initiated CRA in the early 1990's. They had personal relations to Oekofonds and were able to call the various participating stakeholders together (ca1, ca7). The agreed upon projects required commitment and compromise from various parties (ca1, ca7, ca12, c a20). Agreements were forged in inclusive work groups would not have been possible

without the personal commitment of these individuals (ca12, ca20). Thus, several interviewees trace the initiative's initiation to the leadership of individual politicians: "The diffusion of initiatives emerges (...) through a generation of politicians who get involved and bring change with them"¹³² (ca1). These politicians followed a green agenda: "Marco Schank and Camille Gira brought an ecological mainstream to the region with their agenda"¹³³ (ca19).

Such comments refer to the initial phase of CRA between 1998 and 2001. There is no indication in the interview data for an active cultivation of the network after the project agenda had been signed. Further, changes in the political landscape, especially Camille Gira's resignation as mayor of Beck-erich, were given as reasons for the subject of environmental protection to largely disappear from the political agenda in the canton altogether. Ca20, an employee of the Klimabündnis, stated: "I think when there is no politician who explicitly supports these projects in the respective bodies, it becomes very difficult (to pursue them)."¹³⁴ The president of CRA, who is also president of the nature syndicate SICONA, highlighted that the initiative is attempting a "re-start" with the appointment of the new employee. This position is supposed to improve contact with farmers, as the implementation of WFD has become task of Maison de l'Eau.

As mentioned above, there is a lack of continuous citizen-engagement in CRA. Whereas literature suggests citizen inclusion in re-occurring cycles of problem-identification, projects design, execution, and monitoring, none of these matters seem to be open for participation in Réiden. This has been the case since the initiative's inception however, as neither citizens nor farmer themselves were included in the development of objectives and projects.

It can be concluded that the initiative would not have emerged without the leadership of individuals, notably Camille Gira. However, there is no indication that these individuals actively forged the network after the catalogue of projects had been adopted. Neither have new ideas and strategies been introduced to the entire network by committed individuals. Several interviewees criticized Maison de l'Eau's long-time focus on capacity building. Since the NPO has had for the most time only one position on a 20-hour contract, this seems to be a structural, and not a personal problem. The governing board has reacted to this situation with the appointment of a new employee.

7.2.4.4 Infrastructural conversion factors

The aspect of materiality is difficult to address for eco-system governance projects, because from a systems' perspective the entire physical environment could be included in this category. Further,

¹³² Ca1: „Die Diffusion der Maßnahmen kommt eben auch über die Politikergeneration, die sich einbringen und Veränderungen mit sich bringen.“

¹³³ Ca19: „Der Marco Schank und der Camil Gira haben einen ökologischen Mainstream in der Region gebracht mit ihrer Agenda.“

¹³⁴ Ca20: „Ich glaube, wenn kein Politiker dahinter steht, der Gewicht in den Gremien hat, dann wird schwierig (die Projekte umzusetzen).“

as most agencies are concerned with physical interventions in the river basin area, their facilities could be included as well. Since there is very little indication for cooperation among these agencies, however, the following concentrates on Maison de l'Eau.

The agency has recently moved to the commercial centre of the commune Redingen to increase the initiative's visibility. Here, employees share facilities with employees of the Energieatelier, and the Klimapakt to create synergies between the initiatives. It may further make it easier for citizens to become actively engaged in Maison de l'Eau's initiatives and become active stakeholders in the management of CRA by reporting problems, inquiring efforts of the networks, and participate in citizen science initiatives.

As indicated above, members of the initiative pursue different infrastructural projects in the canton: SIDERO is implementing a sewage system on an investment of around € 100 Million (cf. ca9), SICONA swaps properties with farmers to create larger connected biotopes (ca15), and the water administration as well as SICONA are conducting hydro-morphological interventions to re-naturalize river flows. Further, as agreed in the catalogue projects, historic preservations were carried out to encourage sustainable tourism. However, these measures are perceived as integral components or products of the agencies themselves, of which interviewees suggested they would have been carried out regardless of CRA. There is no indication of shared machines, spaces, or any sort of materialities around which different stakeholders would assemble in a common practice. Therefore, the relocation of Maison de l'Eau is regarded as the only indication of development of infrastructural capabilities.

7.2.4.5 Conclusion community capabilities

This section summarizes the findings made in the four conversion-factor dimensions and reflects upon the overall community capability for ecosystem governance in Réiden. Considering the good practices, or functionalities introduced in the in-sites section, CRA has had a promising start in the 1990's, but has recently fallen dormant due to structural problems. The most prominent are the lack of formalized arenas for vision-development and policy re-adjustment, and the lack of initiative power for citizens and farmers. However, case studies show that it is not uncommon for ecosystem governance projects to lose momentum after the most urgent projects have been implemented. These problems have been recognized and addressed by the governing board of CRA, for example with the relocation of Maison de l'Eau and the appointment of a new employee.

A central problem of the network seems to be the lack of joint activities. Several projects that need to be conducted in the river basin area would require cooperation between agencies. The Q study suggests that there is a common vision of the state of the socio-ecological system. However, the different agencies pursue their respective projects separately. This was assigned to political culture amongst communes and administrations. There are no formalized regular arenas for stakeholders

to meet and exchange ideas. Therefore, there is very little indication of collective monitoring, reflection, and policy-adjustment. The program's inception has been assigned by interviewees to the leadership of individual local politicians. In this regard, such leadership seems to be lacking today. Case studies suggest that government agencies tend to avoid cooperation in ecosystem governance programs and need to be closely tied into regular interactive routines (Ansell and Gash 2007; Lubell 2004). Farmers are the dominant actors, as most projects require their land, but are increasingly reluctant to cooperate and are not effectively represented in the CRA. This, however, is regarded as crucial in the literature (ibid., also Kellogg and Samanta 2018; Pahl-Wostl et al. 2012).

Table 8: Summary of enhancing and inhibiting conversion factors of CRA.

Conversion factor	Cultural	Organisational	Personal	Infrastructural	
Enhancing factors	Flood experience	Common vision (factor 1) on the state of the river basin	Initiation ascribed to individual leadership of local politicians	Relocation of Maison de l'Eau promotes public outreach	
	Charta of collective objectives	Expansion of Maison de l'Eau's capacity with new position	High level of knowledge among members		
	Charta of projects	All relevant agencies are members of CRA	Active capacity building among citizenry, especially children		
	EU legislation (WFD, Habitats Directive)	Stakeholders include government agencies, municipalities, and the farmers' association	High commitment of Maison de l'Eau's employees for environmental issues		
	Maison de l'Eau promotes capacity building		New employee of Maison de l'Eau fits requirements		
Inhibiting factors	No adjustment/ renewal of objectives	No functional interdependence of participating agencies	Lack of renewed efforts to bring participants to the table	No indication of collective material engagement	
	No formalized arenas of exchange between members	Maison de l'Eau lacks initiative capacity	Lack of managing institutions capacity to actively forge network		
	Lack of direct inclusion of farmers and citizens in CRA	No cooperative projects			
	Increasing influence of EU legislation inhibits the development of contextual norms and rules				

Maison de l'Eau had been set up as the organisation to connect members, and as a contact point for citizens and administration. However, it has not been given the human and financial resources to do so. Until recently, it focused on capacity building amongst the citizens, which is a crucial functionality for ecosystem governance. To what extend it absorbs and transmits citizens' concerns and ideas for initiative regarding the socio-ecological system, as highlighted especially by bioregional approaches (Cook, Benson, and Couldrick 2016), can not be determined from the interviews. There is no indication in the interviews for active citizen-engagement in CRA, for example as citizen science. The change in location into the Infostuff in the main street of the commune Redingen is intended to bring Maison de l'Eau closer to the citizens and create synergies with other associations. However, the exclusion of citizens, and farmers seems to a structural problem of the initiative since the beginning, and it can be assumed that this central functional will remain inhibited by the statutes of CRA.

The initial design of CRA seems to provide a rather one-shot project agenda than a framework for continuous cooperative adaptive governance. There are no institutionalized mechanisms for social learning among the stakeholders (Pahl-Wostl et al. 2007). Meanwhile, EU regulation increasingly defines action of the stakeholders, instead of them initiating projects. This may lead to a further decline of the network, as joint vision creation and recalibration are essential functionings for collaborative governance (Ansell and Gash 2007; Emerson, Nabatchi, and Balogh 2012; Gunningham 2009; Lubell 2004).

Implementation of these regulations requires the initiative of communes. This depends on politicians' leadership in the realm of environmental protection, which lately has been found lacking according to some interviewees. Literature suggests that in collaborative ecosystem governance projects with diverse stakeholder networks and a high potential for conflict, individual leadership in management is crucial (Emerson, Nabatchi, and Balogh 2012; Gunderson and Light 2007). Most interviewees acknowledged the lack of coordination, but there does seem to be initiative to change the situation. The appointment the new member of Maison de l'Eau might improve coordination, and the cooperation with farmers in particular.

To conclude, at the time this research is conducted, the community capability for collaborative ecosystem governance in Réiden is low. When comparing the functionings provided by scientific and policy literature with the identified conversion factors in the canton, one finds that in the initial phase of the program, this capability was higher. Individual leadership and the legitimization of collaborative engagement in face of the historic events, notably the experiences, lead to cooperative vision creation and the development of a project agenda. However, citizens and farmers are rarely included directly in CRA, and most participating agencies pursue their projects independently. The managing institution Maison de l'Eau has become more of a service provider for these agencies, and recently a monitoring body for the implementation of higher-order legislation. However, the

potentials for improving community capability exist, given the common vision of most agencies, and the governing board seems to take initiative to create conversion factors that may re-awaken the network.

7.2.5 Discussion of findings

CRA has been developed in the end of the 1990's in several multi-stakeholder workshops where agencies, farmer associations, and communes agreed on an agenda of projects that required concessions and changes of practices on all sides. The flood experience of 1993 was mentioned as the catalytic event that brought them to the table, and the leadership of individual politicians ensured the successful accomplishment of this process. In the following, most of the agreed projects were executed, while the chemical state of the river basin, and groundwater pollution remain alarming. There has not been a re-adjustment of objectives, nor are there any institutionalized arenas for continuous exchange between members. Cooperation between member agencies in joined projects remains low, and Maison de l'Eau is regarded more of a service provider for individual agencies than a networking agent. Further, EU legislation seems to have substituted the collectively developed vision and objectives of the initiative. Nine people participated in the Q study on CRA, most of them are representatives of public agencies, communes, and staff of Maison de l'Eau. Q analysis suggest that six of them share a Leitbild that is given the signifier "*Nurturing the environment is an inter-generational responsibility and a value of itself*". An antagonistic Leitbild emphasized the importance of technological fixes, particularly through hydro-morphological interventions, and rejects the Maison de l'Eau's focus on capacity building. The analysis of community capability for collaborative eco-system governance in Réiden identified a gap between the functionings suggested by scientific and policy literature, and the existing conversion factors in the canton. The capability had been higher during the initial phase of the initiative, which is quite common for these projects. However, the potentials for stronger compliance do exists, and are currently addressed by CRA's governing board.

To conclude, it is questionable if one can speak of a community practice, or a functioning grass-roots initiative in the case of CRA. At this moment, data suggests it being a rather loose network of stakeholders pursuing their own interests. In comparison to the initial phase, the network seems dormant. Had more citizens and farmers been involved in the study, the analysis may have shown a clearer common vision, and perhaps discovered joint activities in civil society.

7.3 THE LOW-CARBON TRANSITION NETWORK ENERGIEATELIER

Luxembourg is a paradoxical low-carbon transition arena: The country, geographically not much larger than a German *Energieregion*, imports nearly its entire energy supply. Yet, it has among the lowest share of renewables in the EU, with relatively slow growth rates. Meanwhile in the canton Réiden, communes aim at becoming energy positive by 2025.

The low-carbon transition is at the heart of the rural development in the canton. Grassroots initiatives in the energy domain such as the Energieatelier, energy cooperatives, and community-owned utilities have emerged in the 1990s's and make for the most comprehensive transformation of all policy domains addressed in this thesis. Further, the low-carbon transition gained especially Beckerich national and international acclaim.

Given significance and diversity of the energy transition, this research project initially included two grassroots initiatives: An analysis of Energieatelier intended to address the an entire network of citizens , businesses, and communes, while an analysis on biogas- and wind-cooperatives was intended to focus on the aspect of cooperative production. However, the Q sort for the latter could not be conducted, because not enough participants committed to the study¹³⁵. This analysis therefore differs from the others, as the Q method part centres on the network and work of the grassroots initiative Energieatelier, while the in-sites, and community capability sections look at the wider low carbon transition. Energieatelier is a public and free of charge energy consultancy for low-carbon transition in the canton. It brings together a wide network of businesses, energy cooperatives, project developers and private citizens, and it thus shapes various arenas of the low carbon transition.

GRASSROOTS INITIATIVE	Energieatelier
FORMAL INSTITUTION	Energieatelier NPO is a consulting agency that promotes renewable energy projects and ecological construction in the canton
POLICY DOMAIN	Energy, agriculture, infrastructure
PHENOMENON	Low-carbon transition, energy democracy, energy justice, procedural justice, energy citizenship
EXPLORATORY INTERVIEWS	3 transcribed (employee of Energieatelier, guide of Energy/Tours in Beckerich, manager of a biogas plant
Q PARTICIPANTS	11 participants (representatives government agencies, syndicates, enterprises, energy cooperatives and communes), 9 fully transcribed Q talks
GREY LITERATURE	9 articles in the magazine <i>Synergie</i> , 1 public presentation of the energy transition in Beckerich, 3 articles from <i>forum</i> , 4 articles from <i>Luxemburger Wort</i>
OBSERVATION	none
VALIDATION	In-sites reviewed by employees, social perspectives reviewed bz participants with the highest-loading sorts

Text Box 8: Overview on concepts and data of the analysis of the grassroots initiative Energieatelier.

¹³⁵ The study was conducted in spring/ summer 2017. Most potential participants were farmers. Several declined asking to postpone the study for winter, which was unfortunately not possible in the time-schedule of the study.

7.3.1 The sites of the regional low-carbon transition

This chapter introduces the sites of the grassroots initiative. The first section will place the Energieatelier among the realm of phenomena of which it is intrinsically part, by presenting scientific concepts developed from comparative cases of local and regional low-carbon transitions. The second section gives a historic overview of the transition since the 1990's. The Energieatelier is thus regarded as one PAB within the wider constellation of rural low-carbon transition. Before these sites are introduced, this section will briefly discuss the national arena of renewable (RE), or replenishable energy in Luxembourg.



Picture 20: Symbolic for the low-carbon transition- A cooperatively-run PV system on the roof of a church in Elvange, commune Beckerich. (Source: commons.wikimedia.org)

The national energy arena

Luxembourg is a peculiar arena for low-carbon transitions. First, since almost 90% of consumed electricity and nearly all fossil energy carriers are imported¹³⁶, there are no incumbent regime actors similar to the like of Shell in the Netherlands, ENGIE in France, or the big four producers in Germany. Second, the country's geographical size is similar to that of energy regions in other places- a scale that is deemed practical for net autonomy, depending on respective demand patterns and productive capacities. One could assume that without incumbent (regime) actors, considering the dependence on imports, and the small size of the country, the preconditions for an *Energiewende à la Luxembourgoise* would be favourable¹³⁷. However, the country hosting a *Green Exchange Market for Sustainable Investment Instruments* and a *Centre of Excellence for Carbon Investment Vehicles* has the lowest share of RE of all EU member-states¹³⁸, with relatively low growth rates¹³⁹. As Faller (2015a, b) argues, the state had actively hindered low-carbon ambitions at the grassroots throughout the 1990's and provided a more favourable environment only after EU directives (notably 2001/ 77/EC) required it to do so.

Luxembourg's main RE-production site is the hydroelectric power station at the Esch-Sauer reservoir lake, but most of its production is fed into the German grid. Citizen's engagement that goes beyond private and profitable PV installations is scarce and fragmented. Notable efforts of cooperative citizens' energy are to be found in the communes Junglinster and Esch/ Alzette, which have positive effects on political discourse and legislation (see below). The canton Réiden, and especially Beckerich, represent the longest-lasting and most comprehensive low-carbon transition in Luxembourg.

RE-transitions from the grassroots- a larger phenomenon

The necessity of RE-transition is widely acknowledged among scientists, policy makers, and the public. Yet, most European countries struggle to develop a coherent RE-transition strategy (Bauknecht, Vogel, and Funcke 2015; Kunze and Becker 2014; Walker et al. 2007), while grassroots initiatives are driving a transition from below (ibid., Buschmann et al. 2018; Creamer et al. 2018; Ohlhorst, Tews, and Schreurs 2014; Rohracher and Spath 2014). Besides this lead of grassroots initiatives, different national contexts produce different stories of such transition initiatives, which reflect in the respective academic discourses.

¹³⁶ <https://www.laenderdaten.info/Europa/Luxemburg/energiehaushalt.php> (Accessed December 2018)

¹³⁷ These works review recent re-developments in Germany, extrapolate future developments. They suggest governance strategies within these development trajectories to achieve the goal of 100% re-systems. All of these strategies include a variety of scales and transition logics. This pragmatic approach seems diametrically opposed to others proposing technocratic conceptualizations, such as the works of Foxon (2011) and Foxon et al. (2013).

¹³⁸ Online (last accessed October 2018):

https://ec.europa.eu/eurostat/statisticsexplained/index.php?title=File:Figure_1Share_of_energy_from_renewable_sources_2004-2016.png

¹³⁹ Online (last accessed October 2018): <https://www.iea.org/countries/Luxembourg/>

The case at hand is particular, because several initiatives in Beckerich and the canton emerged well before the public awareness on the RE-transition in the Luxembourg arose. Consequently, they faced coercion of national government (Faller 2015a, b). In its role as an early adopter at first struggling against, and then actively influencing the national energy regime, it shows similarities to the cases of Freiburg and Graz (Rohracher and Spath 2014; Späth and Rohracher 2010). It is also similar to these cases in the sense the transition has only partly been managed purposefully. Beckerich may be an exception in this regard, as the commune follows regularly updated low-carbon strategies.

Regarding geographic research, low-carbon transitions are addressed with on socio-technical approaches (Coenen, Benneworth, and Truffer 2012), as well as institutional and place-making perspectives (Seyfang, Park, and Smith 2013; Walker et al. 2007). Given the concept of grassroots initiatives developed in this thesis (see chapter 4), this section shares more similarities with the latter strand of literature. It examines how social institutions produce materialities that lead to social empowerment and justice on one hand, and quantifiable positive ecological impacts on the other. The grassroots initiative is regarded as a low-carbon transition on the community level that aims at democratizing the system by (re-) establishing a regional energy supply chain.

Research on grid democratization argues that in order to promote energy justice, initiatives must go beyond profit-driven singular efforts focusing on distinct links of the energy supply chain, or end-of pipe solutions on the domestic level and strategically embed these efforts in wider transition strategies (Kunze and Becker 2014). However, Rohracher and Spath (2014, p. 1428) raise concern that "dependence on other socio-spatial dynamics may also mean that only certain elements of a more sustainable energy regime are developed instead of an integrated concept (...), or that the transformation dynamics lose momentum when certain elements fall apart (for example, repositioning Graz as city of culture and design)." Regarding the comprehensiveness and longevity of the low-carbon transition in Réiden, it can be assumed the strategic cross-linking of materialities and formal institutions along the supply chain have made the entire system more stable and less vulnerable to external interferences. Consequently, the following section encompasses institutional approaches, as well as supply-chain perspectives. This broad review will support the analysis of community capabilities, because it renders detailed functionalities for successful low-carbon transition that can be reflected in greater detail with the existing conversion factors in Réiden.

7.3.1.1 Low-carbon transition as supply chain regionalization and democratization

This section introduces scientific debates and concepts of low-carbon transition. This section is more extensive than those in the other three analyses, because it discusses socio-technical perspectives in singular initiatives, supply chain views, as well as sociological concepts. The section sets out by introducing wider energy transitions as phenomena of decentralization and regionalization.

Even though research on the German *Energiewende* indicates that a centralized RE-system is as economically feasible as a decentralized one, low-carbon transition is widely associated with regionalization (Bauknecht, Vogel, and Funcke 2015; trend:research and Leuphana Universität 2013). The drivers for decentralization differ between countries, and in some cases grassroots initiatives build on long traditions of technical experimentation and counter-hegemonic politics, such as the anti-nuclear movements of the 1970's and 1980's. Whereas in the UK government policy intended to promote local low-carbon communities to foster acceptance of renewables among the population (Creamer et al. 2018; Taylor Aiken 2018), German decentralization can be regarded as a reaction of citizens to government inertia (Becker and Naumann 2017; Ohlhorst, Tews, and Schreurs 2014). In a comparison of low-carbon transition in Germany and France, Buschmann et al. (2018) argue that the German grid-regionalization has emerged in associative democratic and interstitial constellations of private persons tinkering in their garages, regional research institutions, companies and state governments. The portrayal of the French transition, on the other hand, suggests less cooperation between such stakeholders and more power-plays between different interest groups and levels of administration. In a review of low-carbon-transitions in EU countries, Kunze and Becker (2014) identify a dynamic advancement of grassroots initiatives on the local and regional level across countries. National governments in the EU, however, would often fail to produce coherent transition policies.

Given this lead from the local level, building political pressure and pushing technological advancement, the low-carbon transition is in many places a process of decentralization towards *interconnected systems of RE systems* (Bauknecht, Vogel, and Funcke 2015; ibid., Ohlhorst, Tews, and Schreurs 2014). The case Réiden, and especially Beckerich can be regarded as such a pursuit of developing a net-positive RE-system that is eventually self-sustaining in specific energy domains, such as electricity. Unlike various other cases reviewed for this chapter, often focusing on interventions in individual links of an energy system, low-carbon RE-transition in Beckerich is pursued with comprehensive strategies for developing a local RE-system.

The low-carbon transition in Beckerich and the canton comprise of a range of socio-technical projects along the energy supply chain, such as biogas plants, district heating grids, consultancy, and house insulation. The transition builds on local governance mechanisms that help harmonizing interventions in these supply chain links, as they are functionally interdependent and performed

by a variety of stakeholders. Several communes are committed to inter-municipal policies as the *Klimapakt* and are entangled in EU and national legislation that may inhibit certain and encourage other projects.

The term socio-technical transition captures that energy transitions emerge in a dialectic relationship of social arrangements and technological materiality's. These are context specific and emerge in multi-level, cross-scalar relationships (Creamer et al. 2018; Markard and Truffer 2006; Truffer and Coenen 2012). The following introduction of scientific discourse structured along this conceptualization. The first step gives a supply chain view on local re-systems, followed by concepts addressing social aspects as energy democracy, energy citizenship, and procedural fairness. The concepts introduced in the latter section are particularly relevant for the introduction of *Leitbilder* of participation and the analysis of the community capabilities. The end of this section will give a structured overview on the diverse initiatives in the canton.

Socio-technical supply chain interventions and local energy economies

This section introduces a supply-chain view on low-carbon transitions. It follows the conceptualization of Rohracher and Spath (2014, p. 1417) in regarding RE-systems as "socio-technical configurations where technologies, institutional arrangements (for example, regulation, norms), social practices and actor constellations (such as user-producer relations and interactions, intermediary organizations, public authorities etc.) mutually depend on and co-evolve with each other."

Decentralization of the grid entails the regionalization of entire energy supply chains and, prospectively, an interconnection between self-sufficient regions that can balance each other's capacities¹⁴⁰ (Bauknecht, Vogel, and Funcke 2015; Ohlhorst, Tews, and Schreurs 2014). This requires the creation of new regional institutions and materialities in links along the entire supply chain (Creamer et al. 2018; Rohracher and Spath 2014), including generation, storage and transmission, consumption, as well as the management and orchestration of these links in their systemic interplay in local energy economies (Bridge et al. 2013).

The case studies reviewed for this analysis focus predominantly on singular links of the supply chain. A variety of new socio-technical arrangements in the fields of production (supply), and consumption (demand) are addressed in individual research projects, as each itself are performed in a variety of different material and institutional set-ups (Bridge et al. 2013; Creamer et al. 2018; Rae and Bradley 2012).

Research on the supply side looks at cases such as biogas (Faller 2015a, b; Rogers et al. 2012; Schaper et al. 2008), wind-parks (Chezel and Nadaï 2018 ; Devine-Wright 2005; Wüstenhagen,

¹⁴⁰ These works review recent re-developments in Germany, extrapolate future developments. They suggest governance strategies within these development trajectories to achieve the goal of 100% re-systems. All of these strategies include a variety of scales and transition logics. This pragmatic approach seems diametrically opposed to others proposing technocratic conceptualizations, such as the works of Foxon (2011) and (Foxon et al. 2013).

Wolsink, and Bürer 2007), or PV installations on public facilities (del Río and Burgillo 2009). Research on the demand side, on other hand tends to take a more sociological approach examining domestic energy practices (Naus et al. 2014; Guy and Shove 2000; Shove and Walker 2014).

From a socio-technical view, intermediate links of the supply chain mainly comprise of transmission and storage. Studies examine projects of (re-) appropriation of grid utilities from private enterprises and investors by more democratic consortia of citizens, state and the private sector, as Becker and Naumann (2017) show at the example of a failed attempt in Berlin, and Rohracher and Spath (2014) at the example of a successful scheme in Freiburg. A common case here are district heating grids, which enable harnessing unutilized heat, for example from landfills and industrial production facilities, or guarantee the profitability of other RE-production sites, like gasification plants. The re-communalization of the electricity grid is often linked to matters of energy justice, as citizens aim at establishing and securing fair prices and energy sources.

Recently, these intermediary links experience a reconfiguration by new technologies that enable a more efficient management of the decentralized RE-systems. Consequently, intermediary elements and "smart" arrangements regarding energy storage and transmission, grid-ownership and management have become subject to research (Mendes, Ioakimidis, and Ferrão 2011; Kunze and Becker 2014). The emerging socio-technical approach *Integrated Community Energy Systems* (ICES) integrates technical novelties along the entire supply chains, as well as connections to neighbouring systems (Koirala et al. 2016; Mendes, Ioakimidis, and Ferrão 2011). By making an inventory of available and emerging technologies, this concept helps to evaluate the technical comprehensiveness of a RE system on the commune and neighbourhood level, whereas social aspects are widely neglected. The case at hand, however, requires going beyond these mere technical appraisals, and requires attending to the institutional aspects and social practices of the transition. A commonality of the case studies introduced above is that they discuss the relation of an initiative with an incumbent regime (of production, transmission, consumption). This view will be neglected for three reasons: First, Faller (2015a, b) has contributed a comprehensive study of energetic regionalisation in the Greater Region drawing on such concepts. Second, the research interest of this thesis lies in the effect of an initiative on the capability of bringing forth more initiatives, and not in the effect of an initiative on a given regime. Third, as there are no large energy producers in Luxembourg, and energy is mostly imported, the interplay with a regime may be less relevant for local initiatives here in general.

To conclude, a supply chain view is necessary for appreciating the technical comprehensiveness of a decentralized RE-system, and thus the socio-economic resilience of the system. Initiatives addressing singular links of the supply chains may satisfy respective actor's needs and motivations (making/ saving money). To achieve a local system's shift that internalizes positive and negative externalities of an energy system in the community, these efforts require strategic orchestration.

Cooperative projects such as collective windfarms and grid utilities require democratic governance of diverse stakeholders, as the case of Beckerich will show. The decentralization of entire socio-technical RE-systems can only be achieved in associative democratic arrangements that harmonize individual low-carbon goals in an overarching energy strategy. Discourses on *energy democracy* and *energy justice* (Angel 2017; Becker and Naumann 2017; Kunze and Becker 2014), as well as *procedural fairness* amongst participants (Chezel and Nadaï 2018) are helpful to explore these social aspects.

Discursive strategies and practices of energy justice and fairness

This section discusses concepts that examine governing process within and among low-carbon initiatives. These concepts are especially informative for the Leitbild-categories, and the analysis of the community capabilities. Two works are deemed particularly informative in this regard: Späth and Rohracher (2010) look at an entire regional process that is similar to the development in the canton, and Chezel and Nadaï (2018) examine governing processes within a wind-farm cooperative in Northern Frisia. These works are complementary in the sense that the former lends understanding for transitions on the supply-chain, or canton level, whereas the latter concentrates on the dynamics within individual initiatives.

Späth and Rohracher's (2010) case study on the Austrian region Murau, where the low-carbon transition is an instrument for endogenous rural development. Similar to Beckerich the strategy in Murau targets becoming net-autonomous, stimulating private sector activities, and marketing the policy development with energy-policy tourism. The authors argue that this is achieved by orienting the regional discourse along three strategies, which correspond to the four community capability dimensions. The first strategy is *playing "in -between" arenas for creating consensus*. As energy transitions are often a new policy field for the regional level, incumbent institutions may not have clear responsibilities and agendas to act on. This would leave *institutional voids* in which new arrangement was made and consensus created amongst institutions that would usually not cooperate. This was a re-occurring theme in chapter 3 and 4, and it is further discussed under organizational capabilities. The second strategy is *building moral authority for the vision*. As discussed extensively in the previous chapters, guiding visions are necessary to assemble diverse stakeholder constellations behind a strategy. Späth and Rohracher (2010) argue that these would often occur in informal ways, and requires trust in key stakeholders, as well as the commitment to authority. The aspect of vision creation and alignment is a central theme in the analysis of cultural and personal capabilities. The third strategy is *reinforcing outcomes*. Material commitments of private, government, and civil society stakeholders realize the visions. These offer opportunities to link stakeholders in practice, make shared experiences, create revenue in cooperation, and forge institutional links, for example to systemic instruments. This strategy links infrastructural capabilities to the other three capability-dimensions.

The study of Späth and Rohracher (2010) concentrates on the discursive character low-carbon transitions and highlights the importance of associative democratic multi-stakeholder deliberation, and vision creation. As will be shown in the following section, their case is shows strong resemblance to the low-carbon transition at hand. The three discursive strategies are often concerned with arguments drawing discourses of *energy justice* and *procedural fairness* (Angel 2017; Becker and Naumann 2017; Chezel and Nadaï 2018; Kunze and Becker 2014).

The deliberative practice of *energy democracy* describes communities' struggle to emancipate from unsustainable and unjust inter-and intergenerational relations in the energy domain (Becker and Naumann 2017; Bickerstaff, Walker, and Bulkeley 2013; Park 2012), as well as within initiatives themselves (Chezel and Nadaï 2018). Literature argues that capacities for energy democracy are learned in practice and thus require time to develop (Bickerstaff, Walker, and Bulkeley 2013). Pre-conditions for these learning processes are unevenly distributed among places, and disparities may even be fostered by government measures supporting cases deemed to be the most successful (Park 2012). This emphasis on geographic contingency and long-term social learning is reflected in the low carbon transition in the canton.

Chezel and Nadaï (2018) examine direct democracy practices inside a citizen-owned windfarm in North Frisia that is undergoing a dynamic growth process. The authors conceptualize of the development as a justice-triangle of distribution, procedure and recognition. *Distribution justice* captures the uneven effects of energy system's decentralization, as different communities and individuals reap benefits, or suffer from consequences. *Procedural justice* refers to the inclusivity of groups, the equality in participation and distribution, as well as the information of participants. *Recognition* refers to an understanding, or consciousness of participants regarding the social structures producing (in-) justices, thus empowering them to participate and mutually respect each other, and other actors. Operationalizing matters of distribution and procedural justice for research requires a detailed account of practices within initiatives, and a fine analytic resolution that this study cannot provide. However, these matters are very instructive for examining the organisational and cultural capabilities of the low-carbon transition in the canton.

Finally, the term *energy citizenship* captures the inclusion and active involvement of citizens in the energy transition (Devine-Wright 2012; 2014; Ryghaug, Skjølvold, and Heidenreich 2018). It emphasizes that citizens are not mere users of RE-technologies, or stakeholders of new socio-technical arrangements, but a political force behind the transition. The following section will show how in the transition in the canton began with awareness-raising and committing people to the idea of a low-carbon transition. This engagement, informed by environmental awareness, but also driven by economic self-interest often triggers learning process of different orders, and can thus create more energy citizens which increase the political dynamics of low-carbon transitions.

Energy citizenship further suggests a redefinition of stakeholder categories of the energy system. In decentralized systems where aspects of production, transmission, and consumption become re-communalized, traditional stakeholder distinctions between supply/ producers and demand/ consumers oversimplify the diversity in participants' motivations, practices, and commitments (Devine-Wright 2012; Guy and Shove 2000; Ryghaug, Skjølvold, and Heidenreich 2018; Walker and Cass 2007). The concept energy citizenship thus informs Leitbildanalysis, and the personal community capability dimension.

To conclude, the strategies proposed by Späth and Rohracher (2010) are very informative to describe the discursive process of the energy transition in its historic development and render informative insights for the discussions of the four community capability dimensions. The aspects of fairness-perceptions and fairness-enforcing strategies proposed by Chezel and Nadaï (2018) help to better understand how stakeholders get behind and stay behind common visions within individual initiatives, such as biogas-coops. Finally, in order to allow for a coherent analysis of such in Réiden, the following section will briefly discuss a categorization framework to be applied in the sites-synthesis section.

Empirical studies on local energy democracy

Energy democracy, or citizen energy refers to community practices that aim at gaining sovereignty and to internalize positive and negative externalities of an energy system (Becker and Naumann 2017). Such initiatives are often related to issues of energy justice, as negative effects of CO₂ emissions on distant others and future generations can be made subject to democratic deliberation, and affordable energy prices secured long-term.

Case studies highlight the positive effects of citizens' participation and stakeholder-ship in local RE-projects. Whereas for example wind-turbines would often trigger NIMBY -related opposition, participation of the affected people generally increases acceptance, especially if the community and individual citizens have economic benefits from participation (Chezel and Nadaï 2018; Creamer et al. 2018; Devine-Wright 2012; Walker et al. 2010). Therefore, the acceptance of projects is closely linked to the effectiveness of projects in stimulating the local and regional economy (Rogers et al. 2012; Walker et al. 2007).

Vice versa, Wüstenhagen, Wolsink, and Bürer (2007) suggest that planners from outside a region would often struggle with NIMBY issues, while Sauter and Watson (2007) find that citizens would trust information gained on energy project from locals more than information about projects given from stakeholders outside of the commune. This is particularly relevant regarding the work of the Energieatelier, which is deeply rooted in the canton, as "micro-generation requires households' acceptance in terms both positive public and private attitudes to achieve market up-take of these technologies" (Sauter and Watson 2007, p. 2772). These studies suggest rather pragmatic

Leitbilder in and for citizen participation, and none indicates that engagement in community energy would cause change towards more environmentally benign domestic practices. Rather, effective measures require community effort, and the inclusion of a diverse self-referential motifs. Del Río and Burguillo's (2009) case study on community energy in three Spanish communities, each focusing on different renewable sources, is particularly interesting in this regard. The author's find that projects that create local jobs, such as biogas plants, would increase the self-efficacy of communities, and learning processes in the pursuit the energy transition, as effects would be felt directly in the community. Wind and solar production, requiring little maintenance work, however, had little to no effects in the community. Further, cases that merely focus on the production side, and do not require community effort to democratize entire grids, did not show any effects on local energy prices, suggesting that the economic motifs were rather self-centred, and not based on solidarity and energy justice.

Categorizing diverse initiatives

The case Réiden has brought forward a variety of initiatives and different forms of social organizations and practices over the past decades. However, there are no cases of buying back utilities from private investors, as in several energy-democracy oriented case studies (Angel 2017). Rather, as will be shown in the following section, the strategy in the canton seems to resemble what Späth and Rohracher (2010) refer to as playing in-between existing institutions in an emerging policy arena where institutional responsibilities and realms of jurisdiction are not yet clearly defined.

Becker and Naumann's (2017) conceptualization of four dimensions of energy democracy seem constructive for categorizing the various low-carbon organisations in Réiden. The authors distinguish between political objectives, mode of organisation, the kind of technologies of initiatives, and their spatial dimension. These simple, self-explaining categories will be used in the following to structure the introduction of the low-carbon transition in Réiden.

7.3.1.2 In-sites of the low-carbon transition in Réiden

This section introduces the historic development of the low-carbon transition in Réiden; a process that has over the past 30 years spread from Beckerich throughout the canton. To facilitate the introduction of this process, I will first portray the grassroots developments in Beckerich, to then discuss more regional phenomena. This distinction may seem rather arbitrary, considering that several initiatives with regional influence are situated in Beckerich and supported by the commune. However, it suffices for a preliminary introduction into the site. Complementarily, this section will provide an overview of the diverse initiatives in Beckerich and the canton in the categories suggested by Becker and Naumann's (2017).

Beckerich can be regarded as a nucleus of the energy transition from where low-carbon practices spread to other communes in the canton and throughout Luxembourg. In the past 30 years, a close network of administration, private companies, and citizens created a low-carbon-arena, or niche, which has nurtured several experiments that have been adopted throughout the canton, and influenced national RE policies (see Faller 2015a, b). For these efforts, Beckerich has been awarded the European Village renewal prize in 1997, and the EuroSolar Prize in 2008. In 2008, *Le Monde* published an article praising Beckerich's efforts as a great example of rural development by means of low carbon transition¹⁴¹.

Having exceeded the goals set in the first low-carbon transition strategies in the 1990's, the commune has recently adjusted its energy ambitions to become a "positive energy" commune by 2025 (Energiepark Réiden s.a. 2012). Regarding electricity, this goal is almost achieved, as in 2016 the electricity production in the commune covered 107% of its overall low-energy consumption (Klimapakt 2017). Further, 88% of heat consumed in by public buildings is provided by the district-heating grid, to which 200 households are connected (ibid.). The drinking water consumption of the commune is 20% below national average with is 36m³/ pp/ pa. (ibid.).

Beckerich as the nucleus of the regional energy transition

The roots of the energy transition in Beckerich and the canton lie in the early 1990's. Upon his election as mayor in 1990, Camille Gira proposed a *Green New Deal* for Beckerich that contained basic strategies and visions for the future development. However, several interviewees suggested a policy of the national government to have triggered local initiatives: In the mid-90's, the national energy provider and network operator planned a high-voltage grid in the canton, in order to ensure the provision of expected increased energy demands in the future. Citizens' groups formed in a consulting commission in Beckerich, as well as regionally, and decided to engage constructively with the project: Since the government agencies argued that increased electricity needs in the future would make the grid necessary, the group developed the idea to develop a strategy that would decrease energy consumption to an extend that would render the grid expansion superfluous. Part of this strategy was a regional awareness-raising campaign (*Komm Spuer Mat!*) was aimed at changing domestic energy practices. Further, communes developed strategies to become more self-sustaining regarding energy.

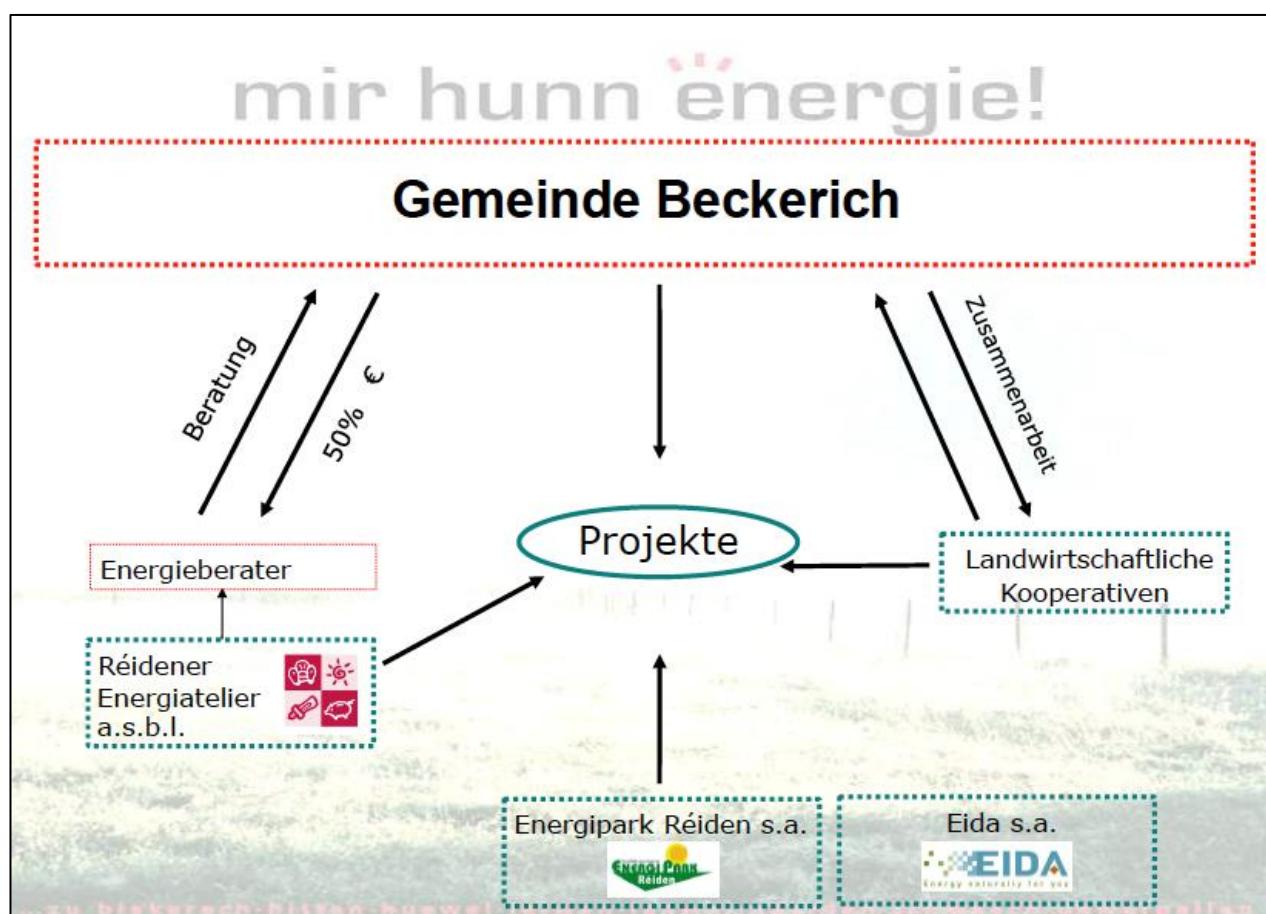
In 1995, Beckerich co-founded *Klimapakt*, in which five other communes recognized their responsibilities towards distant others affected by climate change and committed to half CO₂ emissions by 2010. To achieve these ambitions, the commune commissioned a study on citizens' consumption patterns, as well as a feasibility study for the RE-production potentials of the area by the local

¹⁴¹ Online article (last accessed October 2018):

https://www.lemonde.fr/planete/article/2008/06/23/beckerich-le-village-qui-vise-l-autarcie-energetique_1061691_3244.html

energy-enterprise *Energiepark Réiden s.a.* This *Energiekonzept*, published in 1997, provided central aspects of the energy strategy to be pursued in the following years. The study showed that domestic energy consumption was significantly higher than the Luxembourgish average, and highlighted the need for improving insulation, and changing domestic practices. The study further suggested harnessing RE-production potentials through PV and Biogas. It proposed profitable economic models within which these potentials could be realized. This strategy included private households, the commune, and enterprises- particularly farms. Today, the Klimapakt is a commonplace institution in Luxembourg, and most municipalities are members, with varying climate commitments and projects.

In order to learn about technologies and social arrangements of local low-'carbon transitions, citizens of the commune visited initiatives in neighbouring countries and invited activists to come to Beckerich and share their experiences. These knowledge exchanges became common practice in the development of other initiatives in the canton, and Beckerich today offers around 100 energy tours per year to showcase the commune's own achievements to policy tourists.



Picture 21: Display of the low-carbon transition strategy in Beckerich. (Source: Gira 2009)

Inspired by the excursions to other countries, Beckerich became site of the first private biogas plant in Luxembourg, established by a local farmer to satisfy his own demand in 1999 (the same farmer who co-founded the alternative food network SoLaWa, see section 7.5). He actively promoted the new technology to other farmers and subsequently *Biogas Biekerich*, a cooperative of 19 farmers was established in 2002.

The project's profitability was ensured by a long-term contract with the commune that guaranteed the uptake of excessive heat. The commune had meanwhile decided to establish a district-heating grid that was established in the early 2000's. This model of the commune being customer to a local biogas-coop is used in other places in the canton, as will be shown below. As heat demand in Beckerich exceeded capacities with the increasing expansion of the district-heating grid, a second gasification plant run on woodchips was established in 2006. For this, cooperation with a local forester was established.

In a presentation in 2009, titled *Mir hunn Energie!*¹⁴² Camille Gira (2009) summarized eight factors for the local low-carbon transition:

- a clear political commitment, supported by concrete political goals
- a coherent strategy based on clear facts and reliable numbers
- a creative and thought-through communication concept
- regular evaluation of the development
- an active inclusion of all affected stakeholders
- development of necessary infrastructure, and social organization ("Strukturen")
- a continuous exchange of experiences and best-practices
- identification with the common vision

Picture 20 is a display of the structural set-up of the energy strategy in Beckerich, taken from the presentation *Mir hunn Energie!* It shows an interstitial and associative democratic strategy encompassing a government body (the commune), private actors (Energiepark), citizens, and public initiatives (agricultural cooperatives, Energieatelier) in bringing forward projects. It further shows that the commune commissions consulting services regarding energy strategies, and the development of feasibility studies. These are then proposed to potential private stakeholders, and a project is realized, usually in the form of a cooperative. The commune Beckerich is the initiator these projects, in the sense that it commissions the developments of profitable concepts to be put in practice by other stakeholders.

¹⁴² engl „We are energetic!“

Developments across the canton

In the mid 1990's the regional awareness raising campaign on domestic energy and water consumption practices Kom Spuer Mat!¹⁴³ offered workshops and publications for citizens. A group of around 20 volunteering energy consultants visited households, and developed energy saving strategies based on people's needs and habits. A few households were chosen to experiment with pilot strategies and a prize for the highest energy consumption reduction was given. Several interviewees stated that the campaign was regarded a success in the region.

In 1998 the inter-communal syndicate decided to professionalize the energy consultancy, and the Energieatelier NPO was established in 2000. The project was co-funded by the Ministry of Environment as a pilot project that would later influence the creation of the national energy consultancy MyEnergy. Its services shifted from awareness-raising to consulting on energy consumption patterns, energy-efficient construction, domestic production systems, and advising for funding opportunities and subsidies. Today, it is partly funded by the inter-communal syndicate and the national MyEnergy association, as it serves as their regional contact point¹⁴⁴. In 20 years, Energieatelier facilitated around 6.000 successful subsidy applications in the domain of sustainable construction—the canton counts about 7.000 households. The consultants of the Energieatelier are rooted in the canton and have close relations with residents, as well as companies.

Several protagonists of the rural development had been engaged in the Energieatelier. Camille Gira, Paul Kauten, and Gerard Anzia were presidents of the NPO, and Marc Neu, president of de Kär NPO managing Beki, and founding member of vun der Atert, is one of the two employees today. Recently, the Energieatelier moved into the Infostuff in the main street of the town Redingen.

The emergence of re-cooperatives

As described in the introduction, the commune Beckerich was site of the country's first biogas-plant. Soon after, 19 farmers established another biogas-plant in Beckerich with the support of the commune, which guaranteed the uptake of excess heat, thus enabling a profitable business model. Today, there are biogas-plants in Beckerich, Réiden, Schweich, Colpach and Rambrouch. Through these measures, farmers and foresters have accessed new and alternative streams of income.

The installation of cooperatively owned PV plants is common practice in the region¹⁴⁵. Two wind turbines managed by Energiepark Réiden s.a. are located in the commune Préizerdaul. One interviewee stated that opposition against wind-power would be rising in Préizerdaul and elsewhere in the canton, because the wind turbines were malfunctioning. The development of a wind-parks had

¹⁴³ engl. „Come save with us!“

¹⁴⁴ Interviewees suggested, that representatives of the national MyEnergy office had attempted to submerge the Energieatelier in their institution, arguing that there would be no need for this decentralized office. After heated arguments, MyEnergy representatives refrained from this approach, and acknowledged the benefits of local embeddedness of the Energieatelier.

¹⁴⁵ Beckerich won the EuroSolar Price in 2008

been subject to NIMBY issues in the canton, with one project failing due to public opposition¹⁴⁶. However, interviewees indicated that another wind-park of six additional turbines is currently planned in close cooperation with municipalities and citizens. Each turbine will have 3MW, which would push the coverage of local electricity production in the canton to 80% of its annual average demand.

Re-communalisation of utilities

The business models of the mostly cooperatively run biogas-plants in the canton are profitable, because they can feed in generated electricity into the national grid, and generated heat into local district heating grids. For the latter to be possible, several municipalities committed to construct and continuously expand their own heating grids, moving away from the domestic oil consumption-based model. Interviewees highlighted that this has been a political challenge, as prizes for fossil energy carriers are very low in Luxembourg and return on investment was about 20-years. Today, Beckerich, the village Réiden, and Préizerdaul have district heating grids that are continuously expanded. It was reported that the municipality of Beckerich also attempted to buy the local electricity grid, but this was denied by national government.

¹⁴⁶ see gegenwind.lu

Table 9: Overview on selected low-carbon initiatives in the canton.

Private sector developments

Energiepark Réiden is a joint stock company located in Beckerich that plays a central role in the canton's energy transition. It was established to finance and run the two wind-turbines in Pré-izerdaul, at a time when the Luxembourgish government had just begun supporting wind-energy. At a time when feed-in tariffs were not yet in place, a large part of the dividends of the wind-park were used to finance PV-projects in the region, thus promoting the low-carbon transition with locally generated funds. Today, Energiepark manages a range of cooperatively financed PV projects in the canton and offers consultancy for low-carbon transition to communes. Energieatelier offers to pay the annual revenue of the PV parks in Beki.

The low-carbon transition sparked private sector developments. A small RE-cluster has formed in Beckerich around Energiepark Réiden. Eida Green is a nation-wide provider of green energy and natural gas, EcoDaul NPO is a co-working space for start-ups, and ClimECC is a cooperative of regional construction companies to market ecological products and services. Paul Kauten, a local entrepreneur who participated in energy initiatives in the 1990's, has co-created most of these projects. These initiatives are located in a building in Beckerich that has at the time of construction been the most energy-efficient office building in the country, according to the architect.

ClimECC is a cluster of companies that provide sustainable products and services. It offers products and services ranging from ecological construction materials, energy efficiency, water systems, and energy production. It was initiated with LEADER funds and has subsequently been transferred into a cooperative run by the participating companies. ClimECC further serves to develop and market innovation in the canton. A recent example if the development of domestic batteries for storage energy generated from privately-run PV-panels. This is expected to become a business case, as the first generation of PV is about to leave the governmental feed-in tariff scheme, while many panels are still functioning. National legislation is not yet prepared for this product, and it can be regarded as an example of playing in institutional voids. Another such example is the recent initiative HausCare that facilitates subsidisation opportunities for house-owners under the condition that they offer surplus living space for social housing.

7.3.1.3 Sites synthesis

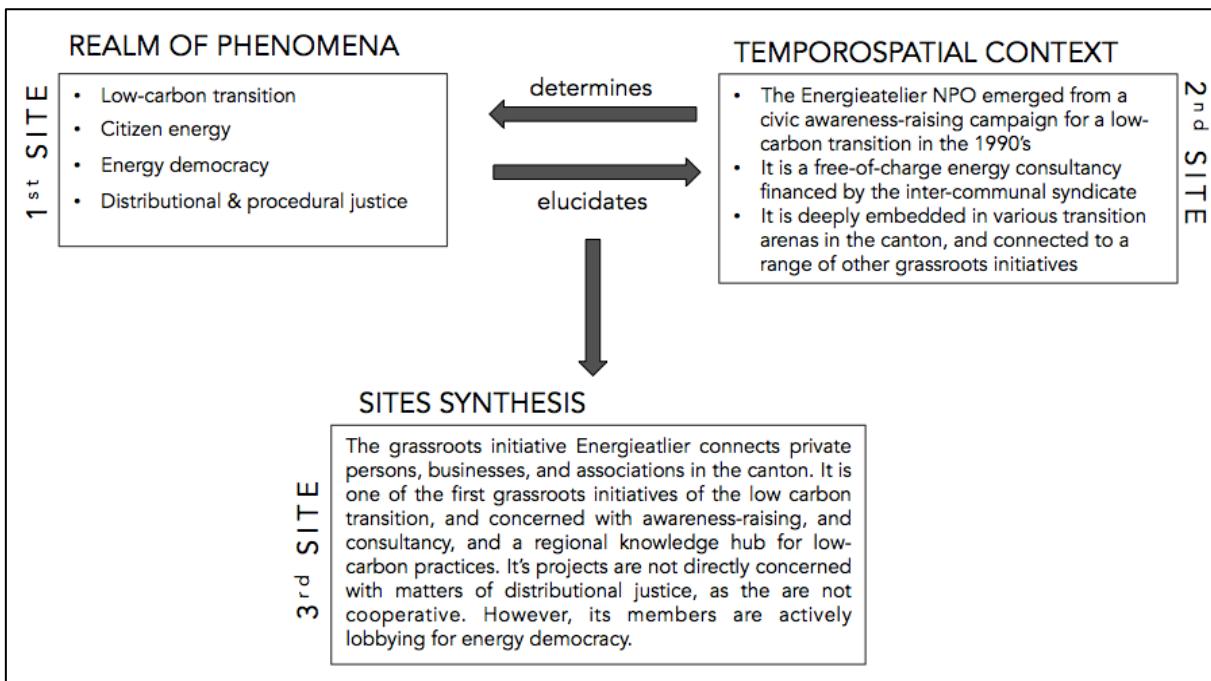
The transition towards RE-energy systems and a low-carbon economy currently manifests as a shift of the energy network towards a more regional, decentralized set-up. Modes of production, transmission, storage, management, and demand occur in more diversified socio-technical arrangements. Réiden, and particularly Beckerich shows such interventions along the entire energy supply chain. As a consequence, CO₂ emissions have reduced drastically, and a new

vibrant economic sector emerges in the canton. The low-carbon transition is at the heart of the rural development, as lessons learned here, such as legal sets ups associative democratic organizations, and development of development that orchestrate entire local supply chains are transferred to other policy domains, such as agriculture. Whereas in the early phases of the development the low-carbon transition had been pursued against government coercion, protagonists from the canton today actively influence national policy making in the energy domain. The low-carbon transition rendered self-efficacy and trust to local protagonists and communities to pursue alternative strategies of rural development.

The grassroots initiative Energieatelier is a central institution of the low-carbon transition. It is a public free-of-charge consultancy for citizens and business that advises for energy-efficient and ecological construction and lobbies for more energy-efficient practices. Further, it supports clients with subsidy application. The Energieatelier is therefore at the heart of the low-carbon transition landscape, as it links citizens, companies, local and higher order administration. The NPO has emerged from the first energy campaigns in the 1990's and several protagonists of the low-carbon transition have either been employees of the initiative, of members of the governing board. Energieatelier served as a role-model for the national MyEnergy-program.

The development can be regarded as a paradigmatic case of energy democracy. It aims to gain sovereignty and locally internalize positive (revenue) and negative (emissions) externalities of the energy system. It further pursues energy justice, as initiatives for example enable all citizens to have access to renewable energy and energy-saving opportunities. The low-carbon transition is to a large extend driven by collective PV, biogas, and wind-energy facilities. These often have the legal form of a cooperative of local stakeholders, thus guaranteeing an equal and fair share of revenues. This procedural fairness further increases acceptance among the citizenry and allows revenues of the facilities to be re-invested in other projects. The role of communes is crucial in this regard, as they invest in infrastructure, such as district heating grids, that guarantees profitability long-term.

The low-carbon transition relies on several energy citizens, who develop local solutions with their complementary capacities and influence national policymaking. Particularly in the early phases of the development, the active cooperation between individual engineers, architects, farmers, local politicians and network agents allowed bringing forth projects that were often the first of their kind in Luxembourg. This engagement was to an extend stimulated by the government's plan to build a high-voltage grid in the canton. It raised public interest for energy transition and allowed assembling diverse needs around a common low-carbon strategy. The following chapter introduces Leitbilder of participation in the low-carbon transition, with a focus on the network of the grassroots initiative Energieatelier.



Text Box 9: Sites-synthesis of Energieatelier.

7.3.2 Leitbilder of low carbon transition practices in the canton

Leitbildanalysis is based on qualitative data that refers to the low-carbon transition as a whole, and not singular initiatives. It generates the concourse of 48 statements that are sorted by participants of the Q study (see the following section), by applying the categories of the Leitbild-framework as codes to transcribed exploratory interviews with two employees of the Energieatelier, an entrepreneur, a technician of a biogas-plant, and the guide of the energy-tours in Beckerich. The statements of the concourse are therefore mostly natural.

The analysis of the qualitative data on the energy transition in the canton created a very broad set of statements. The four *future projections* categories combine themes of intra-and intergenerational justice and energy democracy, local actions against global dependencies, as well as concrete desired regional futures in several economic sectors, like different forms energy production and ecological construction.

Economic future projections comprise of criticisms on a globalized and opaque energy system, and diffuse inter-dependencies, and desired states of a regionalised energy system. Examples of the former are "It is important to bring forward local initiatives against the global energy market"¹⁴⁷, and "Regional energy autonomy is a life vessel in case of global energy crisis"¹⁴⁸.

¹⁴⁷ „Es ist wichtig dem globalen Energiemarkt lokale Initiativen entgegen zu setzen.“

¹⁴⁸ „Regionale Energieautonomie ist auch ein Rettungsboot für den Fall einer globalen Krise.“

Regionalisation is captured by statements "An innovation energy- and construction sector are an important economic factor in our region"¹⁴⁹ and "It is important to inform people about promotion schemes in the construction and energy sector to bring subsidies to our region"¹⁵⁰.

Ecological future projections address the construction industry, as well as energy production and domestic consumption. An example for the former is "We have built more energy-efficiently to save CO₂ emissions"¹⁵¹ and "The construction materials should have as short transportation ways as possible"¹⁵². "We to create as much energy as possible from renewable energies"¹⁵³ is an example for energy-related ecological future projections.

Cultural future projections refer to the wider political culture in the canton and include the impact of low-carbon initiatives on landscape aesthetics. "It is important to use regional construction materials to maintain the regional aspect of our architecture"¹⁵⁴ and "The goal of becoming energy autonomous us typical for Réiden"¹⁵⁵ are examples of this.

Social future projections relate the low-carbon transition to issues of solidarity, as well as energy democracy and justice. Examples are "To support our craftsmen, we should try to restore and construct our buildings with regional business"¹⁵⁶, and "The service of the Energieatelier creates jobs in our region"¹⁵⁷.

Group (de-) synchronization aspects are rather vague, because the sorts were not performed by practitioners of a single grassroots initiatives, but by members of a diverse network. In this sense they do not include references to procedural fairness. "I trust the recommendations of the Energieatelier"¹⁵⁸ (same for the ClimECC), "I think people have heard enough of energy saving by now"¹⁵⁹, and "The personal contact to local experts is a great advantage on the journey towards energy autonomy"¹⁶⁰ are examples of these twelve statements.

Self-referential motifs encompassed subjects such as financial benefits, health, and prestige. Examples are "Health is the main reason for renovation"¹⁶¹ and "The main reason why I save energy is to save money"¹⁶².

¹⁴⁹ „Innovationen im Bausektor und Energiebereich sind ein wichtiger Wirtschaftsfaktor für unsere Region.“

¹⁵⁰ „Es ist wichtig über Förderprogramme im Bau- und Energiebereich zu informieren, um Subventionen in die Region zu holen.“

¹⁵¹ „Wir müssen energieeffizienter bauen um CO₂ zu sparen.“

¹⁵² „Die Baumaterialien für unserer Häuser sollten möglichst kurze Transportwege haben.“

¹⁵³ „Um die Umwelt zu schonen müssen wir so viel Energie wie möglich aus regenerativen Quellen gewinnen.“

¹⁵⁴ „Es ist wichtig regionale Baustoffe zu verwenden, um das regionale Gesicht in der Architektur zu fördern.“

¹⁵⁵ „Das Bestreben energieautark zu werden ist typisch für Redingen.“

¹⁵⁶ „Aus Solidarität sollten unsere Häuser möglichst von Betrieben aus der Region gebaut oder saniert werden.“

¹⁵⁷ „Die Arbeit des Energieatelier schafft Arbeitsplätze in unserer Region.“

¹⁵⁸ „Ich vertraue Empfehlungen der MitarbeiterInnen des Energieatelier.“

¹⁵⁹ „Ich denke, die Leute haben langsam genug gehört vom Energiesparen.“

¹⁶⁰ „Der persönliche Kontakt mit lokalen Experten ist ein großer Vorteil auf dem Weg zur Energieautonomie.“

¹⁶¹ „Der Hauptgrund für eine Haussanierung ist die Gesundheit.“

¹⁶² „Ich spare Energie vor allem um Geld zu sparen.“

Coding for the *knowledge* category rendered the least statements to choose for the concourse. Examples are "Concerning environmental protection, why are dependent on knowledge and methods from the outside of the canton"¹⁶³, "It is important that we continuously develop new ideas and methods for environmental protection"¹⁶⁴, and "We are particularly innovative in the canton, because people have learned to work together and learn from one another"¹⁶⁵. The full list of 48 statements is displayed on the next page. They represent the concourse for the Q study that is presented in the following section.

¹⁶³ „Im Bereich des Umweltschutzes und Energiesparens sind wir auf Wissen und Methoden von außerhalb angewiesen.“

¹⁶⁴ „Es ist wichtig, dass wir beständig neue Ideen und Methoden zum Umweltschutz entwickeln.“

¹⁶⁵ „In Redingen sind wir innovativ, weil die Menschen gelernt haben zusammen zu arbeiten und gemeinsam voneinander zu lernen.“

Table 10: The concourse of Leitbilder on Beki.

FUTURE PROJECTIONS				GROUP SYNCHRONIZATION				SELF-REFERENTIAL MOTIFS	KNOWLEDGE
ECONOMIC	ECOLOGICAL	SOCIAL	CULTURE	INTERNAL	INTERNAL DE-	EXTERNAL	EXTERNAL DE-		
Regionale Energieversorgung ist ein Beitrag zu einem gerechteren Wirtschaftssystem.	Es ist mir wichtig möglichst umweltschonend zu bauen.	Die Arbeit des Energieatelier schafft Arbeitsplätze in unserer Region.	Es ist wichtig regionale Baustoffe zu verwenden, um das regionale Gesicht in der Architektur zu fördern.	Ich vertraue Empfehlungen der MitarbeiterInnen des Energieatelier.	Die Beratung des Energieatelier sind zu einseitig.	Es ist sehr wichtig, dass die Gemeinden Initiativen wie das Energieatelier unterstützen.	Lokale Eitelkeiten sind ein Problem in Redingen.	Der Hauptgrund für eine Haussanierung ist die Gesundheit.	In Redingen sind die Unternehmen innovativ, weil sie eng miteinander zusammen arbeiten.
Innovationen im Bausektor und Energiebereich sind ein wichtiger Wirtschaftsfaktor in unserer Region.	Die Baumaterialien für unsere Häuser sollten möglichst von Betrieben aus der Region gebaut oder saniert werden.	Aus Solidarität sollten unsere Häuser möglichst kurze Transportwege haben.	Der Kontakt mit lokalen Experten ist ein großer Vorteil auf dem Weg zur Energieautonomie.	Ich vertraue den Unternehmen des CliMECC.	Ich habe vor allem schlechte Erfahrungen mit Betrieben aus der Region gemacht.	Ich denke, dass Interessensunterschiede und Meinungsverschiedenheiten in Redingen konstruktiv gelöst werden.	Ich denke die Leute haben langsam genug gehört vom Energiesparen.	Eine haussanierung mit umweltfreundlichen materialien erhöht die Lebensqualität.	Ich möchte mehr über umweltschonendes Bauen lernen.
Ich gebe gerne ein wenig mehr Geld aus, wenn es in der Region bleibt.	Um die Umwelt zu schonen müssen wir so viel Energie wie möglich aus regenerativen Quellen gewinnen.	Wir müssen dringend den sozialen Zusammenhalt in der Region stärken.	Das Bestreben energieautark zu werden ist typisch für Redingen.	Allgemein werden in Redingen unterschiedliche Meinungen offen diskutiert und respektiert.	Ich vertraue staatlichen Stellen wie MyEnergy mehr als der regionalen Beratung.	Die Leute entscheiden sich vor allem aufgrund staatlicher Subventionen für energiesparendes Bauen.	Das Geld, dass die Gemeinden in Infoveranstaltungen und Services wie das Energieatelier steckt, könnten besser verwendet werden.	Ich spare Energie vor allem um Geld zu sparen.	Im Bereich des Umweltschutzes und Energiesprens sind wir auf Wissen und Methoden von außerhalb angewiesen.
Es ist wichtig über Förderprogramme im Bau- und Energiebereich zu informieren, um Subventionen in die Region zu holen.	Wir müssen energieeffizienter bauen um CO2 zu sparen.	Aus Solidarität mit der Generation unserer Kinder sollten wir nachhaltig Bauen.	In Redingen herrscht eine besondere Kultur der Nachhaltigkeit.					Ein umweltschonend gebautes oder saniertes Haus macht etwas her!	Es herrscht ein sehr kooperativer Geist in Redingen.
Das Energieatelier soll die regionale Wirtschaft fördern.	Der Klimawandel ist die größte Gefahr für die Zukunft unserer Kinder.	Nachhaltigkeit muss auch sozial gedacht werden.	Redingen soll autonomer werden.					Ich möchte mehr über Möglichkeiten zum Energiesparen um umweltschonenden Bauen lernen.	Ich denke, dass Meinungsverschiedenheiten und Interessenskonflikte in Redingen allgemein konstruktiv gelöst werden.
Regionale Energieautonomie ist auch ein Rettungsboot für den Fall einer globalen Krise.								Die Aktivitäten des Energieatelier machen Spaß!	Jede/r ist Experte für irgendetwas- wenn wir Zusammenarbeiten finden wir auch Lösungen für die Herausforderungen der Zukunft.
Durch die Arbeit des Energieateliers erhalten regionale Unternehmen in Redingen Marktvoorteile.									
Durch den Zusammenschluss im CLIMECC wird das regionale Handwerk gestärkt.									
Es ist wichtig dem globalen Energiemarkt lokale Initiativen entgegen zu setzen.									

The table shows the original statements of the Q sorts. Since these are part of the data presentation, they are not translated into English.

7.3.3 Social perspectives on the Energieatelier

Participants of the Q study were contacted with the kind support of the Energieatelier-team, who forwarded the request for participation through their network. Therefore, the data presented in this section, as well as the analysis of community capabilities in the following, builds on this network. Participants comprise of private citizens, construction companies, entrepreneurs, a farmer, and local government representatives. Two Q-sorts were invalid: One because the participant turned out to be a protagonist of the rural development that the author had not been aware of before and spontaneously used the situation for an exploratory interview, and the other because the participant was mistaken for a member of another initiative.

Factor analysis resulted in three factors, or social perspectives. Factor loadings of the eleven sorts are unevenly distributed: Six sorts load significantly on factor 1, five on factor 2, and two positive and one negative on factor 3 (one sort loaded significantly on two factors). PCA_Manual rotation produced a fair outcome, as factor 1 and factor 2 have a rather high correlation of 0.43, but factor 1 and factor 3 only a correlation of 0.11. Factor 2 and factor 3 have a correlation of 0.05, meaning that they do almost not correlate at all.

The factors are introduced as narratives, with each being assigned a signifier describing its social perspective on Energieatelier:

Factor 1	<i>Mitigating climate change is our local responsibility and more important than personal wealth</i>
Factor 2	<i>Only financial incentives will stimulate more sustainable energy practices</i>
Factor 3	<i>Regional energy autonomy can improve quality of life for everyone- but we need to cooperate more to achieve it</i>

Number of sorts:	11
Methods:	PCA_Manual rotation
Number of factors:	3
Correlations between factors:	F1-F2: 0.43; F1-F3: 0.11; F2-F3: 0.05
Consensus statements:	9

Text Box 10: Technical details on the Q study on the initiative Energieatelier.

7.3.3.1 Social Perspectives

Factor 1 *Mitigating climate change is our local responsibility and more important than personal wealth*

"Mitigating our impacts on the climate and the ecology is more important than personal wealth, or health. Housing is the crucial cornerstone of this transition. Unfortunately, government subsidies have until recently only supported energy measures, regardless of the negative ecological impact of most construction materials. The service of the Energieatelier is very important, because it promotes sustainable housing in general, but also because it connects households and enterprises. Governmental agencies could not provide the same kind of service, because they rarely visit people's homes, and cannot understand our specific needs and potentials. Importantly, they don't have experiences with businesses of the area. A house refurbishment is a big investment that should last for a long time, and personal relations and trust to the contractor is very important to me. Also, I prefer supporting businesses from the area because I want my neighbours to do well. I believe that these personal relations are important for the energy transition in general: We need to engage with a variety of different stakeholders to develop new ideas, and we need to trust one-another to engage in common projects, be it in innovation for construction, or in energy cooperatives. The Energieatelier plays an important role in Réiden in this regard, whereas the ClimECC is not yet as known. It is true that there is a special sustainable spirit in the canton, although it is mostly carried by a specific group of people, most of them situated in and around Beckerich. Altogether, we have a lot of expertise here we can build on to bring forward more initiatives for a more sustainable future."

Factor 2 *Only financial incentives will stimulate more sustainable energy and construction practices*

"I believe that to tackle climate change, we all have to change our day-to-day routines, and how we live in our homes. However, in order to change people's practices, the government has to provide incentives. Most people restore their houses for financial reasons. Without subsidies for measures to reduce energy consumption or ecological materials, very few would do it. One reason for this could be that those who would do it for idealistic reasons have already done so years ago. The people who are investing now in a sustainable refurbishment of their home, are either young families, or those who would only do so for pragmatic, financial reasons.

Saving energy is more important than using ecological materials. Short ways of transportation cannot be a guideline for construction materials in Luxembourg, we just don't have the products here, and production is too expensive in this country. In general, it is not important to me if a material fits into the landscape.

ClimECC is an important association, but now it serves more the member companies than the clients. I think ClimECC is definitely a reasonable initiative for the communes to invest in to stimulate cooperation between companies, but it should be made more popular in the region- very few people know about it at the moment.

However, in my opinion, one should not choose companies just because they come from the same region. Quality and prize are more important than some sort of patriotism. However, as the Energieatelier team is so well-connected in the canton and has experiences in collaboration with a lot of companies, it makes sense that they suggest their clients companies they trust themselves."

Factor 3 *Regional energy autonomy can improve quality of life for everyone- but we need to cooperate more to achieve it*

"The canton has a special sustainability culture and should push stronger to become energy autonomous. In my opinion, we should focus more on social aspects of this transition, meaning that we should cooperate more with one another. I believe that the most important aspect to the energy transition is to create innovation that fit our specific local needs in the canton and that consumers and businesses can take up on.

Citizens here in Réiden could be much more united: Individual's vanities make it difficult to push forward community projects, and we don't have a culture to constructively discuss conflicting opinions. I feel that people here have a hard time respecting others' views. In this regard, the innovative spirit resides in individual entrepreneurs or activists, who cooperate successfully. However, most people in the canton are conservative and reluctant to experiment new things, no matter if it is about changing their energy practices at home or engaging the initiatives of others.

From my experience the main reasons for refurbishing a house is improve personal health and saving energy. I believe this is best achieved with ecological materials. However, we need the new governmental regulations to push this. Without those subsidies, not many people would go for sustainable materials, although they are the next step regarding energy-efficient construction. A couple of years ago everything was about energy efficiency, and now, finally, the ecological and health impact of the materials are moving into the focus.

Already, local companies and the Energieatelier have a reputation for ecological construction beyond the canton. ClimECC can be a real asset for companies in this regard, as it bundles the different products and services offered around eco-construction in the canton. However, at the moment it does not stimulate much economic activity. We have to improve its visibility, perhaps with the new regional marketing platform *Grinngo*.

I feel that because of all the awareness-raising campaigns, people in Réiden are somewhat tired of saving energy. Awareness-raising events and workshops always attract the same people. In this regard, early education and capacity building is very important: Teaching children where energy comes helps to implement a sustainability culture in Réiden.”

7.3.3.2 Conclusion of the Q study on Energieatelier

The factors agree on the urgency to change energy practices for mitigating climate change and set strong focus on the refurbishment of private houses. The factors further agree that the canton is an effective level to implement low-carbon strategies, because cooperation between companies may stimulate innovation, citizens would trust companies more with refurbishment if they personal contact, and because the canton is a scale where net-autonomy can be achieved. However, besides the rather idealistic and altruistic factor 1, participants seem to be disillusioned regarding the commitment of the wider citizenry. Without government subsidies, people would not bother with sustainability-related investments in the homes. Factor 3 highlights the potentials of regional cooperation. It holds that if there was a stronger commitment to the low-carbon transition among the citizenry, companies and communes could bring forth innovation that could stimulate economic activity and achieve more ambitious climate goals.

Factor 1, on which most participants load, displays a high awareness of climate change, and holds that local action must be taken to mitigate it. Ecological future projections outweigh self-referential, and economic motifs. To achieve efficient climate policies, the social perspective argues for multi-stakeholder cooperation in the canton, which is deemed an efficient scale to engage with climate change. Factor 1 is mainly loaded on by clients of the Energieatelier who had their homes reconstructed, as well as two activists who initiated several initiatives in Réiden. The negative load stems from an entrepreneur who is member of the cluster¹⁶⁶.

Factor 2 highlights the economic logics of low-carbon transition practices, which shows even stronger in the respective Q talk transcripts. This social perspective assumes that people would not change out of a sense of global responsibility, or for altruistic reasons, but that they need incentives to do so. These incentives can be local practices, such as production cooperatives, but Q talks indicate that participants mainly refer to subsidy schemes. There is little awareness for regional solidarity with businesses, or an awareness for positive impacts of regional cooperation in this perspective. Rather, it seems to believe in market mechanisms to address climate change. This factor is mainly loaded on by private house-owners.

¹⁶⁶ Interestingly, this sort was considered to be dismissed, as the participant stated after the sort “I think this is what I think my clients feel like”, even though he had been asked to sort from his perspective as an entrepreneur. This perspective does not perceive economic gains as the primary goal in energy transition practices, but protecting the climate and the environment.

Factor 3 concurs with factor 1 on the importance of the climate change challenge, but emphasizes more the importance of cooperative regional action. Community synchronization statements score higher than most future projections, particularly those describing obstacles for action. This social perspective appears frustrated with the regional citizenry and indicates that regional potentials for addressing climate change are not harnessed because people do not work together enough. This perspective stresses that energy measures should be regarded more systematically, for example by including aspects of ecological construction. Factor 3 is loaded on positively by activists, and/or employees of the Energieatelier, and loaded on negatively by two private clients.

To conclude, factor 1 shows the strongest emphasis on the general understanding climate change. Factor 1 and 2 both emphasize the importance of government subsidies to stimulate domestic low-carbon practices, whereas the third factor emphasizes the importance of cooperative regional action. Potentials are not realized because of disagreements and stubbornness between stakeholders, this perspective holds. Factors 2 and 3, focussing on financial incentives for individuals and regional cooperation, respectively, have almost no statistical relation. In this sense, the social perspectives agree on the need to act in face of climate change, but think of fundamentally different strategies.

7.3.4 Community capabilities for low-carbon transition in Réiden

This section assesses the community capability for low-carbon transition in Réiden. It translates the literature introduced in the in-sites section to the community capability framework. Specifically, it defines ideal, or required functionings of low-carbon transition, and puts these in dialogue with the existing conversion factors in Réiden. These conversion factors are derived from coding the transcribed Q talks, several exploratory interviews, grey literature, and Faller's (2015a; b) study on energetic regionalisation in the Greater Region for the four kinds of conversion factors. This section looks at the low-carbon transition in the entire canton and encompasses all links of the energy supply chain on a regional level.

Section 7.3.1 introduced literature on low-carbon transition. It presented scientific concepts that describe good practices for successful decentralized RE initiatives and introduced selected case studies to illustrate these good practices. The strategies and visions of low-carbon transitions are contextual and continuously changing. In this thesis, it is understood as coordinated local efforts of gaining sovereignty over the energy supply chain to become net-autonomous regarding different energy carriers (electricity and heat). Transitions therefore consist of a variety of socio-technical interventions in different links of the supply chain, including modes of production, transmission, and consumption. Successful coordination of these individual efforts often requires re-appropriation of infrastructure to guarantee their long-term economic viability. Ultimately, low-carbon

transitions internalize the positive (economic gains) and negative (environmental impacts) externalities of the energy system among the citizenry of a commune, or region.

With the community capabilities approach, a range of functionings for successful low-carbon transition can be derived from the literature. These functionings can be achieved and become community capabilities, if a range of conversion factors are in place in a given community. The central functionings¹⁶⁷ for successful low-carbon transition in the reviewed literature are:

- associative democratic collaborations and interstitial strategies (between citizens' initiatives, enterprises, local government, government agencies, and R & D institutions)
- Harmonizing socio-technical emergences (continuous co-constitutive development new technological material engagements and local institutions)
- Coordinating strategies across different links of the supply chain (for example cooperative production, associative democratic grid appropriation, individuals' routine changes on the domestic level)
- Discursive strategies (playing in institutional voids, building moral authority for vision, reinforcing outcomes)
- Energy justice and democracy (along the triangle distribution justice, procedural justice and recognition)
- Energy citizenship (overcoming producer - consumer dialectics, aligning interdisciplinary capacities, and actively influencing higher-order policymaking)

7.3.4.1 Cultural conversion factors

Q study on the network of Energieatelier suggested that there exists a collective awareness on the need for local action on climate change. The social perspectives different strongly regarding the strategies to achieve this: Whereas factor 1 emphasized inter-generational justice and altruistic motivations, factor 2 emphasized the need for financial incentives. All perspectives seem rather disillusioned regarding the engagement of the wider citizenry in canton regarding the energy transition and highlight that potentials were not harnessed because of citizen-inertia nowadays. However, the quantitative achievements of the low-carbon transition suggest that carbon ambitions are achieved, in selected places, despite this inertia.

Several interviewees stated the government plan of building a high-voltage grid in the canton assembled a large group of citizens behind the idea of a low-carbon transition, as many felt the landscape aesthetics of the canton were threatened. The strategy was to reduce consumption and create production sites in the canton. The *Kom spuer mat!* Campaign, which would later become formalized as Energieatelier was concerned with awareness-raising and facilitating domestic energy reduction. The establishment of production sites has been pursued with a variety of mostly cooperative and associative democratic projects.

In order to coordinate these projects, feasibility studies and transition strategies were conducted. These convinced citizens and politicians about the practicality of a low-carbon transition and ensured the economic viability of the individual projects by interlinking them (ea7, ea18, bi4, bi18). Further, communes formalized their carbon commitments in by joining the Klimapakt and

¹⁶⁷ As with the other initiatives, the focus lies on social and not on technical aspects of low-carbon transitions.

Klimabündnis. Today, Klimabündnis is a key document of many communes' energy strategies in Luxembourg. Located in Infostuff in the village Réiden, it is a public monitoring and consulting agency, not only in the energy domain, and regarding water production and consumption.

Policy tourism has been actively pursued since the 1990's. Interviewees argued that excursions to other places helped creating a common vision among a core group engaged citizens. The countries first biogas-plant has been inspired by these excursions. Vice versa, Beckerich is actively disseminating its experiences through the policy tours in the commune. These Energy-Tours produce a distinct transition narrative not only for tourists, but also for local citizens, and thus re-enforces the moral authority of the low-carbon transition, at least in Beckerich.

Several interviewees highlighted that the first successful projects increased public acceptance, because they proved alternative low-carbon experiments were economically viable (ea1, ea2, ea18). Paradoxically, several interviewees stated that the Village Renewal Prize of 1997 gave a strong push to these initiatives, even though at the time only awareness-raising campaigns and strategy papers had been developed (ea1, bea18). All practical infrastructure projects, such as biogas plants and district heating grids, followed years after the prize.

Participants of the Q talks stated that the most important motivation for people to partake in energy initiatives, or to change of domestic practices is economic gains (ea1, ea2, ea4, ea5, ea14, ea17, ea25). Interview data further suggests financial gains to be more of a common denominator between people's Leitbilder than general understandings on climate change. This, however, may be in part due to the longevity of the transition. One entrepreneur suggested that idealistic people had already taken according measures years ago, and most of his clients today were looking to profit from subsidies. From his experience people would prefer to invest in something that generates money than in something that saves money (ea14). Most interviewees suggested, that people do not think solidarity when it comes to house-construction, but look for the best quote. The only advantage for companies in the region could be that people trust them more, since "they can't run away" (ea1). In this sense, the interest for many citizens in the low-carbon transition lies not in aspects of energy democracy and justice, but in financial motivations.

Regarding farmers, however, the picture is slightly different. Even though there are several functioning bio-gas plants in the canton, interviewees suggested that farmers were still sceptical to participate. Ea17 suggested that farmers would generally not regard energy production as part of their tradition role. A technician of a biogas-plant further mentioned continuous conflict amongst the members of the cooperative, regarding the rates of revenues, sharing of infrastructure, and re-investments in the plant. Here, strategies to establish distribution and procedural justice seem lacking.

The recent wind-turbine project on the other indicates a learning process regarding energy democracy in the canton. Reportedly, the first attempt of this project had failed, because citizens had

not been engaged sufficiently in the project. Now, developers from the canton are developing schemes that will allow sharing the revenue with local citizens, and this time the acceptance is significantly higher (ea 1, 18, 25). This strategy of cooperatively financed RE projects seems to be a success-model in the canton, and its continuity and steady underline the positive impacts of inclusive distribution justice.

To conclude, it appears the cultural conversion factor to get people behind a common vision seems to have been very high among a core group of active citizens in the 1990's, assembled in the resistance against the high-voltage grid. Awareness-raising campaigns forged personal contacts between people. Today, enrolling new people in any kind of re-practices would require financial incentives, most participants stated. The comprehensiveness and degree of various socio-technical interventions along the entire supply chain suggests a high degree of energy justice in Réiden, and the economic success underlines the moral authority of the low-carbon transition. Regarding the inertia among citizens and the reported conflicts in bio-gas cooperatives, it can be assumed that the cultural conversion factors are predominantly produced in key institutions and organisations, and not the general citizenry.

7.3.4.2 Organizational conversion factors

On the canton level, the motivations and visions for low-carbon transition seem variegated. On the level of communes, however, policy documents and energy strategies formalize collective carbon ambitions and allow diverse stakeholders along the supply chain to direct efforts towards them. The two organisations Energieatelier and Energiepark Réiden are particularly relevant for coordinating these diverse efforts and for creating links between local initiatives and government agencies.

All interviewees who have been active in the energy field in the canton since the 1990's perceive the foundations of the energy transition in the awareness-raising campaign. Energieatelier has emerged from these campaigns. It facilitates the low-carbon transition in the domain of consumers and private households. Recently, the Energieatelier focus has widened and it now promotes more ecological construction materials and methods. It is also the regional contact point for government agencies, such as MyEnergy. Energieatelier has been brought forward as a LEADER project and is now co-financed by the inter-communal syndicate and the national MyEnergy agency. Energieatelier is committed to serve the climate ambitions of the communes by facilitating change on the domestic, consumer end of the supply chain, while representing the low-carbon transition beyond the borders of the canton.

A second key organization is the joint stock company Energiepark Réiden, located in Beckerich. It develops and manages a range of cooperative energy production sites throughout the canton and offers consulting services to communes. Specifically, it develops comprehensive local low-carbon

strategies that lend the visions for various individual initiatives. Its CEO Paul Kauten co-created a small cluster of different energy service providers in Beckerich. Energiepark Réiden is therefore concerned governance issues of the socio-technical systems, developing and managing production sites, and bringing forth new private-sector innovations that stimulate economic activity in the canton.

Regarding the organisational strategies, initiatives in the canton, and particularly Energiepark Réiden purposefully play institutional voids. Several interviewees states that the Energiepark would bring forth socio-technical arrangements that national legislation does not yet address (ea1, ea25). In this regard, it actively influenced the national energy transition. The continuous expansion of energy cooperatives by Energiepark is made possible by re-investing revenues of one initiative into the development of another. The longevity and diversity of these cooperatives suggests a high degree of procedural and distribution justice.

To conclude, the organizational conversion factors of the low-carbon transition are continuously expanding. Energieatelier and Energiepark are the two central institutions in this regard and they complement each in addressing different links of the supply chain. They hold a common understanding of low-carbon transition in the canton, notably becoming "positive energy" communes", and diffuse this vision by engaging diverse stakeholders in profitable initiatives. Both organisations are therefore at the heart of wider networks of citizens, enterprises, and local government. There is however no indication for cooperation with research institutions in the interviews.

7.3.4.3 Personal conversion factors

The low-carbon transition has been very much stimulated by the initiative of a few individuals in the 1990's, and it is still driven by a few individuals today. These people combine and align their diverse complementary skills in the production of grassroots initiatives. The review of low-carbon transition in Réiden in chapter 7.3.1 suggested that most initiatives are brought forward by the same group of people who share a common low-carbon vision. Politicians on the local and regional level created majorities for low-carbon strategies that ensured the economic viability of several interlinked initiatives along the supply chain. A local engineer and an architect contributed their expertise introducing technical facilities in the canton. A farmer from Beckerich established the first biogas plant of the country and therefore convinced other farmers to establish biogas-cooperatives. A charismatic energy consultant advises house-owners and business for subsidies that ensure the achievement of CO₂ ambitions on the domestic level, while a researcher working for the Klimabündnis delivers the data needed to inform adaptive governance process. These energy citizens also actively engage in local, regional, and national policymaking and participate in other grassroots initiatives analysed in this thesis.

7.3.4.4 Infrastructural conversion factors

Infrastructural aspects are perhaps more relevant for the low-carbon transition than for the other three initiatives under analysis. The physical entities themselves have been introduced in section 7.3.1 and need not to be repeated here. Rather, this section will briefly discuss how infrastructural conversion factors prefigure and co-constitute almost the various low-carbon initiatives.

The district heating grids in Beckerich and the village Réiden are particularly revealing examples in this regard. If the communes had not committed to establishing these infrastructures, biogas plants would probably not have been economically viable and domestic households would have continued heating with oil. The individual socio-technical arrangements along the supply are therefore co-constitutive and could not function individually.

A second powerful infrastructural conversion factor is the co-location of individual agencies and companies. The building of Energiepark Réiden hosts a range of small energy-related businesses, while the Infostuff is home to Energieatelier, Klimabündnis, and Maison de l'Eau. Protagonists of the initiatives argued that this proximity stimulated the cooperation and the creation of new project ideas.

7.3.4.5 Conclusion community capabilities

This section summarizes the findings made in the four conversion factor dimensions and reflects upon the overall community capability for low-carbon transition in Réiden. This grassroots initiative shows the most comprehensive and long-lasting transition of a policy domain in Réiden, with quantifiable impacts that receive international recognition and inspire national policy making. The following elucidates this community capabilities by reflecting the conversion factors identified above with functionalities of successful low-carbon transition derived from scientific literature.

The identified conversion factors in Réiden widely correspond to the functionalities for low-carbon transition. The planned high-voltage grid lend the catalytic phenomenon, or window of opportunity that allowed energy citizens to strategically experiment with new socio-technical arrangements throughout the entire supply chain (see Coenen, Benneworth, and Truffer 2012; Devine-Wright 2012; 2014; Ryghaug, Skjølvold, and Heidenreich 2018). Until today, these protagonists are actively playing in institutional voids and influence the overall national energy transition (see Späth and Rohracher 2010). International awards, the transition narrative of the Energy Tours, and the economic success of initiatives foster a moral authority that facilitates not only RE-initiatives, but also grassroots initiatives in other policy domains (*ibid.*). Although interviewees indicated that parts of the citizenry would be over saturated with the subject, economic incentives such as subsidies maintain the overall transition dynamics. Research on comparative cases suggests NIMBY-prone initiatives to find more acceptance in local communities if they follow strategies of energy justice. Given the fair distribution of revenues among members of energy cooperatives, and the inclusion

of citizens in recent projects like the wind-turbines, this functionality seems to be realized in Réiden, and particularly in Beckerich (see Chezel and Nadaï 2018 ; del Río and Burguillo 2009; Wüstenhagen, Wolsink, and Bürer 2007).

Energiepark and Energieatelier promote low-carbon efforts on the producer and the consumer sides of the supply chain. These two organisations provide services and business models that are financially viable and therefore encourage citizen participation. Their various projects are enabled by communes' commitments to provide infrastructural conversion factors like district heating grids. Several communes, like Beckerich, pursue formalized low-carbon visions and strategies and give individual stakeholders planning security to invest long-term. These strategies are monitored and regularly updated.

The interplay of conversion factors, and particularly the high organisational capacity for low-carbon transition allow experimentation with new socio-technical arrangements in Réiden. Examples are the district-heating grid in Beckerich, and more recent developments as the HausCare project and the installation of domestic energy storage devices. These local inventions stimulate economic activity and institutionalize links between the low-carbon transition and other policy domains, such as farming and housing.

Altogether, the conversion factors identified in Réiden, and particularly in Beckerich correspond to the functionalities for successful low-carbon transition. The case shows complementary and co-ordinated socio-technical interventions along the entire supply chain, formalized institutions that guide these interventions and link them to development strategies, while organisational cooperation ensures relation to systemic instruments and government agencies. Further, good practice of energy justice and democracy seem to be pursued that ensure the long-term acceptance among the citizenry. The low-carbon transition does, however, depend on the expertise and commitment of few energy-citizens. Interviewees indicated that the loss of a few individuals, such as local politicians, can cause stagnation and atrophy of other conversion factors.

Table 11: Summary of enhancing and inhibiting conversion factors of Energieatelier.

Conversion factor	Cultural	Organizational	Personal	Infrastructural
Enhancing factors	Green New Deal (Beckerich) introduced the paradigm of sustainable development	Strategic documents allow for coordination of diverse initiative and long-term planning	Protagonists are able to employ their complementary skills (engineering, politics, consulting, construction, campaigning, etc.)	Strategic development of interdependent technical facilities (production sites, transmission, domestic reconfigurations)
	Planned high-voltage grid allowed mobilizing a large number of people in the canton	Complementary organizations Energipark and Energieatelier promote initiatives on both ends of supply chain	Protagonists lobby for national policy change	Mix of energy sources (wind, sun, biomass) and harnessing of different forms of energy (heat, electricity)
	Komm spuer mat! Campaign raised awareness among citizenry	Cooperative set-up of production and transmission facilities fosters distribution justice		
	Klimabündnis, Klimapakt formalize communes' climate ambitions and ensure monitoring	Close relations to systemic instruments inspire interdisciplinary learning, the creation of new policies, and resources for experimentation		
	Klimastrategie sets development targets and coordinates individual efforts	Broad established stakeholder network allows playing in institutional voids with low-carbon experiments		Co-location of relevant institutions and organizations (Energipark, Energieatelier)
	Energy Tours, strategic narrative and transition "branding"	Close relations to national agencies (MyEnergy) increase financial and knowledge capacity of Energieatelier Subsidies and financial incentives stimulate efforts at domestic level		
Inhibiting factors	Oversaturation of population with the subject	Complexity and long-term financial commitment of climate strategies, particularly regarding transmission facilities	High dependency on individuals	Negative impacts on landscape aesthetics
	Low-carbon transition requires change of traditional practices, particularly in agriculture		Aversion of farmers to change practices, e.g. to partake in biogas-cooperatives	Technical malfunctioning of facilities (wind-turbines)
	NIMBY issues around wind-turbines			

7.3.5 Synthesis of the energy transition in Réiden

The low-carbon transition displays the most comprehensive and long-lasting sustainability transition in Réiden and sits at the heart of the overall rural development. Quantitative figures prove the success of these efforts and recent policy documents and planned projects, such as the wind-turbines suggest continuity in the future. Besides positive effects for local economies and on the environment, the low-carbon transition has also informed national energy policies. Further, the success stimulates change across policy domains, as shown in the following sections, and lessons learned are applied in other grassroots initiatives. The grassroots initiative Energieatelier plays a crucial role in this transition, as it links citizens to business in the canton, entertains relations to government agencies, and consults the citizenry for changing their domestic energy practices and obtaining subsidies.

Findings of the Q study on the network suggest a discrepancy between motivations and strategies for low-carbon transition in the canton. Factor 1 holds inter-generational responsibility as the main motivation and acknowledges that this may require fundamental change in social practices. Factor 2 holds that financial incentives are the most important stimulant for achieving low-carbon ambitions and argues that most citizens in Réiden would participate to make or save money. Factor 3 laments a lack of cooperation among business and citizens in the canton and unused potentials for transitioning. Findings of Q suggests that it is not the like-mindedness of citizens, or a collective sustainability mindset that drives the transition, but the alignment of diverse social perspectives, particularly of individual-utilitarian and altruistic motivations.

Analysis of community capabilities indicate that the conversion factors for low-carbon transition widely correspond with the identified functionalities of successful cases. This analysis is a qualitative confirmation of the quantitative local carbon achievements. As will be shown in the following, these conversion factors are transferred to other policy domains to stimulate similar transitions in the fields of finance and particularly agriculture.

7.4 THE REGIONAL CURRENCY BEKI

This section analyses the grassroots initiative Beki, Luxemburg's first and only complementary currency (CC), established in 2013. It is a regional currency (Regio), with an in-built *demurrage* rate that promotes regionalizing supply chains, and holding value generated in the canton. The NPO De Kär manages the currency¹⁶⁸, with 96 businesses from the canton being member. The initiative has been chosen for in-depth analysis for two reasons: First, it is intended to serve as a connector between various economic activates in the canton, and an integral part of other grassroots initiatives. B) Beki is arguably the most contested and progressive grassroots initiative in Réiden.

This chapter conceptualizes of Beki as a Regio and situates it in scientific debates on CC as part of a ecology of money. The latter concept holds that a variety of integrated currencies for different complementary functions would make for a more resilient financial system. As a Regio, Beki is more economic initiative than localist, alternative currencies providing barter systems. Beki is intended to complement the legal tender Euro, not to replace it.

Regio's such as Beki mainly serve the exchange of value. Storage and accounting of value are still provided for by the legal tender. Economic exchanges are stimulated by giving the currency a devaluation rate. Since bills gradually lose value after a defined time and transferring them back to Euro at a bank is charged with a small fine, holders of the currency are encouraged to re-invest it in goods and services. Regios are bound to a given territory and they do not have value outside of it. In practice this means that a local grocery store accepting Beki would seek suppliers, insurance companies, energy providers etc. from the canton to re-invest its turnover instead of depositing it in a bank. This way, value generated in the canton would circulate faster and longer, creating more economic activity. Case studies on successful examples suggest that Regios can stabilize national economies and increase the socio-economic resilience of regions. During economic crises and shortages of a legal tender, complementary currencies are established to reanimate local economies.

GRASSROOTS INITIATIVE	Beki
FORMAL INSTITUTION	de Kär (managing NPO)
POLICY DOMAIN	Economy, finance
PHENOMENON	Ecology of money, complementary currencies, Regios
EXPLORATORY INTERVIEWS	3 transcribed (project manager, chairman of de Kär, LEADER manager)
Q PARTICIPANTS	15 participants (entrepreneurs, bank representatives local administration, employees of de Kär, private users), 11 fully transcribed Q talks
GREY LITERATURE	8 articles in the magazine <i>Synergie</i> , homepage of de Kär, LEADER project proposal, 3 articles from <i>Luxemburger Wort</i>
OBSERVATION	attendance of de Kär's annual assembly in 2017
VALIDATION	In-sites reviewed by project manager, social perspectives reviewed by participants with the highest-loading sorts

Text Box 11: Overview on concepts and data of the analysis of the grassroots initiative Beki.

¹⁶⁸ Luxembourghish for „the core“

7.4.1 The sites of BEKI

This section introduces the sites of Beki. It situates the grassroots initiative among scientific debates around *ecology of money* and *complementary currencies* and elucidates Beki's characteristics relative to different models of local barter systems. The section further gives a brief introduction to the initiative's history, its functioning and organisation, as well as its reception in the wider political landscape in Luxembourg. The section closes with a synthesis of these in-sites.



Picture 22: The six Beki notes currently in circulation. (Source: de Kaer a.s.b.l.)

7.4.1.1 A phenomenon of complementary currencies

Currencies have for long been at the heart of social interaction. Throughout history, artefacts fulfilling the three functions of a currency, storage, accounting, and exchange of value, range from stones, over shells to wood-sticks (Mitchell Innes 1913; North 2007). From an anthropological standpoint, a currency can be whatever a community designates it to be. Nonetheless, Simmel's sociological critique of money as a form social relation that promotes objectification and quantification, and self-assertiveness over emotional association still seems timely over 100 years after its publication. Since the financial crisis of 2008, critique on the design of legal tenders as being disconnected from human values, and as being mystified as natural phenomena, emerge in academia with new verve¹⁶⁹.

¹⁶⁹ See *International Journal of Community Currency Research*, <https://ijccr.net>

In this context, CCs are often analysed with regards to their potentials of rectifying systemic design flaws of the mainstream political economy. An example from the German-speaking scientific community is Degens' (2013) interpretation of CCs as "real utopian projects", with reference to Wright (2010), as he links them to Joseph Huber's critique on private banks' ability for cash money generation, or Binswanger's analysis of the growth paradigm. North (2007) identifies LETS (Local Exchange and Trade System) as platforms for diverse economies, perceiving "currency networks as liberating forms of politics". He argues that the conditions for such politics are favourable, as unlike in previous periods of CC experimentation, such as the 1930's and 1960's, people's access to technology and know-how is higher, whilst government repression is lower. Belgian economist Bernard Lietaer (2016; Lietaer and Dunne 2012) highlights potentials of Regios for increasing overall socio-economic resilience of both national and regional economies, particularly in the aftermath of the recent financial crisis.

Although research on CCs has peaked in the early 2000's, CC-practices have increased and arguably gained new relevance after the financial crises (Schroeder, Miyazaki, and Fare 2011). In geographic research, they are often approached as grassroots initiatives. Particularly LETS and time banks are flourishing for different purposes. In the UK, for example, they are used as a tool to improve reciprocity and social cohesion in communities (see Seyfang 2001; Seyfang & Longhurst 2016). In southern European countries, they are used to maintain the provision of basic goods in communities suffering from austerity programs (see Kousis et al. 2016). Throughout history, thinking and practice of currency systems has often flourished in times of economic and financial systems' turbulences¹⁷⁰.

CC, and especially Regios, aim at increasing the overall economic activity in a place. To achieve this, many incorporate a *demurrage rate*, or negative tax, as propagated in Gesell's *Freigeldtheorie*. It assumes that the 3 functions of money are interrelated: The more money is stored, the less money is available for exchange. A currency with a demurrage rate is less likely to be stored, as it loses value. It is assumed (and scientifically contested) that the overall amount of exchanges, the velocity of circulation therefore increases. Economist Irving Fisher proposed to measure economic activity (E) as the overall amount of money in the system (Q) multiplied by number of times money circulates ($E = Q \times V$).

Text Box 12: On *Freigeld-theory and demurrage rates*. (cf. Degens 2013, p. 13-15)

¹⁷⁰ For an overview of cc in the past, as responses to their respective historical and geographical contexts, see North (2007) and Peacock (2014).

CC as part of an ecology of money

Richard Douthwaite's (1999) *Ecology of Money* is often taken as the theoretical backdrop of CCs. He proposes a design of the monetary system that composes of different currencies serving different functions and purposes on different scales. Drawing on theories of socio-ecological systems, Douthwaite argues that the monetary system should be thought of in the way it relates to and serves diverse societal functions and needs, instead of what Lietaer and Dunne (2013, p. 3) call a "monoculture of a single type of currency". Therefore, Douthwaite argues that currencies' set-ups need to be democratized when and where possible. Similar to Polanyi's (1957) concept of *special purpose money*, an ecology of money would comprise of functionally and geographically distinct realms of currencies, for example for international trade, for national and regional systems of provisions, for local investment, for private savings, and so forth.

Bernhard Lietaer elaborates further on this perceptive as he assumes that more versatile setup of the monetary system would make it more stable. Lietaer & Dunne (2013) argue that an "ecosystem" of interrelated monetary subsystems would increase the system's overall resilience: "What makes a network resilient is its options or choices, which can be best expressed as a network having access to diversity and interconnectivity" (ibid, p. 62).

CC are practical experiments contributing to an ecology of money from below: They are often brought forward by civic groups and are used complementarily to government money, countervailing its perceived dysfunctions and shortcomings (see Degens 2013, p. 15). On the local and regional scale, there exists a multitude of initiatives with distinct characteristics designed to serve the specific contextual needs and capacities. The literature review of alternative monetary concepts¹⁷¹ of sociologist Philipp Degens (2013) has been very helpful to situate the BEKI in the research field; he distinguishes between approaches aiming at system reform and complementary approaches (see figure 9).

In practice, CCs are often hybrids incorporating different economic theories and beliefs; they morph over time, and many are organized informally, which makes the creation of typologies challenging (Blanc 2011). Terminological confusion among researchers might further stem from different cultural traditions of CC: English publications reviewed for this study focus predominantly on localist initiatives promoting social cohesion through reciprocity and barter (see Collom 2005; North 2014; Graugaard 2012; Seyfang 2001; Seyfang and Longhurst 2016), whereas German-speaking research on CCs tends to look at more formally institutionalized regional currencies, following a market-logic (see Degens 2016; Thiel 2011).

Table 11 on the following page displays a typology distinguishing between three types of purposes and spatial extensions put forward by French economist Jérôme Blanc (2011), which is widely used in research on CC (cf. Degens 2013; North 2014; Lietaer & Dunne 2013). As CC are contextual

¹⁷¹ German title: „Alternative Geldkonzepte- ein Literaturbericht“ (Degens 2013)

phenomena and often incorporate a range of concepts and functions this typology helps to assess and compare cases in a structured manner. Building on this typology, Blanc (2011) distinguishes different types of CC, like time banks, LETS and Regios. As LETS are subject of most research on CC and share strong similarities regarding motivations and Leitbilder of participants with Regios, they will be discussed briefly. Beki, it will become clearer in the following section, incorporates aspects of all sections, but in public presentation the focus lies on the economic nature of the initiative.

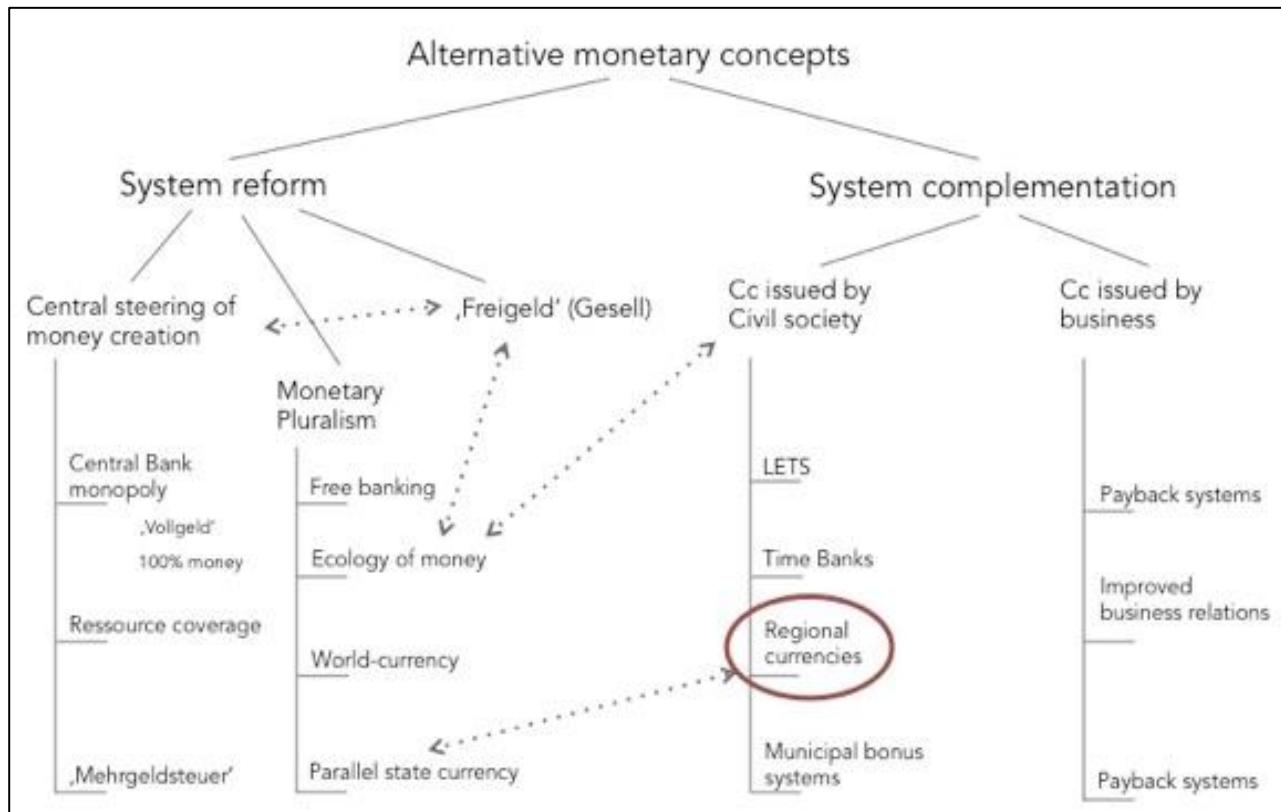


Figure 9: A structured overview on alternative monetary concepts. (Source: Degens 2013, p. 2)

LETS have the purpose to trade goods and services locally without being depended on liquidity of government money. They are often barter exchanges, offering access to goods and services that are not provided by mainstream political economy. LETS are created endogenously in communities and are organised for a specific social space. They are traded in a local unit of account that is not convertible to the national currency, although their value is often assessed relative to the value of the national currency. Besides the provision of goods and services, LETS promote reciprocity and social relations among participants, aiming to include economically disadvantaged community members. Further, currencies are often linked to distinct economic norms, such as Fairtrade, regionality, and sustainability.

Table 12: Typology of currency schemes. Source: *Blanc (2011, p. 6)*

Nature of projects	Space considered	Purpose	Guiding principle
Territorial	Geopolitical Space (politically defined)	Defining, protecting and strengthening a territory	Redistribution or political control
Community	Social space (pre-existing or ad hoc community)	Defining, protecting and strengthening a community	Reciprocity
Economic	Economic space (production and exchange)	Protecting, stimulating, or orientating the economy	Market

Regional Currencies

In comparison to LETS, Regios span a larger geographic area and follow a market logic, rather than a logic of reciprocity and redistribution (Blanc 2011). They are covered by the national currency usually at rates of 1:1, managed and emitted by NPOs or cooperative banks, and are convertible to the national currency, often with a local fee (Degens 2016). The following economic functions of Regios are described below: A) to increase economic activity in the region, B) to forge regional supply chains, C) to hold value created in the region, and D) to stimulate more environmentally benign consumption. These are complemented by non-market goals as increasing awareness on sustainable consumption and promoting regional identity.

Regios are used to stimulate regional commerce by encouraging consumers to choose local retailers, although not necessarily being linked to regional products. Locally owned businesses participate in the initiatives rather than large corporations or franchises, and Regios often promote businesses with deeper roots in the region. Further, as conversion fees are usually around 5%, businesses are inclined to spend at other regional business that would accept it (ibid., Kennedy and Lietaer 2004; Lietaer 2016).

Although rarely achieved in practice, theory emphasizes Regios' potential to link supply chains and foster economic subsidiarity (Lietaer & Dunne 2013, North 2014, Degens 2013). The argument is that business look more actively for partners in the region who accept the currency as well, since a small percentage of value is lost when converted back to the legal tender. This promotes regional networks in places where businesses already exist and raises awareness on gaps the regional supply chains that could then be addressed by the group.

The creation of supply chains is imagined to increase overall economic activity, as well as foster regional economic resilience. As this carries the potential to shorten transportation ways of products, and increases transparency, they are also deemed as stimulating more sustainable behaviour. Finally, regional currencies are intended to prevent cash flows out of the region, as they encourage businesses to re-invest their finances in the region¹⁷². Some currency-networks establish their own lending systems via cooperative banks, with usually more favourable lending conditions for SMEs than the mainstream financial markets.

Regional currencies occur mostly in the German-speaking parts of Europe, with 33 initiatives currently existing in Germany, Switzerland, Austria and Luxemburg. Recent years have further seen a dynamic development in France. Popular examples being the Chiemgauer in Bavaria and the Swiss WIR.

The WIR system is the oldest still existing formalized CC, created by a business network as a response to the financial crisis in the 1930's. Today, the WIR bank is at the heart of a complementary bank-money network of about 30.000 Swiss SME's, with annual balance-sheet total of about 5,3bn Franks. The bank lends money without, or very low interest rates. Functioning as an economy within the economy, it is regarded as an important factor to the stability of the Swiss economy (Lietaer 2016).

In 2015 the Chiemgauer was used by about 3.100 consumers, while 561 businesses participated in the initiative. In the same year, € 2.363.590 have been exchanged for Chiemgauer at the rate of 1:1, with altogether 786.925 Chiemgauer in circulation at a velocity twice as high as €.

Text Box 13: Popular examples of Regios. (Sources: Lietaer (2016); chiemgauer.info.de; regionetzwerk.blogspot.de)

7.4.1.2 In-sites of Beki

This section portrays the grassroots initiative Beki. It discusses the initiative's historic emergence, protagonists, forms of organisation and strategies of the initiative. These findings will be put in dialogue with the scientific literature introduced above in the sites-synthesis at the end of this section.

History

Luxembourg's first and only Regio BEKI emerged around two on-going events that brought to discussion the instability of the international financial system and vulnerability of rural areas to economic volatilities, and the ambivalent role Luxembourg plays in this industry: The global financial crisis and the LuxLeaks reports of 2013¹⁷³. Whereas the former event was mentioned by several interviewees as a wake-up call to take action within their communities, the LuxLeaks revelations help to understand why a CC, being quite common practice in European neighbouring countries, is perceived as a critique, or even a threat to the national political economy in Luxembourg.

¹⁷² Lietaer and Dunne (2013, p. 86) highlight that on the city level, money spent in stores owned international firms is 30% more likely to immediately leave the city than if spent in locally owned businesses.

¹⁷³ see <https://www.icij.org/investigations/luxembourg-leaks/> (last accessed April 20th, 2018).

The idea of a CC was introduced to Réiden by protagonists of the rural development, who learned about the concept on a trip to Germany in 2010. The commune Beckerich sponsored a workgroup of KomEcoRura to explore CCs potentials for linking various sustainability goals in the canton. At the point there had already been on-going discussions in the systemic instruments and KomEcoRura about possibilities to support business, promote economic cooperation, and potentially regionalise essential systems of provision, such as energy and agriculture. A CC was discussed as a tool to promote these strategies.

In 2011, a young Luxembourger holding a diploma on "The mystification of Money" at the University of Salzburg, was appointed project coordinator on a part-time position. The initiative was financed from LEADER funds between 2011 and 2013. In 2012, a feasibility study was made, and a managing institution, the NPO De Kär, was established in 2012. The first bills were introduced on January 1st, 2013.

Organisational structure

De Kär is the managing agency of BEKI. In the outset of the grassroots initiative, large parts of the currency's operation like accounting were carried out by volunteers. The governing board of de Kär consists of ten people, who are elected for two-year terms and elect a president for this period. The current president of the NPO, works at the Energieatelier, and is co-founder of the alternative food network SoLaWa. Two people are currently employed at De Kär, on a 30 and 25-hour contract. De Kär currently has a member base of 96 businesses from the canton, from a variety of economic fields.

The NPO was financed from the LEADER budget between April 2011 and April 2013. Currently, the budget is composed of the membership fees of participating businesses, the optional conversion fees (between 2 and 5%), and the commitment of the inter-communal syndicate to cover up to € 60.000 annual deficit. The latter arrangement is a peculiarity in Réiden: Whereas it is common practice for associations to apply for funding at the syndicate level, they usually receive an annual payment at the beginning of the financial year. De Kär, however, has only been granted a commitment to balance a deficit of up to € 60.000 p. a. by the syndicate. This creates a situation where the NPO appears as a petitioner with a negative balance sheet year in year out, regardless of the actual budgetary situation.

Functioning and effects

Regios serve to link "unused resources with unmet needs within a specific geographical area, business, or segment of society" (Lietaer & Dunne 2013, p. 59). As most Regios, De Kär promotes Beki as an instrument to link economic actors, to stimulate commerce, and to hold value generated in the canton.

Beki circulates in the territory of the inter-communal syndicate's member communes and can only be used at businesses who are member of de Kär. The devaluation and conversion fee stimulate fast turnover of the currency and discourage exchanges back to €. Business that accept Beki, such as supermarkets, are inclined to re-invest their revenue made in Beki, instead of depositing it at a bank. The management of the supermarket will seek to find outlets for its Beki, such as suppliers of goods, utility-providers, and services in the canton. Consequently, when a consumer pays with Beki, she triggers a cascade of transactions in the canton that may not have happened otherwise. Further, value generated in the canton is re-invested directly in the regional economy, and not transferred to globalized financial institutions. Public services and municipal taxes cannot be paid with Beki.

As of 2018, the currency only exists as paper cash. BEKI exist in 1, 2, 5, 20, and 50 bills that have been designed by the Luxembourgish artist Patricia Lippert and display sites from the region in the front and advertise member businesses on the back. The currency is brought into circulation when converted from €, which can be done at offices of several banks and the national post in the canton. De Kär further offers home delivery for sums over € 300.

The conversion fee back to € is 5%. Of these, 2% go back to de Kär, and three are donation to associations in Réiden. De Kär states that on average, one BEKI is reused 6 times before brought back to the bank and converted and argues that spending 100 BEKI creates an overall turnover of 600 BEKI in the region. The overall amount of BEKI in circulation has steadily grown and has grown to 200.000 in 2017. Compared to other currencies, BEKI has a low demurrage rate, losing value after three years. This is supposed to refrain users from storing the currency and to stimulate circulation and economic activity.

Companies, as well as banks, theoretically have to run a separate accounting system in BEKI. This is especially labour-intensive for banks, as here the sum of cash held in a branch office must be counted weekly. Attempts to turn Beki into a electronic payment system are currently pending in Luxembourgish administration for approval to clear a LEADER budget position. An electronic payment system would facilitate business-to-business transfers but may come at the cost of losing the symbolic value of using physical notes. This is an on-going discussion that will be discussed further under community capabilities.

Reception

The idea of a CC had a mixed reception in Réiden, as well as nationally. Knowing about the potential for political conflict, the workgroup of KomEcoRura did not introduce the project to the public until a false news report claimed that the decision of implementing it had already been made. Subsequently, many citizens believed that Beki was intended to replace the € completely in Réiden and had a negative attitude towards it. The public support of a regional bank director, a respected

businesswoman, and the director of the regional commerce association changed the public opinion so that the project could be partly transferred to the budget of the intercommunal syndicate. Camille Gira had opposed naming the currency Beki, because did not want the project to be attributed to Beckerich, and to himself. However, the name had already been used informally during work group sessions, was subsequently adopted by the national media, and had become commonly known. Several interviewees stated that politicians of Réiden would resent the initiative, because they perceive it to be "Camille Gira's money".

Today, reports in national media seem generally favourable. Local business owners stated that never has there been so much attention to the canton since the introduction of the Beki. However, initiators also argued that in the beginning there have been several false reports about aspects of the BEKI in national media outlets, with one interviewee suggesting that negative news had been deliberately published to harm the initiative, and to harm Camille Gira personally.

Beki also faces institutional resistance in Luxembourg. National ministries, responsible for agreeing to LEADER budgets, seem sceptical and careful about the project. BEKI is the only LEADER project of the canton whose funding had been delayed, as ministries were uncertain about the legality of the proposal. Representatives of de Kär also participated in the workgroups conducted during the participatory phase of the Rifkin report, where the initiative is endorsed (see TIR Consulting Group LLC 2016, pp. 301-308). Treatment of representatives in the work group has been described as friendly in the beginning, but as hostile once participating officials realized the significance workshop facilitators of the Rifkin Team attributed to the initiative. Members were not invited for follow-up workshops, with an interviewee suggesting that he had been excluded for political reasons.

Outlook

With the new LEADER period 2017, De Kär applied for a funding of € 80.000 to make an electronic crypto currency 'DigiBEKI' (originally 'Crypto-BEKI'), run on blockchain, or other distributes ledger technologies technology (see text box 13)¹⁷⁴. The project application argues that this would facilitate the exchange and accounting for companies and make shopping more comfortable for consumers. Further, this would allow implementing a bonus system supporting regional products and enable monitoring the currency's efficiency. Finally, de Kär argues that blockchain technology would provide an accounting system that is highly unlikely to produce errors, and very cost efficient. Although the project start was foreseen for August 2017, the application of the project is still pending in Luxembourgish administrations.

¹⁷⁴ To the authors knowledge, and de Kär's own account, BEKI would be the first regional currency worldwide based run on blockchain. See <https://aw.leader.lu/projekte/digibeki-beki-goes-digital-de-kaer-asbl> (last accessed on April 20th, 2018)

Blockchain technology, or other distributed ledger technologies have characteristics that seem congruent to the shortcomings of many Regios. In order to unfold their potential to stimulate economic activity and resilience as shown by the WIR network, Regios need to be safe and efficient in handling business-to-business transactions. This however requires management costs can often exceed the initiative's budget, and most Regio's are limited by this glass ceiling. Blockchain technology, or other distributed ledger systems, are offer are highly secure and automatic transaction systems where records of all transactions are stored in a decentralized manner among members of the network. The aim of the developers was to make (financial) intermediaries redundant. Further, it allows rules, such as ethical guidelines, demurrage rates, or incentive systems be 'programmed into' the network via smart contracts. This new technology is widely used among financial institutions and known for speculative phenomena as Bitcoin, but it could allow Regios to become electronic payment systems with very low transaction costs for the managing institution. Perspective, these systems could encourage regional lending systems, and be connected to other social systems as energy production, and land registry. Even though this technology is current instrumentalized by the very institutions it was designed to abolish, it does provide a vast range of potentials for rethinking and re-organizing integrated and decentralized regional development. For further discussion, please see chapter 8.3.

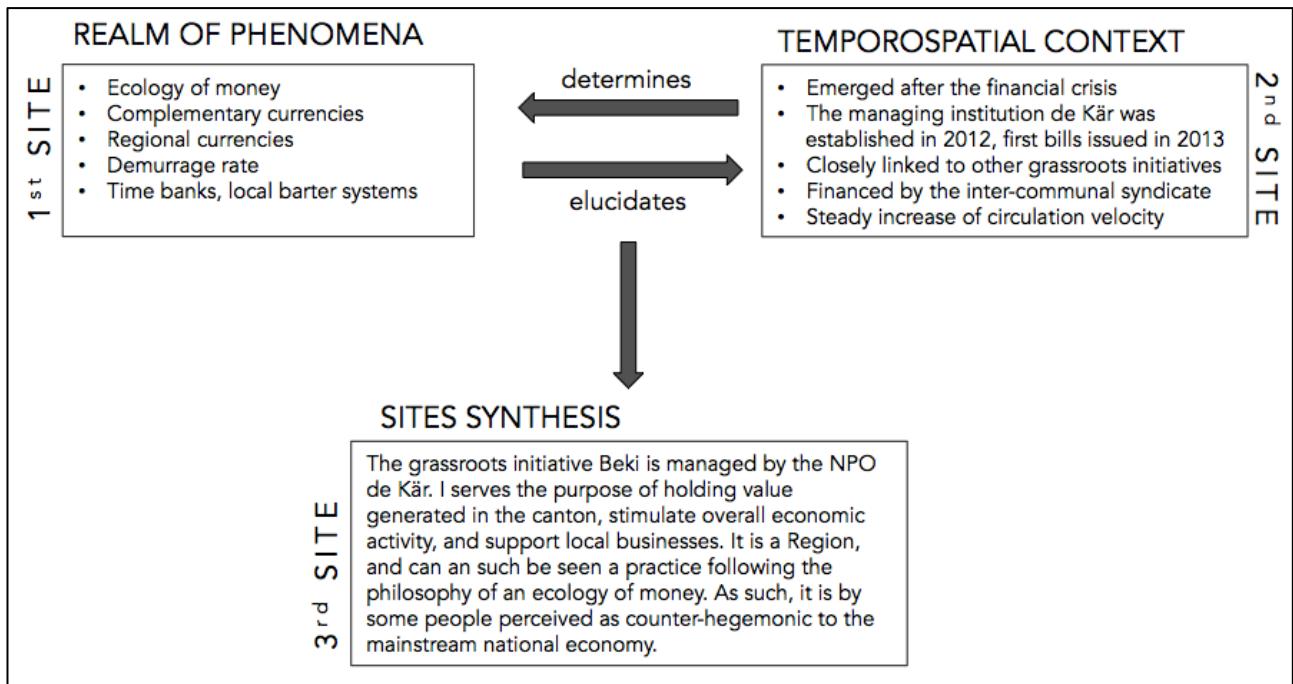
Text Box 14: On the potentials of blockchain technology for Regios and rural development.

7.4.1.3 Synthesis

A Regio is a form of CC that, unlike localist alternatives, allows integrating supply chains on a regional level (Degens 2013; 2016; Lietaer 2016; Lietaer and Dunne 2013). Studies suggest that Regios have the potential to stimulate economic activity, hold value generated in the region, and improve existing supply chains. Further, they stimulate reflection about the monetary system and are often a symbol for rural development. Studies also show that in order to achieve the economic potentials, Regios would have to professionalize and formalize in order to manage transaction in a secure manner.

Regios have a high development dynamism: Some manage to increase the economic activity within an expanding network in a few years, while others quickly lose momentum (Degens 2016; Seyfang and Longhurst 2013). CCs tend to change morph quickly regarding their institutional set-up, public reception, and economic impacts (Collom 2005; Peacock 2014). The stage of a currency's journey is thus crucial in appraising its character. This research is conducted in between the consolidation of the initiative in terms of public acceptance and economic activity, and the fundamental change of its practices by the introduction of the DigiBeki. The spatial setting is the canton, as only businesses set within the spatial boundaries of the syndicate can participate.

Similar to other Regios and CC, Beki is not intended as a standalone initiative or a purpose in itself, but foreseen to serve as a tool to facilitate the goals of other initiatives, such as the regional energy and agricultural transition (Trischler 2014; North 2007, 2014). Beki does not have a paramount significance in an overall hierarchy of the rural development like the low-carbon transition, but it has the potential to play an integral role in facilitating and connecting other grassroots initiatives and building capacity for community action in the canton.



Text Box 15: Site-synthesis of the Regio Beki.

7.4.2 Leitbilder of participation in the regional currency

Leitbildanalysis on Beki addresses the network of de Kär. It centres on comparative case studies, three exploratory interviews¹⁷⁵ and public documents of de Kär¹⁷⁶. Coding this data for the Leitbild-categories resulted in predominantly economic statements, and statements referring to group (de-) synchronization. Statements were chosen to reflect most identified standpoints, and not the largest occurrence of statements in data. Most of the developed statements are natural, meaning that they are derived from the interviews, or publications of de Kär.

Coding for *'future projections'*, and particularly economic future projections resulted in a large number of coded segments. To complement data of exploratory interviews and grey literature, several case studies on different forms of CC were included in the dataset. These codes were sorted along Blanc's (2011) typology displayed in table 11 to ensure a representative sample of statements for the concourse. Kennedy and Lietaer's (2004) review of 39 cases¹⁷⁷ of CC defines three types of goals:

¹⁷⁵ One exploratory interview was held about the initiative with the project manager. Exploratory interviews with the manager of the LEADER office and the manager of the cultural center in Beckerich further provided valuable information.

¹⁷⁶ Future projections (economic, social, ecological, cultural), factors of group (de-) synchronization, self-referential motifs, and knowledge.

¹⁷⁷ From all four categories of CC as introduced above

- Economic promoting local economies, keeping money to circulate locally, and 'prevent leakage of value generated out of the place'
- Social built networks and social capital', enable social inclusion and cohesion, recognition for contribution to social reproduction
- Ecological countering the financial system, shortening supply chains, thereby cutting transportation costs and pollution, promoting the sharing of assets, and ethical consumption

Case studies on Regios (Degens 2016; Lietaer 2016; North 2006; Thiel 2011) and LETS (Collom 2005; North 2007, 2014; Seyfang 2001) served to flesh out these *future projection* categories¹⁷⁸. In a case study on the Regios *Voralberg Taler* and *Brixton Pound*, Degens (2016) focuses on the motivations of businesses to participate. He opposes Thiel's (2011) argument that businesses would mainly participate because of economic motifs, as in these two cases the overall economic activity stimulated by the CC was low, and the resources required by companies to participate were higher than the gains. Nonetheless, organisers of the currencies would highlight CC's function to promote regional consumption. Further, businesses would participate, because they expect learning effects among the population and an improvement of cultural life. CC are regarded as stimuli to reflect about money, and further support regional associations and specific projects. Amongst businesses, Degens (2013) recognizes an identification with alternative economic approaches, patriotism, scepticism towards the €, and being part of and contributing to a community as main motifs for participation.

Thiel's (2011) study on the Chiemgauer cites regional officials describing the currency as an instrument for marketing, as well as for fostering common good, fostering awareness on the monetary system and holding purchasing power in the region. For consumers, he identifies environmental protection and support of a regional identity¹⁷⁹, and a general sense of being responsible with acquired wealth as the main reasons to participate. Furthermore, Thiel (2011) stresses the Chiemgauer's communicative symbolism, as consumers would use it to portray themselves as responsible and engaged citizens. The latter is a *self-referential statement*, more specifically an example of ethical self-fulfilment.

Studies on LETS initiatives were reviewed at to better understand private persons' motivations for participation. North's (2007, pp 79-101) case study on a LETS scheme in Manchester, UK, distinguishes three groups of participants based on their motivation: value free (simply enjoying the interaction), humanising the economy (for a common good), and greening. These are fleshed out further at the case of Ithaca Hours, a paper currency based on time conveying a strong localist

¹⁷⁸ These works have been chosen not only because of their impact in the research field, but because of the rich illustrations of different participant groups' arguments they convey.

¹⁷⁹ The benefits of the Chiemgauer are invested in regional cultural associations, such as *Trachtenvereine*. Thiel (2011) argues that this generated support from rather conservative and traditional citizens.

thrust (North 2014). Central motivations are "building convivial, community based local economies", regarding local currencies as "bearers of the resistant visions (...) and act as tools for rethinking economies" (ibid. p. 255). The case in the other hand emphasizes some people's resistance to the "re-subjectification of money" (ibid. p. 261).

Seyfang (2001) examines CC as efforts for local economic development and local sustainable development. She argues that whereas the focus in early CC experiments lay on ecological sustainability, it had shifted to supporting localized economies in the late 1990's. Here, creating (informal) employment, providing welfare options for the unemployed, re-embedding the economy, promoting self-reliance, shifting consumption, and creating green networks are relevant motivations of local activists. The goal of social inclusion is also in the centre of Collom's (2005) review on LETS in the US, as he emphasises their potential "to empower the marginalized and to build social capital" (ibid. p. 1565).

The exploratory interviews and the review grey literature on Beki largely correspond to the *future-projections-Leitbilder* introduced above, while added to the categories of *external/internal factors of group (de-) synchronization*. The public documents and homepage of de Kär show a strong bias towards *economic, social and cultural future projections* (see box 13). However, more critical standpoints were taken in the three exploratory interviews, with some revealing a motivation to complement and improve a monetary system that is deemed to be destructive, unjust, and inherently unstable. Interviewees states that these objectives are deliberately not emphasized publicly to avoid stigmatization.

Table 13: The concourse of Leitbilder of de Kär's network.

FUTURE PROJECTIONS				GROUP SYNCHRONIZATION				SELF-REFERENTIAL MOTIFS	KNOWLEDGE
ECONOMIC	ECOLOGICAL	SOCIAL	CULTURE	INTERNAL	INTERNAL DE-	EXTERNAL	EXTERNAL DE-		
Der BEKI ist ein Beitrag zu einem gerechteren Wirtschaftssystem.	Es ist mir wichtig, kürzere Transportwege zu fördern.	Die Regionalwährung schafft Arbeitsplätze.	Mit dem BEKI steigern wir das Gemeinwohl in der Region.	Der BEKI vereint die verschiedenen Interessen seiner Teilnehmergruppen.	Interessenskonflikte und Uneinigkeit über Ziele sind ein Problem bei Initiativen wie dem BEKI.	Der BEKI hat in der Region einen starken Rückhalt.	Lokale Eitelkeiten sind ein Problem in Redingen.	Mit dem BEKI habe ich das Gefühl etwas Gutes zu tun.	Durch den BEKI denke ich stärker über wirtschaftliche Zusammenhänge nach.
Durch den BEKI arbeiten Unternehmen stärker zusammen.	Mit dem BEKI unterstütze ich eine umweltfreundliche Produktion.	Der BEKI fördert die regionale Solidarität.	Das Gemeinwohl sollte oberstes Gebot der Wirtschaft sein.	Ich vertraue Menschen, die am BEKI teilnehmen.	Das Engagement beim BEKI ist vielen Leuten zu anstrengend.	Durch unsere Abgeschiedenheit müssen wir im Kanton kreativ sein und neue Wege gehen.	Im Endeffekt ist der BEKI für die meisten Leute Monopoly-Geld, er wird nicht richtig verstanden.	Das Hauptmotiv meiner Teilnahme ist der finanzielle Gewinn.	Es ist wichtig, dass wir beständig lernen, um die Region zu entwickeln.
Ich gebe gerne ein wenig mehr Geld aus, wenn es in der Region bleibt.	Die Renaturierungsmaßnahmen sind unser natürlicher Schutz vor Hochwasser.	Der BEKI sollte nur für regional produzierte Waren und Dienstleistungen gelten.	Wir müssen als Region mehr Selbstbestimmung erlangen.	Allgemein werden in Redingen unterschiedliche Meinungen offen diskutiert und respektiert.	Der Zahlungsverkehr mit dem BEKI ist zu aufwendig.	Erst der nationale Wohlstand ermöglicht Initiativen wie den BEKI.	Der BEKI steht im Konflikt mit der Luxemburger Mentalität.	Der BEKI hilft mir dabei, bewusster zu leben.	Es ist wichtig, dass wir uns Wissen in die Region holen, um Projekte wie den BEKI hervorbringen zu können.
Der BEKI ist ein starkes Marketinginstrument für die Region.	Der BEKI sollte nur für umweltfreundlich produzierte Güter gelten, und diese so fördern.	Aus Solidarität mit der Generation unserer Kinder müssen wir unsere Landschaft schützen und pflegen.	Eine gemeinsame Währung stärkt unsere regionale Identität.					Menschen, die mit dem BEKI bezahlen, sind mir sympathisch.	Durch den BEKI lernen wir noch besser miteinander zu kooperieren.
Es ist wichtig, dem globalen Finanzsystem lokale Alternativen wie Regionalwährungen entgegenzustellen	Wir haben eine Verantwortung unsere Landschaft zu pflegen und der BEKI hilft dabei.	Ich mache beim BEKI mit, weil das Vereinsleben in unserer Region unterstützt wird.	Wir brauchen mehr basisdemokratische Teilhabe.					Teilnahme am BEKI ist für mich zivilgesellschaftliches Engagement.	Ich habe vollkommen verstanden, wie der BEKI funktioniert.
Eine komplementäre Währung ist auch ein Rettungsboot für den Fall einer Wirtschaftskrise.	Der BEKI verbessert die Nahversorgung.							Am BEKI teilzunehmen macht Spaß!	Wenn ich mit dem BEKI einkaufe, weiß ich woher das Produkt kommt.
Mit dem BEKI fördern wir die regionale Wirtschaft.									
Der BEKI soll Unternehmen Marktvoorteile bieten.									

The table shows the original statements of the Q sorts. Since these are part of the data presentation, they are not translated into English.

7.4.3 Social perspectives on the regional currency Beki

The Q study resulted in 3 factors, or social perspectives. Factor loadings of the 15 sorts are unevenly distributed, with 9 sorts loading significantly on factor 1, three significantly positive and two significantly negative on factor 2, and two significantly positive and three significantly negative on factor 3.

Factor correlations show a good result of the manual rotation, as factor one and two show almost no correlation, one and three a low correlation, and three and two a slightly negative correlation. Bk1 shows most correlation with other sorts, meaning this perspective relates to other sorts the most, while bk3, bk4, and bk9 correlate significantly with five other sorts each. The factors are introduced as narratives, with each being assigned a signifier describing its social perspective:

Factor 1	<i>A contribution to a more just and sustainable economic system</i>
Factor 2	<i>An instrument for a more dynamic and green regional economy</i>
Factor 3	<i>An instrument for economic solidarity and local business</i>

Number of sorts:	15
Methods:	PCA_Manual rotation
Number of factors:	3
Correlations between factors:	F1-F2: 0.07; F1-F3: 0.1; F2-F3: -0.01
Consensus statements:	5

Text Box 16: Technical details of the Q study on the initiative Beki.

7.4.3.1 Social perspectives

Factor 1	<i>A contribution to a better economic system</i>
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"The most important thing is to take initiative against the global financial system, because it threatens domestic economic stability and often has negative repercussions on distant other places. In my opinion, common good and social justice should be the highest goals of the economic system and Beki is an instrument for achieving this at least in Réiden. Consequently, the more Beki are in circulation, the better for Réiden. We can already see increasing cooperation amongst companies. Although Beki should not only relate to environmentally friendly, or even regionally produced goods, reducing transportation ways remains an important aspect.

Profit is not my motivation to participate at all. Especially for companies, participation costs more resources in terms of time and workload than it generates. Thus, rather than being economically rational, partaking in the initiative is civic engagement that promotes regional solidarity, at least

with the currency's current set-up. The initiative is not yet large enough to serve as a protection from economic crises.

Unfortunately, Beki does not have a strong support in the canton, because it does not yet generate immediate economic benefits, but also because of the conceitedness of certain individuals: Conservative politicians and farmers tend to oppose and undermine it- not necessarily based on a thorough reflection of its functions and effects, but because it is considered part of the legacy of Camille Gira, to whom many hold personal aversions. Further, the wealth of municipalities and private persons can make it more difficult to introduce new, or different initiatives. People do not see a necessity for change, especially regarding the financial system and the single currency, from which in Luxembourg benefit handsomely."

Factor 2 *An instrument for a more dynamic and green regional economy*

"Beki is as a practical tool for a more sustainable and dynamic economic development. However, we should not have any illusions of the initiative's effect on to the global economic system. I don't see Beki as a contribution to systemic change, let alone a rescue vessel for an eventual financial crisis.

Because of the canton's remoteness, we citizens have to be creative and explore new paths in policy-making. The main objective of the Regio is to strengthen social cohesion, and it does foster solidarity and cooperation. Environmental protection needs to be improved in the canton, and Beki can be a tool for better stewardship of our landscape. It serves environmental sustainability by shortening transportation ways.

However, I feel that Beki is not well received in the region. People do not understand it properly, and for most using it is too intricate. It is difficult to put forward initiatives like Beki, as conflicts of interest among stakeholders are often a problem. Also, as people in Luxembourg are rather egocentric and protective of their own financial well-being, Beki can be seen as counter-cultural. Considering that this culture is deeply rooted in Luxembourg, thinking about an economy of a common good is reverie. The way I see it, Beki is not a contribution to a more just economic system, regionally or globally; it is simply too small."

Factor 3 *An instrument for economic solidarity and local business*

"Beki promotes the regional economy, but I don't see it is not a criticism of our political economy. To me, sustainability effects are secondary, and regionalizing supply chains and promoting local business fosters sustainability incrementally anyway.

I think that Beki is a strong instrument for marketing the canton Réiden and its businesses outside, and it does promote solidarity and employment within. Cooperation between different stakeholder groups in Réiden is encouraged through the initiative and it improves alimentation with

regional goods. For the future I could imagine Beki to serve promoting only regionally produced goods and services, but is too early stages to consider this. For now, the more Beki are in circulation, the better for Réiden!

Generally, the common good should be the highest goal of the economy, and from what I can see, Beki does contribute to promote this ideal within in Réiden. The initiative does not have much impact beyond the regional economy, however, and I don't think it would increase our resilience case of an economic crisis. We are merely doing what makes sense for us in Réiden, nothing more, and nothing less.

One should not put Beki in context of the national political economy, or the financial system; it does not contrast "a" Luxembourgish mentality. Also, initiatives as Beki are not facilitated by the national wealth, which in my experience can even impede the introduction of new ideas at times. Generally, the canton Réiden does not need more autonomy or basic democracy. It is more important to take ownership where and when possible in our economy- not because of idealism or system's critique, but for our own interest, to promote long-term well-being in Réiden and a sustainable lifestyle."

7.4.3.2. Conclusion of the Q study on Beki

Most sorts load significantly on factor 1, *A contribution to a better economic system*. This perspective appears rather idealistic and theoretical, as it connects Beki to perceived shortcomings of the global economy. The two other factors seem to have a more pragmatic and instrumental look on the initiative, with factor 2 focusing more strongly on its potential to stimulate economic activity, and factor 3 relating it more to ideas of a regional solidarity economy.

The three social perspectives agree that the fundamental function of the initiative is to promote business in Réiden and possibly make for a more environmentally benign regional economy. They further concur that at this point, using Beki is too intricate for businesses and that it does not yet create a measurable increase in economic activity. Also, all three standpoints agree that the initiative has a difficult stand in the canton and in Luxembourg.

Factor 1, on which nine out of 15 sorts load significantly, is the only perspective linking the initiative to necessary changes in the economic system. Although all social perspectives agree that the initiative does contribute to a more just economy, only the first one to derives its motivations for participation directly from perceived shortcomings of the mainstream political economy in Luxembourg and beyond. Factor 2 and 3 focus on the benefits for the canton, and particularly local businesses. The view of Beki as *an instrument of a more dynamic and green economic system* is pragmatic and green-growth oriented. Factor 3, perceiving Beki as an instrument to foster common good in Réiden shares the pragmatic perspective with factor 2, but appears hopeful for a more

systemic change in Réiden. Further, factor 2 emphasizes environmental future projections, whereas factor associates Beki with social and cultural aspects.

Factor loadings of the 15 sorts show that most participants perceive Beki as a *contribution to a better economic system*. Significant loadings of sorts stem from a diverse group of participants including the project manager, shop owners, local politicians, and activists. Three sorts load significantly on the second more pragmatic perspective *An instrument for a more dynamic and green regional economy*. Two of these sorts have been performed by persons with a background in banking who emphasized their deep sense of connectedness to the natural environment during Q talks. This perspective is negatively loaded by a sort of an entrepreneur who is a key figure in the development in Réiden. His sort loads positively on the factor *An instrument for economic solidarity and local business*.

To conclude, all social perspectives perceive Beki to be an instrument towards a more solidary and sustainable economy. Statistical indicators of the rotation suggest very little correlations between factors. They differ particularly with regards to their frame of reference: Whereas factor 1 derives its motivation from a perceived unjust global financial system, the other two concentrate more on relations in Réiden. Here, factor 3 focuses on the benefits of Beki as a marketing instrument for local business, whereas factor 2 perceives it as a tool to foster cooperation between businesses, and eventually to develop supply chains. The roles of participants in Beki correspond to the loading of their sorts, in the sense that participants with a background in banking load of the regional-cooperative factor 2 and two business owner on factor 3. All social perspectives highlight that the current physical set-up of Beki, as notes distributed by an NGO that cannot be integrated in companies' regular accounting systems, impedes the currencies' potential for stimulating the rural economy.

7.4.4 Community capabilities for a regional currency in Réiden

This section assesses the community capability for running a regional currency in Réiden. It translates the literature reviewed in the in-sites section to the community capability framework. Specifically, it defines ideal, or required functionings of a Region and compares these to existing conversion factors in Réiden. These conversion factors are derived from coding the eleven transcribed Q talks, three transcribed exploratory interviews, and grey literature for the four kinds of conversion factors.

Section 7.4.1 introduced literature on CC, and particularly Regios. It defined the role and purpose of Regios within an ecology of money. Case studies rendered good practices and impeding factors of Regios and CC in general. A Regio mainly serves the function of exchanging value, not storage and accounting of value. It is intended to stimulate the economic activity within a defined territory, to hold value generated in these areas by encouraging re-investment instead of depositing, and

to integrate the values of a community into an economic system, such as sustainability criteria. The quantitative indicators of Beki suggest the amount of notes in circulation and velocity of turnover has been steadily increasing since the currencies inception in 2013. Further, de Kär counts nearly 100 member-businesses today. However, besides these positive indicators, interview data suggest that the currency is far from achieving its potential. The most prominent impeding factors are the physical nature of the currency that discourages business to business transfers, and the rejection of the currency by many citizens. These are very common among Regions, and only few examples, such as the Swiss WIR have truly overcome them.

With the community capabilities approach, a range of functionings for running a successful Regio can be derived from the literature. These functionings can be achieved and become community capabilities, if a range of conversion factors are in place in a given community and territory. The central functionings for a successful Regio in the reviewed literature are:

- increasing economic activity ($E = Q \times V$), encouraged by demurrage rates and conversion fees
- holding value generated in a region by increasing turnover, and by offering favourable credit schemes for businesses within the currency-community
- simple integration and conversion to the legal tender
- an efficient and secure accounting system
- a wide network of issuing institutions
- a wide network of participating businesses, ideally encompassing entire value chains to facilitate circulation and to avoid "dead ends"
- cooperation with cultural and civic institutions in a region
- orientate the economy towards values of a community, such as sustainability and regionality criteria for goods and services
- improve socio-economic and political resilience in the territory
- strengthening reciprocity within communities

7.4.4.1 Cultural conversion factors

The initiative emerged in the aftermath of the global financial crisis, which had hit the Luxembourghish economy hard, and showed the exposure of the state budget to global economic volatilities. Further, the LuxLeaks scandal unfolded during the currency's inception, and laid bare the involvement of the national government in dubious practices of the finance industry. However, these historic events seem to have triggered engagement only for a core group of activists in the early years of the currency, while the general public, partly misinformed by incorrect media reports, remains sceptical.

The core group of activists and members of de Kär widely share an awareness of these two incidents and pursue the Region as an instrument to increase the socio-economic resilience in Réiden and support local businesses. The results of Q study indicate that most participants share the view that at the current set-up, Beki does not yet trigger enough economic activity to achieve the

respective future projections. Moreover, visions seem to depart slightly regarding the realms of future projections they address. A commonality among social perspectives are the expected positive effects of Beki for the rural economy: The currency is perceived as an instrument facilitate regionalization of supply chains and thus to promote sufficiency and resilience. This is summed up by a renown regional entrepreneur: "For me regionalization means that we first of learn to stretch ourselves according to the size of the blanket. And only to take in from the outside those things that are missing. More quality and control. And also a finely-woven local economic network of jobs and know-how, with quality criteria that are better than those of globalized products" (bk40)¹⁸⁰.

Regarding consumers, it has been suggested that most people using Beki are the usual suspects that are engaged in other initiatives as well (bk1, bk9, bk11, bk40): "Often it is the open-minded people who say that Beki is great. These are the eco and green people who are engaged in environmental initiatives" (bk11)¹⁸¹. In this sense, there is concern that the purpose and vision of Beki are not accepted by a large enough group of citizens in the canton.

Nearly all participants agreed that transforming Beki to a digital currency (DigiBeki) would increase overall economic activity and thus trigger more positive externalities to achieve future projections. DigiBeki is thus a shared objective of most participants, with business owners emphasizing that it must not create more costs.

Unlike other research cases, and especially LETS, participants of Beki widely reject the idea of the currency fostering more autonomy or a demarcation from the wider political economy. Bk3's quote is representative for this view: "What I don't want is that Beki creates a 'Kantönligeist'"¹⁸², meaning a narrow-minded localist spirit. Interestingly, this critique is often brought forward against the initiative by opposition in the canton and national administration. Most participants of the study perceive the political landscape to be obstructing the initiative for irrational reasons. Although it was argued that cooperation in Réiden was stronger than in other Luxembourgish cantons (bk1, bk3, bk7, bk9, bk31, bk36, bk39, bk40), opposition towards Beki is perceived as strong. A key problem is the Camille Gira's legacy: "Many people are politically narrow-minded. In the villages people look at who is for an initiative and then they choose to be against it" (bk10)¹⁸³.

To conclude, the capability of the members of De Kär, including activists and participating businesses, to get behind a common vision seems high and stable. The two landscape events during which the grassroots initiative was developed seem to have little effect beyond this group of participants. Regarding the reports from arguments of the opposition, these events to not have the

¹⁸⁰ „Für mich ist Regionalisierung eben, das man sich erst einmal der Decke nach streckt. Und dann erst die Dinge, die fehlen, von außen hereinnimmt. Mehr Qualität und Kontrolle. Und eben auch ein feineres lokales wirtschaftliches Netz, von Arbeitsplätzen, über Know-How, das Einfließen besserer Qualitätskriterien. Als bei globalisierten Produkten.“ (bk40)

¹⁸¹ „Also oft sind des die open-minded Leute, die dann sagen ok Beki ist toll, und das sind dann Leute die zur gleichen Zeit grün und bio und umweltfreundlich aktiv sind.“ (bk11)

¹⁸² „Was ich nicht will, ist das die Regionalwährung so einen Kantönligeist ergibt.“ (bk3)

¹⁸³ „Viele sind eben politisch kleinkariert. Auch in den Dörfern, die Leute schauen erst wer ist dafür, und dann sind sie dagegen.“ (bk10)

same catalytic effects for citizen engagement like those in the other initiatives, because their repercussions were not felt immediately in Réiden. Further, many citizens in the canton perceive it as a attack on the single currency, which they regard as synonymous with European integration and therefore prosperity and safety in Luxembourg. The ability to get behind a common vision is therefore very high among members, but the economic effects of Beki are not yet strong enough to convince larger parts of the citizenry.

7.4.4.2 Organizational conversion factors

After a turbulent beginning, the grassroots initiative has become formalized and professionalized. Today, Beki is managed by two employees working for the managing NPO de Kär. Since the LEADER funding has ended, the initiative is financed by the inter-communal syndicate and member businesses. In the long-term, the aim is to become financially self-sustaining, e.g. being fully carried by the member base.

The employees of de Kär have substantial initiative power. They actively promote and expand Beki's network among businesses in the canton, and actively participate in national events and networks. Examples here are the involvement in the workgroups for the Rifkin report, a variety of public events on alternative economics and finance, as well as activities of the Transition Town movement. In 2018, de Kär has organized the annual convention of German-speaking Regional currencies. Through these engagements, the idea to create a DigiBeki was developed, and it can be seen as increasing the capability to transform and expand the initiatives' capabilities. Specifically, it has the potential to make the initiative more attractive for businesses and thus stimulate more economic activity in the canton.

The initiative is further deeply intertwined with other grassroots initiatives. Vun der Atert offers favourable prices when a subscription is purchased in Beki, and energy cooperatives in the canton offer to pay their revenues in Beki, which has a large potential impact for stimulating circulation. The Beki will further be an integral part of the envisaged regional commerce platform *Grinngo*, which is currently under development.

On the user's side, Beki is seen as too intricate to use for businesses and banks. An entrepreneur argued that it would practically require a separate line of book-keeping, if the amount of bills in the store reaches a certain limit. In banks, all Beki notes have to be counted by hand on a weekly basis, which would cause annoyance among the employees.

Most interviewees stated that the opportunities to spend Beki have improved significantly over the past years, which is essential in guaranteeing an economic activity. However, business-to-business transfer remains a challenge. Especially small shops and supermarkets are occasionally dead ends for large amounts of Beki, since they buy most of their produce wholesale from companies outside of the canton. However, interviewees stated that the active integration of Beki into agricultural and

energy projects could solve this problem prospectively, as certain product lines and supply chains could close cycles of financial flows.

The economic values of participants in this study appear largely congruent. Difference in visions lay mostly in the confidence placed in the initiative to affect the regional economy. The values of supporting local businesses and promoting more sustainable living seem to be consensus. Bk40, having long-standing in regional initiatives and workshops since the 1980's holds this to be a general phenomenon in regional initiatives: "Sustainability criteria, be it in tourism, foodstuffs, whatever, that's always a given. That is not even discussed anymore. It is like a trademark that everyone in region has adopted as being self-evident. When we do something, it has to be sustainable."¹⁸⁴ Beki can be regarded as a tool to orientate the economy towards these principles.

The initiative has an active member base, as the author witnessed when attending de Kär's general assembly in 2017. Around 50 private persons, as well as entrepreneurs and regional bank representatives attended the assembly. However, there had been little debate during the presentations, which was surprising given that the project of the DigiBeki had been presented at this occasion.¹⁸⁵ In comparison to other successful Regios, this member-base is however very small. Naturally, Réiden has a much smaller population and economic power than the territories of the Chiemgauer and the WIR Taler, and both currencies are significantly older and offer electronic payment systems that make it easier for larger number of consumers and businesses to participate.

Regarding the wider political context, several interviewees stated that they felt Beki is sabotaged by the inter-communal syndicate and national administration (bk1, bk3, bk4, bk5)¹⁸⁶. The funding scheme of the initiative puts it in a situation of constant precariousness. This aversion from regional politicians is ascribed to personal conceitedness and is not expected to change soon. The project of DigiBeki is thus still pending, and with it the potential of the initiative to achieve its most important functionings and to be an integrative tool for increasing the organizational capability of other initiatives.

A line of conflict can also be seen between a progressive, green mindset and a rather conservative capitalist political establishment in Luxembourg (bk1, bk 2, bk 5, bk31). This manifested in two events (cf bk1): the Rifkin workshops, and the application of the canton in EU rural development competitions. In course of the Rifkin report, representatives of Beki had been excluded of the workgroups, arguably because of the intervention of powerful bank representatives wanting to avoid positive public reports about Beki. Incidentally, the initiative has been praised by Rifkin-representatives and is adopted in the final report. Secondly, in course of the application process of an

¹⁸⁴ "Wie beispielsweise Kriterien über Nachhaltigkeit, ob das Tourismus, ob das Lebensmittelproduktion, oder irgendwas war. Das ist immer gesetzt. Das wird nicht diskutiert. Das ist wie ein Markenzeichen, das jeder, der hier in der Region ist, als selbstverständlich bereits aufgenommen hat. Wenn, dann muss es nachhaltig sein." (bk40)

¹⁸⁵ The author had to leave at the end of the presentation and could not attend the following get-together.

¹⁸⁶ As the core interest was to analyse the internal group dynamics, no interviews with the respective opponents have been held for this study. The picture on these political conflicts is thus one-sided.

EU competition for a rural development prize, regional politicians adopted the Beki in their bid as an example of the Réiden's innovativeness. These are the same persons who undermine the funding process of the initiative and speak negatively about its management in public media. It seems that a conservative establishment uses the initiative as a showcase to experts from politics and science outside of the country, but effectively undermines it within Luxembourg.

To conclude, participants have argued that sustainability-related values are increasingly becoming a consensus in Réiden, and Beki is seen as an essential instrument for regionalizing aspects of the economy. Two employees manage de Kär and Beki, with the project manager being an economist who is actively forging synergies between Beki and other initiatives. The member-base and governing board of de Kär have a strong collective vision regarding the effects of Beki for the rural economy. This is needed, because the NPO is under scrutiny of local politicians, the inter-communal syndicate, and national administration. The member base of Beki, consisting of businesses and private members, seems vibrant, but it is significantly smaller than those of other Regios. Members actively promote the initiative in the canton, and nationally. Further, Beki is an integral part to other LEADER initiatives, projects in the domains of agriculture and energy, and the association of entrepreneurs. The governing board of Beki actively forges relations to other Regios in neighbouring countries. Hindering factors regarding the practical use of Beki are addressed by the initiative in form of DigiBeki. De Kär has a high internal organizational capacity, and strong relations to other organisations. This is important regarding the still rather aversive institutional environment.

7.4.4.3 Personal conversion factors

The grassroots initiative Beki requires a high degree of diverse technical and diplomatic skills from its key figures, and an active support from its member-community. A complementary currency, and particularly Regios rest on a profound understanding of economics on various scales, and technical knowledge to mitigate risks of participation. Given the public opposition against the project, diplomatic skills and leadership of protagonists are required to convincing a critical mass of people of the project, also by lending their personal integrity and reputation to the project.

In the initial phase, the public commitment of various prominent figures of the canton, such as a bank director, well-known entrepreneurs, local politicians, and volunteering citizens was required to gain public consent for the initiative. Besides lobbying in their respective domains and communes for the initiative, these individuals also participated in practical workshops to adapt the concept to the local context.

Public outreach depended on these individuals. As an example, participants with a background in banking and finance who experienced the fallacies in the financial system at the forefront shared their experiences in the canton (bk7, bk9, bk31). Regional entrepreneurs, among them the president of the *Union Commercial Redange*, and the entrepreneur of *Pall Center* (a renown local

supermarket-chain), raised awareness to the need of supporting the rural economy (bk2, bk10, bk36, bk40). Some interviewees working in regional branch offices of larger corporations stated that they faced strong internal opposition from their headquarters for supporting the initiative (bk10, bk31). It can be argued that expertise and lobbying from key stakeholders of different socio-economic fields was and still is necessary to maintain the initiative.

The role of Camille Gira is seen ambivalently amongst participants. All participants highlighted the importance of his input and support in the outset of the initiative. However, at the end of his tenure as mayor of Beckerich and president of the inter-communal syndicate, resistance against his 'green' policies grew stronger. Several participants argued that many would oppose Beki as a matter of principle as it is perceived as "Camille Gira's money". "Amongst our friends are many farmers. You must not mention Gira's name, or you're dead. Everyone relates the Beki to Gira, that's why it is unacceptable" (bk 38)¹⁸⁷.

Despite the opposition from the intercommunal syndicate and national administration, project management of Beki has been continuous. Notably, Beki has been managed by the same person, although the job is insecure due to financing model of the syndicate, pays significantly less than positions in local administration, and potentially stimulates public resentment. The project manager combines technical knowledge on economics and financial systems with perseverance and the diplomatic skills to promote the initiative publicly. An interviewee described this difficult task: "They need a religion and this religion is growth. And (he) has to serve this religion. It is not about saying truthful things or scaring people. It is about carrying the right things to the right ears"¹⁸⁸. The project manager himself stated in several interviews that he would not get into conflict with people for ideological reasons, because people would rarely have the background knowledge in initiatives like Beki. He emphasized that the focus should therefore lie on capacity building and education of the citizenry so that more people would understand the potential benefits of Beki for the community.

On the other hand, it also seems that the initiative relies strongly on the technical and political skills, as well as the personal commitment of the project manager. It seems that action knowledge that is essential for running Beki is monopolized in this person. The inclusion and training of a new employee may be a step to address this issue. The current president of de Kär is an active participant in SoLaWa and works in the Energieatelier. He is well known in the canton and has been chosen by the members as the charismatic front figure of the initiative. He actively engages with the inter-communal syndicate to acquire the needed budget every year.

¹⁸⁷ „Camille Gira ist jetzt auch Schuld, dass der Wolf und der Fuchs hier sind. In unserem Bekanntenkreis sind sehr viele Bauern. Und der Name Gira darf nicht fallen, sonst bist du tot. Und alle die bringen den Beki mit Gira in Verbindung, deshalb geht das überhaupt nicht.“ (bk38)

¹⁸⁸ „Sie brauchen eine Religion und die Religion ist Wirtschaft bzw. das Wachstum. Und dann muss (er) diese Religion bedienen. Und dann geht es nicht darum, redliche Sachen zu sagen und den Leuten Angst zu machen. Es geht darum, dem jeweiligen Ohr die richtigen Dinge zu zutragen.“ (anonymised)

To conclude, Beki relies strongly on expertise and dedication of a core group of individuals, whose skills and effort can be seen as complementary. The initiative is linked to other cooperatives, NPOs, and business through these people. This commitment is indispensable for the public outreach of the initiative, given the strong public opposition in the beginning. While some have contributed only in specific stages of the project, others, as the project manager, guarantee continuity of the initiative. Given the unique skill set and commitment of this person, it can be assumed that the initiative relies on his engagement. New people, such as the new employee of de Kär, are actively integrated and taught about the functions of the project.

7.4.4.4 Infrastructural conversion factors

The infrastructural aspects of Beki include the office of de Kär, the Beki-notes, and the infrastructural set-up in businesses and issuing and receiving institutions. Should the LEADER-fund for a digital currency be cleared, the respective technology and devices needed for transactions and accounting would be regarded as infrastructure, too.

The management of Beki is located in the cultural centre *d'Millen* in Beckerich. Issuing institutions are the regional branch offices of most Luxembourgish banks, the post offices, and the office in *d'Millen*. As the format of the notes does not comply with that of € notes, there are no machines involved in the accounting of Beki. In the banks, notes are stored in card-board boxes (bk39), in businesses' usually under the € notes in the cash register (bk36). A regional bank director described the situation: "We have boxes full of Beki, and we try to reduce it to a minimum. We have to count them once a week like other currencies as well, even if there has been no exchange at all. And Beki is no real money; we cannot run it through our machines. We have to count it manually. We support it, but it does take a lot of effort."¹⁸⁹

The system is regarded as highly inefficient by issuing institutions and businesses, and it causes aversion among employees. Entrepreneurs and bank representatives identified this univocally as the biggest problem of the initiative, and an obstacle for achieving its main functionings, stimulating economic activity (bk10, bk11, bk36, bk38, bk39, bk40). As a side effect, Beki is often handled informally, with entrepreneurs stating that they simply exchange Bekis they received for € in their cash register and use them privately. Also, grocery stores who are accepting Beki, and who can use them for interaction with others businesses, are functioning as "small banks" (bk36), where neighbouring entrepreneurs would convert their Beki notes.

This situation makes measuring the economic activity conducted in Beki very difficult (bk1). Most participants therefore welcome the idea of transforming Beki to an electronic currency. B11

¹⁸⁹ „Wir haben Kisten mit Bekis drin, und wir versuchen das auf ein Minimum zu reduzieren. Und die Vorschrift ist, dass wir die jede Woche zählen. Wie andere Devisen müssen wir mindestens einmal pro Woche zählen. Auch wenn kein Umtausch stattgefunden hat. Und der Beki ist kein richtiges Geld es geht nicht durch die Zählmaschine. Das müssen wir manuell zählen. Wir unterstützen das schon, aber es ist mit viel Aufwand verbunden.“ (bk 39)

however is sceptical, as he perceived Beki a tool for direct personal interaction, a function he fears would be lost should it become digitalized.

Transferring the currency to an electronic payment system would reduce the management costs for de Kär and the transaction costs for all participants. It would allow business transactions to be performed more easily in Beki, which is currently only done by dedicated members (bk10, bk36, bk40). This might boost the overall turnover, given that the security is trusted (bk40). Further, it could be amended with complementary infrastructure that links it better to other initiatives as SoLaWa or energy cooperatives. One such idea is a bonus system of regionally produced goods and services.

As of now, the infrastructural set-up of the currency can be regarded as impeding the currency to achieve the crucial functionings of stimulating economic activity in Réiden. The required time and work to the accounting in Beki inhibit participation, and particularly business-to-business transfers. This problem has been identified and a solution proposed with the *DigiBeki* project. Translating Beki into a territorially defined crypto currency could reduce the transaction costs for all participants, increase the security of the system, allow for an easy integration of demurrage rates, and enable community values into the currency via smart contracts. Such a system would not require new physical devices such as electronic payment cards, and infrastructure in stores. The application for a LEADER budget position is currently pending in Luxembourgish administration.

7.4.4.5 Conclusion community capabilities

This section summarizes the findings made in the four conversion factor dimensions and reflects upon the overall capability for bringing forth an effective Regio in the canton. Considering the good practices, or functionalities of CC in an ecology of money introduced in the in-sites section, Beki has had a challenging start since the first workgroup began the concept in Beckerich. A fundamental problem of the grassroots initiative is that it requires a critical mass and diversity of participants to achieve its most important functionalities, stimulating economic activity and holding value generated in the canton. Recent developments, like the increasing acceptance among the population and the inter-communal syndicate, and the project to transform Beki in a territorial crypto currency suggest that these functionalities may be achieved in the future. The following presents a structured overview on in the conversion factors identified above and reflects these with literature presented in the in-sites section.

The Regio is arguably the most contested of the initiatives analysed in this thesis and has faced scrutiny from public media and coercion from national administration. Nonetheless, the initiative is becoming more accepted and institutionally consolidated. This can be attributed to high degrees of cultural, organizational, and personal capabilities within the core group of members (also

Collom 2005; Seyfang and Longhurst 2016). There is a danger of actionable knowledge on how to run the initiative being monopolized by highly committed individuals.

The initiative has strong ties with other grassroots initiatives, and the LAG, and is connected to Luxembourgish Transition Network and the international network of regional currencies. However, several members of the intercommunal syndicate, on whose funds the grassroots initiative yet depends, are against Beki and make it difficult for de Kär to obtain funding.

As of now, the identified conversion factors fall short of the functionalities of stimulating economic activity, improving supply chains, and holding value generated in the canton (Degens 2013; 2016; Lietaer 2016; Lietaer and Dunne 2013). Although these are already functions of Beki, its absolute numbers are yet too small to truly have an impact. This may be due to two reasons: For one, the initiative is comparably young, and its member base is still growing. Certain supply chains, such as in agriculture and energy are currently regionalized, and these regionalization process may have mutually reinforcing effects with the economic activity of the Region. Beki is not regarded as an end in itself, but as an instrument to facilitate other grassroots initiatives and maximize their impact., while increasing its own institutionalization in Réiden. This corresponds to literature on the diffusion of CC (Seyfang and Longhurst 2016), and the reciprocally institutionalizing relationship between CC and localized solidarity economies (Meyer and Hudon 2017; North 2014; Kennedy and Lietaer 2004).

Second, the largest challenge of the initiative lies in the field of organisational and infrastructural conversion factors. At the current set-up with physical notes, the initiative will probably not be able to achieve its functionings. This is a common problem among CC: Significant economic effects are achieved when the currency is management by formal institutions, such as banks or high-capacity accounting systems (Lietaer 2016), and they tend to remain rather symbolic when these systems are not in place (Degens 2016). Therefore, transferring Beki into a territorial cryptocurrency may allow the initiative to achieve its functionings, while optimizing existing conversion factors: Interviewees argued that the technology would allow fast and secure transfers of large sums, without having to put in place new expensive physical infrastructure, or inflating needed organisational and personal conversion factors. Furthermore, this would allow programming demurrage rates and community values "into" the currency via smart contracts and thus facilitate re-orienting the rural economy. Also, lending favourable schemes between businesses in the canton could be facilitated this way. Finally, an electronic currency would be easier to monitor, which may allow identifying impeding factors and leveraging positive effects politically to increase the general acceptance of the currency.

Table 14: Summary of enhancing and inhibiting conversion factors of Beki.

Conversion factor	Cultural	Organisational	Personal	Infrastructural
Enhancing factors	Global financial crisis	Strong internal coherence and stability of managing institution de Kär	High commitment of individuals in work groups, publicly, and within their companies	Beki is an infrastructure for other initiatives
	LuxLeaks	Strong ties with LAG	Core group assembles diverse skills of banking, micro-economics, and political bargaining	De Kär is located in the cultural centre d'Millen in Beckerich
	High coherence of common vision among members	Strong ties with other grassroots initiatives in Réiden	Popular and respected figures from different domains vouch publicly for Beki	Around 200.000 Beki notes are in circulation
		The development of supply chains, particularly in energy and agriculture may facilitate circulation of Beki and vice versa		
	International acknowledgement (Rifkin workgroups, Village Renewal Prize competition)	Support from Union Commerciale Redange	Personnel continuity and expansion in managing institution	Several banks and a post office issue and accept the notes
	Capacity building, organization of educative events and workshops	Ties to the national Transition Network		DigiBeki may help overcoming inhibiting factors
Inhibiting factors	Incorrect media reports and attempts to discredit the initiative	Rejection and obstruction by the inter-communal syndicate (credit lines are still granted)	Technical and political knowledge very much mono-polized within one employee of de Kär	The physical nature of notes impedes larger business-to-business transfers
	Resentment against the initiative among parts of the local citizenry	Obstruction of the initiative by national administration (regarding clearance of LEADER funds for DigiBeki)	Many relate the initiative to Camille Gira and reject it for personal reasons	The physical nature of notes requires two lines of accounting
	Resentment against the initiative among local politicians	Exclusion from workgroups for Rifkin-report The physical nature of notes requires two lines of accounting for businesses		The physical notes do not fit into counting machines and have to be counted by hand

7.4.5 Discussion of findings

Beki is a grassroots initiative that contributes to an ecology of money (Degens 2013; Douthwaite 1999). It is aimed to complement the current monetary system in aspects it is perceived to fall short: Stimulating economic activity in rural areas, regionalizing supply chains of primary and secondary goods, and holding value generated in the region (Lietaer and Dunne 2013). The initiative is also intended as an instrument to address specific problems in the canton. In the field of agriculture, for example, these are the dependence of farmers on globalized trade systems, their disconnection from consumers, and increasing economic precariousness (see following section). Beki can therefore be regarded as "a strategy for creating more liberated futures" (North 2007, p. XII).

Beki has been established after 2010, in the aftermath of the financial crisis. It has been developed in workgroups of the KomEcoRura in Beckerich and went public prematurely after incorrect media reports. The grassroots initiative subsequently faced strong public opposition and coercion from national government. Due to the strong commitment and skills of the core group, the grassroots initiative seems to be stabilized and continuously expands in member base, and increases the economic activity generated in Beki. The initiative has strong relations to other institutions and grassroots initiatives, as well as national and international NGOs.

Q study revealed three unrelated and yet complimentary social perspectives. Whereas factor 1, on which most participants load, shows a strong concern towards the global financial system, factor 3 focuses on the initiative as a tool to promote local business, and declines any systemic relevance. The factors widely correspond to the roles in the initiative of the participants whose sorts load on them. Factor 2 takes a more regional-cooperative perspective and highlights Beki's potentials for regionalizing supply chains and greening the rural economy. Factor 2 can therefore be seen to moderate between factor 1 and factor 3.

Community capability analysis showed that the grassroots initiative yet falls short of achieving the functionings of successful comparative cases. This is mainly due to inhibiting organisational and infrastructural conversion factors. However, the group has developed a strategy to address these problems. The introduction of DigiBeki could help achieving the above-named functionalities, without straining other conversion factors.

7.5 THE ALTERNATIVE FOOD NETWORK SOLAWA

The grassroots initiative *Solidaresch Landwirtschaft Atert-Wark* (SoLaWa) is an emerging *alternative food network* (AFN) in Réiden. Its various projects promote the regionalization agricultural supply chains, support family-owned farms in the canton, and foster more sustainable and socially just farming practices in the canton. SoLaWa's managing institution, the community supported agriculture cooperative (CSA) *vun der Atert* s.c. re-connects producers, processors, vendors, and consumers in Réiden. It is part of a wider agricultural transition in Luxembourg, but unique in the regard that is a territorial approach that theoretically connects many different producers to many consumers in the canton, and not an alternative distribution scheme of one production site.

Since the initiative's initiation as a LEADER project in 2016, the grassroots initiative as cooperative has diversified significantly, and brought forward several spin-off projects in various agricultural domains. Today, *vun der Atert* sits at the heart of an ongoing agricultural transition brought forward by several experiments along the food supply chain, similar to Energieatelier and the low-carbon transition.

This constant diversification is a challenge for analysis: The in-sites had to be altered and amended several times, and the community capabilities are more complex. Several of the projects introduced in the following did not exist when the sample for data gathering was developed.

GRASSROOTS INITIATIVE	Solidaresch Landwirtschaft Atert-Wark (SoLaWa)
FORMAL INSTITUTION	<i>vun der Atert</i> s.c. (cooperative that coordinates a network experimenting with alternative food supply chains in Réiden)
POLICY DOMAIN	Agriculture, environment, economy
PHENOMENON	Alternative food network, short supply, food justice community supported agriculture, ecological citizenship
EXPLORATORY INTERVIEWS	3 transcribed the project manager of <i>vun der Atert</i> , the LEADER manager, a Luxembourgish sociologist working on food
Q PARTICIPANTS	12 participants (community gardeners, a farmer, clients of the food-box scheme, local politicians) 8 transcribed Q talks
GREY LITERATURE	3 articles in the magazine <i>Synergie</i> , homepage of <i>vun der Atert</i> , the LEADER action program, media content of comparative cases)
OBSERVATION	none
VALIDATION	Social perspectives reviewed by participants with the highest-loading sorts -

Text Box 17: Overview on concepts and data of the analysis of the grassroots initiative SoLaWa.

7.5.1 The sites of SoLaWa

This section situates the grassroots initiative SoLaWa in the scientific debate around AFN and CSAs. Studies on comparative cases often situate initiative in oppositional discourses¹⁹⁰, and perceive of then as localist counter-hegemonic practices¹⁹¹. However, as the initiative mainly aims at supporting the family-owned farms of the canton, this section focuses on socio-economic aspects, rather than the initiative's counter-hegemonic thrust.

The concept AFN refers to context-specific reactions to the side-effects of a globalized food system. This section set out by giving a brief introduction to the agricultural sector in Luxembourg. Findings are mirrored with literature on rural sociology and concepts of the scientific debate on similar comparative cases. Subsequently, the history of SoLaWa will be briefly presented and the various projects of the initiative introduced. This section concludes with a synthesis describing the site of SoLaWa as an emerging AFN following the rural development logic (see also chapter 4.2).



Picture 23: The cultural landscape in the canton Réiden. (Source: Syndicat Intercommunal de Réidener Kanton)

¹⁹⁰ Forssell and Lankowski (2015) argue that often researchers tend to take normative stances to AFN. Cox et al. (2008) argue that North American researchers tend to focus more on "localness", whereas European researchers tend to investigate initiative's role in the mainstream food industry, and their potential for helping small-sized businesses.

¹⁹¹ For an overview of these discussions, as well as thoughts on AFNs alterity a communitarian perspective, see Goodman, DuPuis, and Goodman (2012).

The agricultural transition in Luxembourg

Agriculture in Luxembourg and the Greater Region is shifting towards more ecologically and socially benign practices (Klaedtke 2014). This is documented by recent policy documents as the national action plan for ecological farming of 2009, consumption patterns, and by absolute figures regarding farm development (ibid.). Whereas the total number of farms in Luxembourg has declined from 2.728 in 1990 to 2.022 in 2015, the number of organic farms has increased from 23 to 83 in the same time (Ministère d'Agriculture 2016). This change is pushed by changing EU regulations, such as the EU 2020 strategy¹⁹², by increasing the awareness of negative ecological impacts of conventional farming in Luxembourg, but also by consumer demand. Luxembourgers spend around 8,6% of the income on food (STATEC 2016), while they have the second highest per capita spending on ecological products in the EU after Denmark (IBLA 2016).

Publications of Luxembourgish government agencies concerned with the agricultural transition focus on mitigating ecological impact, while improving the economic performance of ecologic farming methods. As an example, in their report to the national institute for ecological farming IBLA, Schader et al. (2014) show that conventional agriculture in Luxembourg has considerable negative environmental impacts regarding air and water pollution, loss of biodiversity, consumption of non-renewable energy sources, and GHG emissions, which are partly externalized through the import of protein foodstuffs from south America. Biological farms show significantly lower impacts in all these areas (ibid.). In the agenda for the future on research ecological farming, IBLA (2016) discusses mitigating such impacts, but barely mentions alternative business models.

However, trying to transform farming practices without re-thinking business models fails to address an underlying socio-economic challenge of the agricultural sector in Luxembourg. The recent decline of farm numbers does not indicate a decline of farming in general, but a shift in the economic structures: While family working hours in farming have declined by more than half than 1990, the working hours of day-workers have more than quadrupled (Ministère d'Agriculture 2016). This indicates a change from family-owned farming, to a model of large farming corporations. This assumption is supported by changes in revenue patterns: Producer prices at farm-gate for agricultural products have decreased for nearly all product lines since 1990, meaning that the revenue per unit of output for the farmers has declined (ibid.). At the same time, production capacity has increased, as well as the share of exports in all product lines (ibid.). While the prices for food stuff are declining, the agricultural sector in Luxembourg is increasingly producing for an international market, and not to satisfy local demand.

¹⁹² Current campaigns for a more sustainable agriculture highlight the importance of the structural changes in the negotiation of the new CAP funding period, beginning in 2021. Such campaigns promote a shift of subsidization schemes towards qualitative indicators rewarding responsible stewardship of the land instead of quantitative measures, such as payment by farm-size, which benefits larger corporations. See: <https://www.meine-landwirtschaft.de>

A publication of Ministère d'Agriculture (2016, p. 28) is particularly perplexing in this regard. As the only indicator of farm-income development in their annual report, the ministry presents an increase of the ratio between farm income and family working unit. This ratio is misleading, because family farm working units have drastically plummeted and are therefore not an adequate indicator for farm-income development. Statistics suggest that farm-income for family farms has increased, whereas in reality the total number of family-owned farms is decreasing.

The increase of dayworkers, and the increase of total output and exports with simultaneous decrease of prizes implies that the agricultural sector in Luxembourg shifts from small-scale family-owned farming to large farm enterprises. Given the importance of the agricultural sector for the Luxembourgish landscape, identity, and socio-economic structure in the rural areas, it is perplexing that this phenomenon does not feature more strongly in research and policy documents- especially considering that Luxembourgish consumers are willing to pay a high price for ecological products.

On the other side, recent years have shown an increasing dynamic to experiment with alternative socio-economic set-ups in Luxembourg's agricultural sector. Aside from established cooperatives like *BioG* and *Colabor*, new cooperative models emerge¹⁹³. In a study on localized alternative food networks in Luxembourg Reckinger (2018, p. 2) argues that these "more recent and smaller initiatives are characterized by cooperative governance (...). These initiatives are more radical in their agro-ecological or permaculture practices, focusing on regenerative land use without relying on imports and fostering the integration of consumers with varying degrees of prosumer involvement. This is a politicized step that goes further than mere (and possibly industrialized) organic production."

These initiatives, such as *Krautgaard*, or *Terra* are farm-projects that experiment with new consumer-producer relationships. The initiatives distribute the risk of experimenting with alternative (ecological) farming methods among their member base. Further, they invest in capacity building by disseminating knowledge on farming techniques and ecology among their member base. *Vun der Aert*, as will become clear below is different to these approaches, as it aims at potentially the entire agricultural landscape in the canton. It does not create a network around a single farm, but tries to establish a new system between producers and consumers in the canton.

All these models distribute responsibility of food production and landscape stewardship among a wide group of citizens and move the agricultural sector towards a model of governing the landscape a common. This model is antagonistic to the extractivist and investment-driven model of industrialized agriculture that seems to become increasingly dominant in Luxembourg.

¹⁹³ For more information, see the homepage of the national solidarity agriculture network: <https://www.solawi.lu> (accessed December 2018)

7.5.1.1 A phenomenon of alternative food networks

Most literature reviewed for this chapter conceptualizes of initiatives like SoLaWa as local and context specific responses to the globalized agricultural economy. The following introduction to scientific debates will consequently take a strong relational approach (see also chapter 4.2). Concepts of rural sociology developed in the early 2000's provide such relational awareness and inform several conceptual works and case studies that are introduced in this section.

Logics of the social management of rural nature

Sonnino & Marsden (2006) provide a poignant conceptualization of rural space with regards to agricultural transitions: On one hand, "rural spaces (...) become multi-layered phenomena which hold and play out the competitive tendencies between competitive and alternative food sectors. (...) (T)he arrival of a re-localized alternative food sector, in the context of a dominant standardized sector, requires researchers to re-conceptualize rural and regional space itself. It becomes not just a surface upon which these competitive battles are played out. It also deepens and reconfigures the resource potentialities of particular rural spaces through (...) attaching foods and agricultures to their particularly derived and embedded social and natural potentialities" (ibid., p. 197). The ways these potentialities are realized at the case of SoLaWa will be discussed under community capabilities in section 7.5.4.

A popular approach in AFN discourse is to conceptualize of the "social management of rural nature" (Marsden et al. 2002) in Western Europe and the US as being informed by three contesting logics. This approach lends the backdrop of a variety of case studies on initiatives like SoLaWa introduced in the following.

For Europe, the agro-business logic emerges with the post-war aim of ensuring provision of food through economies scale provided by large corporations, instead of small family farm units. It is an extractivist and industrialized model of intensive farming that strongly relies on fossil resources for its machinery, chemical fertilizers, and pesticides. In this logic, rural nature here is perceived "largely as intensive productive space, and places emphasis upon the continued rationalization of production" (ibid, p. 809). This would lead to global race to the bottom of prices, and consequently farmers' revenues. Specifically, farmers find themselves in a "technological treadmill", as they are pressed "to invest continuously in new technologies so as not to lose out the race for the lowest production costs", while net gains stagnate (Renting et al. 2003, p. 397). This corresponds to the situation in Luxembourg introduced above, notably the continuous decrease of revenue per unit of farm produce.

Marsden et al. (2002) hold that agricultural land-use competes with increasing suburbanization pressures in peripheral regions. This would manifest in rural immigrants who seek lower rents, and a romanticized image of an intact natural environment, thus bringing a "hyper-preservationist

“culture” to rural nature. The post-productivist logic thus subsumes another form of commodification of rural space, since these higher-income migrants compete with rural dwellers for land-use. Further, such immigration may lead to cultural conflicts around progressive community-led initiatives (Creamer et al. under review). This logic holds special explanatory power to rural spaces in Luxembourg, regarding the pressure on land for the housing sector induced by high of economic growth rates. Local politicians stated in interviews that the designation of residential areas is a major political challenge in Réiden.

Finally, the rural development logic refers to movements to “re-integrate agriculture back into a diversified economy, and to sustainable development more broadly” (Marsden et al. 2002, p. 811). Like the endogenous regional development paradigm (Cochrane 2011; Pike et al. 2007) as supported by in LEADER and INTERREG programs, this logic assumes that setting in value social and natural resources within a region renders cumulative effects from a diversity of initiatives. It rejects relying on (mono-cultural) farming managed by large corporations and financed by external investments. As networks are forged along the value chain of agricultural products, initiatives’ following this logic, “tend to display new relationships of association and institutionalization, which are located at the spatial scale of the region or locality rather than the nation” (Marsden et al. 2000, p. 427). Further, “emphasis lies upon the type of relationship between the producer and the consumer in these supply chains, and the role of this relationship in constructing value and meaning, rather than solely the type of product itself” (*ibid.*, p. 425).

The rural development logic holds that the value added to food products in the region is enlarged, while rural resources are redefined and recombined (Marsden et al. 2002). This encompasses a diversification of production and economies of scope, rather than the economies of scale pursued under the agro-business paradigm (Dowler et al. 2009). This in turn requires new consumer-producer relations, such as collaborative crop-planning, and up-front payments to mitigate risks of changes in the business model.

The rural development logic is driven by the desire of producers and consumers to change the food sector. Renting et al. (2003, p. 409) observe “the emergence of new rural economic relations out of the deepening crisis of industrial agriculture”. These manifest in new associations and institutions on the regional scale (*ibid.*), representing “experiments and innovation that which combine or reconfigure the natural, quality, regional and value constructions associated with food production and supply” (Marsden et al. 2000, p. 429). The adequacy of this diagnosis for the situation in Luxembourg is clear: One hand, there is a consumer’s demand for more ecologically sourced and regional products, and a willingness of becoming engaged with the producers. On the other, several small-scale producers seek for alternative business models as the economic situation is worsening.

Alternative Food Networks and Short Food Supply Chains

Examples of the new associations and institutions discussed by Renting et al. (2003) are CSAs, farmers markets, food box schemes, and others¹⁹⁴. These are addressed by a variety of scientific concepts highlighting different aspects of similar initiatives, as short food supply chains (SFSC), AFN, and local food networks (LFN). Since the member base and value chain of vun der Aert extends across the canton and not a single commune, the focus in the following lies on SFSC and AFN.

In their report to the European Commission on SFSC in the EU, Kneafsey et al. (2013) give an overview on various models of farm sale schemes and CSAs. Unlike the term might suggest to a geographer, spatial proximity is only implicit in the concept. It refers to "foods (that) are identified by, and traceable to a farmer. The number of intermediaries between farmer and consumer should be 'minimal' or ideally nil" (ibid, p. 13). Whereas the first part refers to trust and transparency between producer and consumer, the latter emphasizes minimizing intermediaries.

Examples of SFSC are products marketed under the IGP¹⁹⁵ label, guaranteeing that a product comes from a specific region and is of the regional quality standards. Therefore, the quantity of products such as Parmesano Reggiano on the market is limited, while regional clusters and their traditions are protected. In some places SFSC have become important parts of rural development, with cases in Germany, France and Italy showing "sufficient synergies between different types of rural development practices can be mobilised to significantly add value to local production systems (...) leading to a revised geography of rural development across Europe" (Renting et al. 2003, p. 408).

SoLaWa seems different at a first glance: Exploratory interviews revealed reconnecting regional producers and consumers as the main goal, by providing new forms of intermediation. Prolonging the value chain is understood to create value in the region and for the region, and the focus does not lay on export. Consequently, as the concept of SFSC does not adequately address relevant aspects of the initiative, we now turn to AFN¹⁹⁶.

In their comprehensive compendium on the "knowledge, practice, and politics" of AFN, Goodman et al. (2012, p. 7) "conceptualize alternative food and fair-trades in relational terms as the organizational expression of recursive material and symbolic interactions between producers and consumers." This broad conceptualization has two mutually constituting advantages: First, it bridges the conceptual dialectic between production and consumption conceptualizing "food as a commons rather than a commodity" (Dowler et al. 2009). Second, to investigate the symbolic and

¹⁹⁴ Localist and urban approaches such as urban gardens, food box systems, or consumer coops aiming at wholesale access will not be discussed here.

¹⁹⁵ Indication géographique protégée, in English "protected geographical indication"

¹⁹⁶ Other Luxembourgish regions, such as the wine-growing area at the Mosel river and- nature reserve Obersauer do have these product lines (for example 'Tei vum Sei').

material interaction of this common, AFN can be linked to a range of theoretical perspectives as Goodman et al. (2012) show at the example of localism, pragmatism, and communitarianism. For this purpose, Goodman et al. (2012, p. 34) draw on social practice theory: "(...) Once AFNs are approached as relational, recursive "communities of practice" of producers and consumers sharing ways of "knowing and growing food", researchers can go on to explore how these communities and social movements have set about building alternative "worlds of food." With regards to the research questions, two perspectives on the case seem especially relevant to be explored: The meaning of food-quality for participants, and the negotiation and alignment of such normative criteria.

Quality of food and food democracy

AFN provide a quality that the mainstream food-market does not. As the rural development logic argues, quality does not only refer to the product itself, but also to meanings ascribed to the associations and institutions providing it. The concept of food democracy describes their negotiation. Within each case there are a multiplicity of motivations to be found among stakeholders. Besides the motivations described under the rural development logic, two main reasons for people's engagement in AFN emerge from the reviewed literature: A sense of global responsibility towards the ecological and social environment, and a perceived improvement of food insecurity.

Seyfang (2006) employs Dobson's (2003) concept of *ecological citizenship* to describe how people engage in AFN as a reaction to the social and environmental costs of the food systems as characterized by the agro-business logic. The driving impetus here is a sense of responsibility towards the ecological and social environment on a global scale, which is translated to local, *new economics* types of AFN similar to the rural development logic. Instead of labelism and market-driven understandings of sustainability "which divorces economic transactions from social and environmental context, the 'new economics' favors 'socially embedded' economies of place" (Seyfang 2006, p. 386).

Further, AFN are regarded as a reconnection with food as a cultural artifact, rather than simply a commodity, and a re-appropriation of this basic good is a response to perceived growing food insecurity (Dowler et al. 2009). This insecurity has diverse causes, most prominent being plagues becoming more frequent, and the dwindling of resources necessary for conventional farming (Henfrey and Penha-Lopes 2015). For many members a CSA is not just about obtaining ecological and local products, but about deepening their connection to their social and physical environment (Schnell 2013). Initiatives may follow the philosophy of permaculture to proactively prepare for a low-carbon future (Henfrey and Penha-Lopes 2015), or pursue spiritual, anthroposophist approaches (Groh and McFadden 2013). Naturally, cases are often hybrids and rely on a successful negotiation and alignment of a variety of beliefs and motivations

Hassanein (2003) proposes a pragmatist approach of *food democracy*, arguing that stable AFN integrate a variety of beliefs, and require individuals to overcome their dogmas. Cox et al. 2008 (p. 216) draw on this, claiming that normative differences are an essential requisite in AFN, as they bring together "people who share an interest in one aspect of their food consumption but who might otherwise have different priorities, politics and motivations". Building trust between participants then becomes of paramount relevance, as 'knowing where the food comes from' creates transparency among the network, and allows the normative issue of food quality to be subjected to personal judgment (also Renting et al. 2003).

AFN are 'doing food differently' from conventional ways of the agro-business food production system, by experimenting with more ecologically, culturally, and socially sustainable practices. These experiments are often informed by the philosophies of biodynamic agriculture and permaculture, both inspired by anthroposophist thinking. They aim at working in harmony with natural resource cycles in the given places, while deepening human-ecological relationships. These philosophies draw on traditional knowledge, and can be traced back centuries, as in the case of the "Lebensreformbewegung" in 19th century Germany, the anthroposophist movements of the 1920's and the back-to-the-land movement in the 20th century, despite their current raise in popularity.

Text Box 18: Philosophies of doing food differently. (See Groh and MacFadden (2013) for a review on anthroposophical farming approaches, and Henfrey and Penha-Lopes (2015) for permaculture)

CSA as a case of AFN

CSA rearrange the traditional producer-consumer relationship by re-organizing responsibility and re-distributing stake holding across the food value chain. Commonly, initiatives link farmers more directly to their client base by upfront payments of the annual harvest.

Two strategies to achieve this are especially relevant for the case of SoLaWa: subscription schemes between consumers' cooperatives and farmers, and the production of food in a farm that is managed by the coop itself. In the former case, the consumer cooperative guarantees a certain uptake of the share of a farm's produce at the beginning of the year, reducing the risk of a bad harvest for the farmer. Consumers and producers jointly develop quality criteria based on the opportunities of the farms and the network. This strategy is often used to help farmers transitioning towards more sustainable practices with a comparably low risk¹⁹⁷. In some cases, the coop may gradually take over the management of entire farms by expanding the uptake of produce. In both cases, the conventional model of wholesale to intermediaries can be made redundant. Practically this is achieved by a variety of on-farm work and distribution schemes for the products that will not be discussed here.

¹⁹⁷ For further information on the risks of transitioning to ecological agriculture, see: <https://www.bzfe.de/inhalt/umstellen-auf-oekologische-landwirtschaft-2380.html>

As a consequence to this re-organization, the consumer-producer conceptualization of participants pursued in most case studies reviewed for this analysis seems inappropriate. The case of SoLaWa indicates that many farmers produce a few primary products in economies of scale, and rarely have a diversified product line. They are farmers professional. Privately, however, they are consumers that buy their groceries at supermarkets like everyone else. Farmers may join the CSA as consumers, while being producers in their professional lives. Vice versa, private members of a CSA may take on practices of producers, such as crop-selection, and assisting in farm management. Thus, as stakeholder categories blend, food is managed more as a common; hence the importance of food democracy.

Often, if the community establishes economically and socially viable ways of managing a CSA, the capability to diversify economies of scope increases. In a handbook on CSA published by the National Sustainable Agriculture Information Service of the USA, Adam (2006, pp 11-12) highlights: "The longest enduring CSAs, however, tend to be institutions, not -for profit organizations, and committed groups of individuals (...) that integrate the original goal of CSA community building with a wide array of enhancements. This approach ensures the widest possible participation in a locally based food production and distribution system." This is of special relevance for SoLaWa. As will be highlighted in the following, the yet young initiative has already diversified in various ways and struggles with managing its various projects.

7.5.1.2 In-sites of the SoLaWa

This section introduces the tempo-spatial context of the grassroots initiative SoLaWa. The initiative has diversified significantly since the beginning of this research project. During the first round of data gathering in 2016 SoLaWa had just set out as a LEADER initiative. When the data was analyzed in 2018, several new projects, such as the meat-box scheme, the apple-press, and the wheat-supply chain were already functioning. The managing institution of the initiative, the cooperative vun der Aert had become an umbrella institution, much to the confusion of several participants of this study, and the author. The following will therefore briefly introduce these various sub-initiatives, after discussing SoLaWa's emergence.

Start-up phase

The dynamics of the agricultural sector as described in the introduction and captured by the agro-business logic hold special significance for the canton Réiden, which also known as "Luxembourg's Granary". Interviewees stated that many farmers in Réiden are struggling economically, feel socially alienated, and did not have the means for a transition to more sustainable farming practices if they wanted to. A local farmer summarized the situation:

"The farmer's income has been the same for 30 years. Per enterprise, we make about € 45.000 profit per year (...). But all the other factors are growing: The size of the farm, the number of cows, the work-rate. Everything grows, but the income remains the same. (...) We farmers are not involved enough in the society, and it becomes even less because agricultural politics increasingly excludes small farms. I would like to turn away from these market pressures, and the social implications, too. (...) Our market is the entire world. My milk goes to Nigeria and to Asia. They come and fetch it at night, so much for transparency.¹⁹⁸

"I take more and more issue with producing for an anonymous market, when I know that my milk goes to the African markets and increases so much pressure on the farmers there. (...) But the risk of transitioning is high, and its not guaranteed that the clients would stay with you. And you have to invest so much to comply with all the EU regulations (...) No farmer can pay that by himself, and certainly not without risk. (...) Actually the idea of cooperatives had emerged in agriculture. But it has also disappeared from agriculture. (...) I see that now everyone is fighting for himself or herself. (...) I think this thinking as competitors is the greatest challenge for cooperation" (CSA17)¹⁹⁹.

The problems described by the farmer had been discussed in the KomEcoRura for years, but the group had not come up with adequate concepts or strategies. Finally, an eco-preneur from Beckrich, who is a central figure in the energy transition encouraged the group to go head and establish a cooperative, without having a clear business plan and economic resources.



Picture 24: The logo of vun der Atert s.c. (Source: vunderatert.lu)

¹⁹⁸ „Das Einkommen der Landwirte bleibt seit 30 Jahren auf der Stelle. Pro Betrieb macht man etwa € 45.000 im Jahr Gewinn. (...) Aber alle anderen Faktoren wachsen: Die Betriebsgröße, die Kuhzahl, die Arbeitsbelastung, alles anderes wächst. Nur das Einkommen bleibt. (...) Aber unser Nahrungsmittelmarkt besteht aus der ganzen Welt. Nach Nigeria, nach Asien. Da geht meine Milch hin. Die wird schon nachts abgeholt. So viel zur Transparenz der Produktion.“

¹⁹⁹ „Ich habe immer mehr Probleme damit so für einen anonymen Markt zu produzieren. Wenn ich weiß, dass die in Afrika auf die Märkte kommt die Milch, und wir da den Druck auf die lokalen Produzenten sehr stark erhöhen. (...) Das Risiko einer Umstellung ist so groß, und man hat keine Garantie, dass der Konsument auch treu bleibt. So dass man investieren müsste um EU Normen einzuhalten, (...) Das kann ein Landwirt nicht stemmen. Und schon gar nicht ohne Risiko. (...) Eigentlich ist die Idee der Genossenschaft ja in der Landwirtschaft entstanden, aber der ist auch wider aus der Landwirtschaft verschwunden. Das liegt am Konkurrenzdenken und das widerspricht sich ja mit dem gemeinsam etwas erreichen wollen. Ich sehe jetzt, dass die Leute Einzelkämpfer geworden sind, die Landwirte. Ja, ich denke das Konkurrenzdenken ist das größte Hindernis für genossenschaftliche Arbeit.“ CSA17

Vun der Atert s. a.²⁰⁰ was registered in 2016 as a cooperative. The administrative board comprises of five people, most of them active in other initiatives, with a local farmer as president. In the beginning, the group had 18 members, with about half counted as part of the core group that attended regular meetings. The membership fee is 150 Beki. A LEADER project budget of € 18.000 was successfully applied for under the project name *SoLaWa- Solidaresch Landwirtschaft Atert-Wark*. From this budget, networking events and workshops were conducted to develop relations between producers and consumers. During the project phase between February 2017 and July 2018, the purpose of the coop was refined, new members acquired, and knowledge exchanged with other CSAs. Members visited cases in neighbouring countries and reached out to similar projects in Luxembourg. Finally, the group developed a strategy for establishing a CSA program in the canton. During the data-gathering period for this study in spring and summer 2017, the coop underwent a volatile development. The project received a very positive reception in the canton. Several pieces of infrastructure and land were offered to the initiative, and several citizens approached members with project ideas. This dynamic development had been difficult to manage by the group of volunteers. Some interviewees refer to vun der Atert as a think-tank that develops rural development projects in the agricultural sector, rather than being a CSA project itself. In 2018, the homepage of the vun der Atert lists a range of projects that are conducted under the umbrella coop, some of yet being mere ideas: *Gaart à Vous*, an apple-press, a project to produce old varieties wheat, a mobile slaughterhouse, and an subscription scheme for regionally sourced meat. In the following, these projects will be briefly introduced.

*Gaart à Vous*²⁰¹

Gaart à Vous is a 4ha field situated in a ground water protection area in the outskirts of Beckerich, close to the water plant and Energiepark Réiden. It has a variety of old fruit trees and is gradually being converted by members of the coop to a field for growing crops. The coop came by field through a misunderstanding: Members of the coop were asking around in the region for a small patch of land to experiment with crop growing. As they contacted the director of the water plant in Beckerich, he misunderstood the request of 4a and gave permission for 4ha for lease of one symbolic Beki. The group accepted the offer and the commune Beckerich provided water access to the field.

Today, not the entire area is cultivated, but the field produces a variety of vegetables for about 60 weekly veggie-boxes that are picked up by every Saturday. The client base of has grown from 40 member-clients in the first year to around 60 clients in the second year. One unit, counted for one

²⁰⁰ Luxembourgish for „from the Atert“. The Atert is a river that flows through the canton.

²⁰¹ The name is a word play between the Luxembourgish word *Gaart* for garden and the French word „garder“, to protect. It can be read as „garden for you“, or „protection for you“.

person, costs € 12, or 11 Beki. Interviews stated that the distribution schemes of vegetables from Gaart à Vous are a pilot project to experiment with the market prices and preferences of the client base, as well as efficient distribution strategies. These could prospectively be used for a more complex distribution network connecting several farms to consumers, or grocery stores via the cooperative as a distributor. In 2018, a professional gardener was hired, as the work required by the field did not allow the coop to focus on other activities anymore. The name Gaart à Vous was given to highlight the field project, as people began to regard it as synonymous with vun der Atert. The organizational structure and legal form of the garden is subject to much debate in the coop and will be introduced under organizational conversion factors.

Vizerei

In the 2017, the coop was offered to buy an industrial apple-press²⁰² from a citizen of the canton. Since a variety of apple-trees are growing on the field of Gaart à Vous, and the craft was in line with the coop's philosophy, some members regarded it as a logical addition to the coop. However, there was objection amongst the members as well, because many were concerned that it may strain the initiative's budget and overall management capacities, at the time when the field had just been acquired. Nonetheless, the press had been bought, while the seller handed over his network of clients, and committed to help operating the machine as it was important to him to pass on his knowledge.

Wees²⁰³ vun der Atert

This project aims at providing flour and pastries from old varieties of grain. The project has been initiative by a citizen from the canton, who has been experimenting with cultivating grains from the 19th and 20th century. He had developed a gluten intolerance, evoked by industrialized wheat products. The project experiments with slower, and more natural processing and baking techniques, and offers workshops to disseminate this knowledge. The initiator approached the cooperative, because he was looking for farmers, mills, and bakers that would integrate these wheat varieties in their product lines.

Fleesch²⁰⁴ vun der Atert

A subscription scheme for regional meat produce that is grown and slaughtered according to the coop's standards is arguably the first solidarity initiative with farmers. Members can place an order for packages of chicken, pork, and beef, which can be picked up 4 times a year at the canton's last remaining butcher in the village Réiden. Five different farms are participating in 2018, each

²⁰² In Luxembourgish „Vizerei“

²⁰³ Luxembourgish for wheat

²⁰⁴ Luxembourgish for meat

contributing a share of produce. Cooperation with stockbreeders had been subject in vun der Atert since the beginning. A pig farmer who hoped gradually change his farm to more sustainable and less harmful production practices had sought cooperation with the CSA. Most stock breeders that participate in SoLaWa still mainly practice conventional industrialized farming methods. As members of the cooperative, they can separate part of their life stock from the main production and experiment with new animal husbandry methods. If the participation in the meet-box scheme is successful, the share of life stock for the cooperative will overtake the share of conventional product line to gradually help transforming the farm. Each farm is introduced with a personal portray on the coop's homepage, stating the farmer's intentions for participation.

Mobilt Schluechthaus

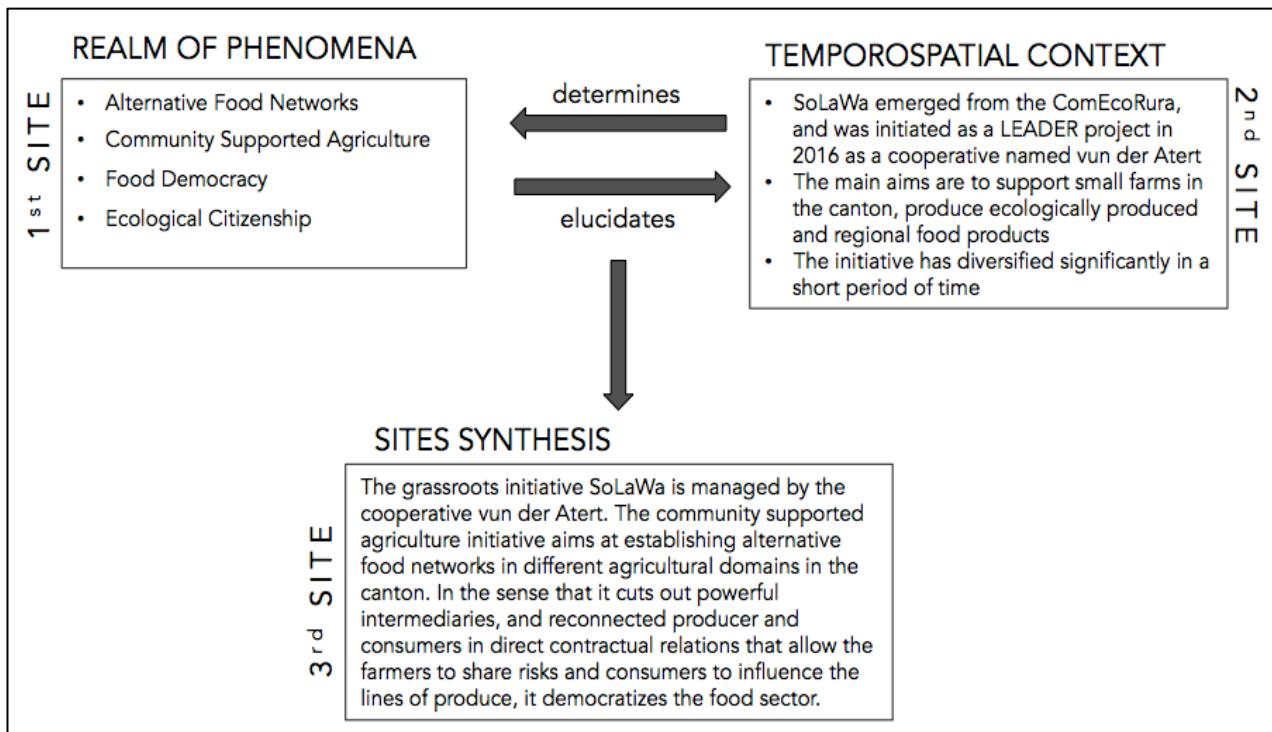
The mobile slaughterhouse is supposed to allow a more peaceful death of the animals, as they are slaughtered in their familiar environment on the farm. Members of the coop argue the meat would be healthier, because the animals suffer less stress. An alternative to the mobile slaughterhouse is the *Weedeschoss*, a method of killing the animal on the field. Workshops have been held with experts from other countries, and feasibility studies are currently carried out in cooperation with the Luxembourgish Ministry of Agriculture. Interviewees stated that costs would be a problem for this initiative, as it is difficult to comply with high hygienic standards. Therefore, trans-border cooperation is sought, and the project may be realized at the level of the Greater Region.

7.5.1.3 Sites Synthesis

The agricultural sector in Luxembourg is transitioning towards more sustainable farming. This transition is however not driven by government agencies, or farmers associations, but by experiments at the grassroots. Besides the traditional biological farming association in Luxembourg, new business models are emerging that reorganize the relationship between consumer and producer. SoLaWa is such an initiative. Yet, it differs from other cases in Luxembourg as it aims at is a territorial approach that aims re-organizing agricultural consumer-producer relations within the canton. It is not a CSA scheme that connects one farm a consumer group, but it aims at connecting many consumers to many farms and processors.

SoLaWa follows the rural development logic, while being a reaction to the side-effects of agro-business logic. It assembles diverse motivations: Some consumers are unsatisfied with the quality of food provided by conventional farming, while some farmers wish to produce for a local market, re-connect to their communities, and seek for support to change from conventional farming. Since the initiative has developed a wide range of projects in a short time, it cannot be situated in one specific strand of AFN research. Rather, it combines a variety of CSA-approaches under one initiative. Two strands of projects are particularly relevant: Gaart à Vous is a farm that is member-owned,

and a project of private people growing food together, which usually occurs in suburban areas. Another strand is engagements of the consumer cooperative with farmers in the canton, which is at this point only realized in the meat-subscription scheme. In both cases, SoLaWa re-configures consumer-producer relations in the pursuit of a more sustainable and solidary agricultural sector in Réiden.



Text Box 19: Site-synthesis of the alternative food network SoLaWa.

7.5.2 The Leitbilder of alternative food networks in the canton

Leitbildanalysis on SoLaWa addresses the entire stakeholder network of vun der Atert. Due to the fast development of the grassroots initiative, case-specific data is complemented with comparative cases of more mature initiatives. Most statements are natural, meaning they stem from the interview or publications of the cooperative. However, when data generation for this analysis was conducted in winter 2016, the cooperative had just been established and the LEADER support had not officially begun. Thus, key documents that would have been highly relevant for this part, such as the LEADER project description, and the coop's statutes, were not included. This section therefore introduces case studies on Leitbilder in CSAs that suggest patterns of Leitbild-characteristics among stakeholder groups. and reflects these with the data on SoLaWa. Leitbildanalysis results in the concourse of 48 statements for Q study (see table 14).

Particularities of Leitbilder in AFN

Research on norms among CSA stakeholder groups suggests motivations to be highly diverse, with producers often having clearer and more coherent motifs than consumers. (Dowler et al. 2009; Cox et al. 2008). However, following the practice approach chosen for this thesis and suggested for AFN research by Goodman et al. (2012), it is assumed that Leitbilder rest within the new associations and institutions of AFN, and not predominantly in stakeholder categories. Further, stakeholder categories are redundant for Q method, since here statements are the subject, and not the individuals carrying them. As discussed above, the quality of food does not just refer to the characteristics of a distinct product, but to the relations that produce it. Examples of these qualities are transparency, solidarity, and trust, and not so much freshness, or nutritional values.

The same words capturing a norm, or motivation in CSA can have very different meanings for people. As Forssell and Lankoski (2015; also Schnell 2015) stress: Just because something is "local" does not necessarily mean its "organic" or an improvement to the farmers livelihood, and vice versa. Addressing normativity bears the risk of reductionism, particularly in the case of food. Arguably, Leitbildanalysis offers a far more structured and case-sensitive approach to Leitbilder, as it allows perceiving them as relational qualities.

Leitbildcategories of SoLaWa

SoLaWa's purpose follows the rural development logic. Thus, economic future projections are very prevalent in the exploratory interview and the reviewed grey literature²⁰⁵. The arguments "We want to support the regional agriculture"²⁰⁶, and "Vun der Atert is a tool for marking enterprises of the region"²⁰⁷ are examples of this. Another aspect is the sharing of risk, and the concerted change of

²⁰⁵ Had more grey literature been already available, statements referring to support of small farms, and career changers would have been included.

²⁰⁶ „Mit dem Projekt wollen wir die vor allem die Landwirtschaft in Redingen unterstützen.“

²⁰⁷ „Vun der Atert ist ein Marketinginstrument für Betriebe in der Region.“

food practices, as described by food democracy. These are represented by the statements "We want to win farms over for a better way of doing business"²⁰⁸. Further, case studies have shown a strong impetus against the agro-business logic (especially Cox et al. 2008; Forssell & Lankoski 2015), which was also mirrored in the exploratory interview. "It is important to develop regional alternative against the global system of alimentation"²⁰⁹ captures this.

The category ecological future projections refers to desired states of landscape and natural environment, as the quality of the product is addressed by self-referential motivations. All statements stem from the interview, and bear close resemblance to Seyfang's (2006) case-study findings with the ecological citizen approach, and Cox et al.'s (2008) discussion of perceived responsibility as citizens of the earth. Since the interviewee discussed permaculture, this philosophy informed the normative statements referring to ecological future projections (Henfrey and Penha-Lopes 2015), like "Conventional agriculture gradually destroys our environment"²¹⁰, and "Agriculture should be oriented towards permaculture as much as possible"²¹¹.

Social future projections center on regional job-creation and inter-and trans-generational solidarity. The statements are similar to those in other initiatives: "I participate, because I do not leave depleted soils for my children"²¹², and "It is very important for me that socially disadvantaged people are being integrated in the initiative"²¹³, are examples of this. The cultural future projections statements would have been more refined had more grey literature been available at the time. Examples of this category are the statements "Food is an asset of culture we have to preserve and nurture"²¹⁴, and "The initiative should most importantly provide a structure for self-subsistence"²¹⁵. Group synchronization categories were developed mostly based on other case studies. "Vun der Atert brings a variety of different actors of the region together"²¹⁶, "We are too dependent on a few people"²¹⁷, and "International guidelines pose a threat to our cooperative"²¹⁸, are examples of more case-specific statements for this initiative.

Self-referential Motifs are mostly deduced from case studies exploring the motivations of AFN participants (Cox et al. 2009; Dowler 2009; Seyfang 2006), whereas the spiritual dimension has been neglected due to the economic focus of the initiative. "I participate to get healthy food"²¹⁹, and "I participate to be part of a community"²²⁰ are three of the six statements here. The statements referring to Knowledge centre on knowledge exchange within the region and outside. "By

²⁰⁸ „Wir wollen Betriebe für eine bessere Art zu wirtschaften gewinnen.“

²⁰⁹ „Es ist wichtig, dem globalen Ernährungsregime regionale Alternativen entgegen zustellen.“

²¹⁰ „Konventionelle Landwirtschaft zerstört langsam unsere Umwelt.“

²¹¹ „Landwirtschaft sollte sich so weit wie möglich an Prinzipien der Permakultur orientieren.“

²¹² „Ich nehme teil, weil ich meinen Kindern keine ausgelagerten Böden hinterlassen möchte.“

²¹³ „Es ist mir sehr wichtig, dass in der Kooperative auch sozial benachteiligte Menschen integriert werden.“

²¹⁴ „Essen ist Kulturgut, wir müssen es bewahren und pflegen.“

²¹⁵ „Mit der Initiative soll vor allem eine Selbstversorgungstruktur aufgebaut werden.“

²¹⁶ „Durch vun der Atert werden vielfältige Akteure in unserer Region zusammen geführt.“

²¹⁷ „Wir sind zu sehr vom Engagement weniger TeilnehmerInnen abhängig.“

²¹⁸ „Internationale Richtlinien stellen eine Gefahr für unsere Initiative dar.“

²¹⁹ „Ich nehme teil, um gesundes Essen zu bekommen.“

²²⁰ „Ich mache auch mit, um Teil einer Gemeinschaft zu sein.“

participating in vun der Aert, I think more about the food system"²²¹ refers to the educative character of AFN, "In vun der Aert we are learning by doing"²²², and "In the initiative, there prevails a sort of swarm-intelligence"²²³ are informed by the rather pragmatist philosophy

²²¹ „Durch die Teilnahme an vun der Aert denke ich viel mehr über das Ernährungssystem nach.“

²²² „Bei vun der Aert lernen wir beim Tun.“

²²³ „Bei der Initiative herrscht eine Art Schwarmintelligenz.“

Table 15: The concourse of the Leitbilder of participation in SoLaWa.

FUTURE PROJECTIONS				GROUP SYNCHRONIZATION				SELF-REFERENTIAL MOTIFS	KNOWLEDGE
ECONOMIC	ECOLOGICAL	SOCIAL	CULTURE	INTERNAL	INTERNAL DE-	EXTERNAL	EXTERNAL DE-		
Durch SoLaWa sollen die Lebensmittel günstiger werden.	Es ist mir vor allem wichtig, kürzere Transportwege zu fördern	Durch die Kooperative sollen Arbeitsplätze geschaffen werden.	Essen ist Kulturgut, wir müssen es bewahren und pflegen.	Innerhalb der Kooperative verfolgen wir alle das gleiche Ziel.	Wir sind zu sehr vom Engagement weniger TeilnehmerInnen abhängig.	Von der Atert hat in der Region einen starken Rückhalt.	Lokale Eitelkeiten sind ein Problem in Redingen.	Beim von der Atert Projekt habe ich das Gefühl etwas Gutes zu tun.	Das von der Atert Projekt hat eine starke Bildungsfunktion
Mit dem Projekt wollen wir vor allem die Landwirtschaft in Redingen unterstützen.	Die Landwirtschaft sollte sich so weit wie möglich an Prinzipien der Permakultur orientieren.	Es ist mir sehr wichtig, dass in der Kooperative auch sozial benachteiligte Menschen integriert werden.	Die SoLaWa ist ein Beitrag zu einem besseren Ernährungssystem.	Innerhalb der Koop. schaffen wir es, unterschiedliche Interessen zu verbinden.	Interessenskonflikte und Uneinigkeit über Ziele sind ein Problem bei von der Atert.	Durch unsere Abgeschiedenheit müssen wir im Kanton kreativ sein und neue Wege gehen.	Internationale Richtlinien stellen eine Gefahr für unsere Kooperative da..	Ich nehme Teil, um gesundes Essen zu bekommen.	Durch die Teilnahme an der SoLaWa denke ich mehr über das Ernährungssystem nach.
Wir wollen die wirtschaftlichen Strukturen in der Region weiter verändern.	Es ist möglich, einen Großteil unseres Nahrungsbedarfs durch regionale ökologische Landwirtschaft zu decken.	Ich nehme Teil, weil ich meinen Kindern keine ausgelaugten Böden hinterlassen möchte.	Wir müssen als Region mehr Selbstbestimmung erlangen.	Allgemein werden in Redingen unterschiedliche Meinungen offen diskutiert und respektiert.	Das Engagement in der Kooperative ist vielen Leuten zu anstrengend.	Durch die SoLaWa werden vielfältige Akteure in der Region zusammengebracht.	Die meisten Menschen belächeln das Projekt, sie haben es nicht richtig verstanden.	Von der Atert hilft mir dabei bewusster zu leben.	Das Projekt würde ohne Informationsaustausch mit anderen Regionen nicht funktionieren.
Von der Atert ist ein Marketinginstrument für Betriebe in der Region.	Unsere Landschaft gehört uns allen. Wir tragen gemeinsam Verantwortung für sie.	Wir müssen dringend den sozialen Zusammenhalt in der Region stärken.	Mit der Kooperative soll vor allem eine Selbstversorgungsstruktur aufgebaut werden.					Ich mache auch mit, um Teil einer Gemeinschaft zu sein.	Wir müssen das Rad nicht neu erfinden, nur bestehende Kompetenzen in der Region verbinden
SoLaWa ist ein Beitrag zu einem gerechteren Ernährungssystem.	Konventionelle Landwirtschaft zerstört langsam unsere Umwelt.	Die Kooperative fördert die regionale Solidarität.	Wir können mit ökologischer Landwirtschaft einen hohen Grad Selbstversorgung erreichen.					Teilnahme an der Kooperative ist für mich zivilgesellschaftliches Engagement.	Bei von der Atert lernen wir beim Tun.
Die Kooperative soll vor allem der Wirtschaftsförderung dienen.								An der Kooperative teilzunehmen macht Spaß!	Bei der Kooperative herrscht eine Art Schwarmintelligenz
Wir müssen Wirtschaftskreisläufe so weit wie möglich regionalisieren.									
Wir wollen Betriebe für eine bessere Weise zu wirtschaften gewinnen.									
Bei der SoLaWa werden wir zu aktiven Konsumenten.									

The table shows the original statements of the Q sorts. Since these are part of the data presentation, they are not translated into English.

7.5.3 Social perspectives of the alternative food network

The analysis of 12 sorts resulted in three factors, or social perspectives. Factor loadings are unevenly distributed, with 7 sorts loading significantly on factor 1, and 5 significantly on factor 2. Only one sort loads significantly positively on factor 3, while several sorts load negatively on this factor. This social perspective is an outlier of that represents the viewpoint of a single participant that is partly adverse to those of others. Factor correlation supports this assumption as factor 3 correlates only slightly positive with factor 1 and slightly negative with factor 2. All in all the result of rotation is not as good as for the other initiatives, as, as factor 1 and factor 2 have a comparably high correlation of .41. However, of the 12 different rotations performed with two, three, and four factors, this has been the best outcome. The factors are introduced as narratives, with each being assigned a signifier describing its social perspective on vun der Atert:

Factor1	<i>Reclaiming the food system with our own hands</i>
Factor2	<i>A regional production and sales system</i>
Factor3	<i>Support for the famers in Réiden</i>

Number of sorts:	12
Methods:	PCA_Manual rotation
Number of factors:	3
Correlations between factors:	F1-F2: 0.41; F1-F3: 0.11; F2-F3: -0.11
Consensus statements:	8

Text Box 20: Technical details of the Q study on the initiative SoLaWa.

7.5.3.1 Social Perspectives

Factor1	<i>Reclaiming the food system with our own hands</i>
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"With Vun der Atert we contribute to improve an inherently unsustainable food system. I participate, because I believe that conventional agriculture, as reinforced by the global food system is destroying the environment. Society needs to act, and the SoLaWa is a project contribution to a more socially just and environmentally benign food system.

Specifically, I do not want to leave my children degraded soils in our canton. It is possible to feed ourselves with ecologically farmed and regionally grown products and we should be oriented as much as possible towards permaculture. To achieve this, consumers have to actively engage in the production process and convince farmers for a better way of farming. The main

reason I participate is Gaart à Vous. It's great to meet new and like-minded people, and I enjoy getting my hands dirty with them on Saturdays. The community aspect of the garden is very important to me.

Supporting agriculture in the canton Réiden is not yet at the centre of the initiative and supporting existing farms or diversifying value chains is not the primary aim of the initiative in my understanding. Through vun der Atert, food should not become cheaper. Quite the contrary, I want to pay real prices for an ecologically sustainable production."

Factor 2 *A regional production and sales system*

"Food is an essential part of our culture that is gradually destroyed by a globalized food system, with very harmful effects on the environment and our health. We have to protect integral parts of this cultural heritage, such as seeds, plants, the soil, and the landscape. International legislation, especially the regulation regarding seeds and hygienic standards, are a constraint of local initiatives like ours, make it very difficult for us to experiment with alternative practices that respect our local context. We have to re-develop our own regional production chains, to get the food we want in an agriculture that fits to the canton- and that may mean violating these legislations.

The project is not about autonomy of the region, but rather about sovereignty of our food system, for the farmers, as well as consumers. Further, by regionalizing the agricultural value chain, we allow distant others to regionalize as well, as we cease to push our products on their markets, while we improve the ecological impact. This can only be achieved if consumers become active and become solidary with the farmers. Doing so, we want to create new jobs in the sector, integrate socially disenfranchised people, and enable career changers to become farmers. We have to support first and foremost the locally owned small farms and protect them from expanding agro-industrial firms. In Luxemburg, there exist many small farms, which are regarded to be conventional, just because they cannot afford to acquire a label. The SoLaWa is thus a support structure, with which we also want to convince farmers of more ecological ways of working the land, which belongs to us all and is our common responsibility. As the project aims to re-structure the value chain, interests and motivations amongst participants are diverse, which can cause problems in vun der Atert."

Factor 3 *Supporting for the farmers of Réiden*

"We need to regionalize our food system and make it more socially sustainable. By improving the life worlds of farmers and re-embedding them in our community, we enable experimentation with more ecologically friendly practices, such as permaculture, as well. Participating in the SoLaWa in this regard is societal engagement. Food is an integral part of our culture, and we

have to become active consumers to nurture and protect it, so that it can still be provided in our region in the future.

Currently, many farmers are suffering from the food system, as their economic situation becomes more precarious, and production for an anonymous market makes them grow disconnected from their communities. The SoLaWa contributes to a much-needed solidarity, as it aims to re-embed farmers economically in the region. Doing so, farmers may be helped to change to more ecological practices, such as permaculture, prospectively. However, the ecological effects of conventional farming in public discourse are exaggerated. Our soils are not depleted, and the quality of food is generally very high.

Vun der Atert is well accepted in the region, and it brings a variety of stakeholders together. Thus, we have the competences we need already in the region, we just need to realign them. To achieve this, it is important that we seek expertise from other places."

7.5.3.2 Conclusion of Q Method

As mentioned in the introduction, most participants of the Q study are active in Gaart à Vous, because the sample was developed before the diversification of the cooperative. Therefore, the interpretation of results may have a bias towards this aspect of the initiative. The results nonetheless allow for interesting interpretation of the constellation of social perspectives in the cooperative and the character of the network in which they are negotiated.

All three factors share the view that the current globalised agricultural system is socially and economically unsustainable for small farms, which are a vital part of the culture in the canton, and the regional economy. Regionalising the system, ideally in a bio-dynamic or permaculture manner, is regarded as a solution to this problem across factors. Dissent can be seen as to the specific purpose or character of vun der Atert.

The first perspective appears to perceive of the SoLaWa as a community gardening project. Self-referential motifs as healthy food, and being in community are important, as well as a deep sense of responsibility for the environment and a dissatisfaction with the food system. However, changing the regional economy and supporting farmers does not seem to be a primary motivation for this group. Participants who stated to regularly work in Gaart à Vous, and clients of the food-box scheme load highly on this factor.

The second perspective holds vun der Atert to be primarily a distribution and sales structure for regionally produced food. It shows a strong sense of ecological responsibility and holds that mitigating ecological impacts of farming requires supporting farmers by offering them new models to distribute their produce regionally. Regional consumption is understood to be more sustainable and to promote the regional culture. The sorts of a leader of the initiative, the project

manager of the Beki, and the eco-preneur load highly on this factor. The latter two stated not to be overly involved in the garden.

The third perspective stresses the need to support farmers in Redingen economically and re-embed them into the social fabric of the region. It dissents with the previous two in the sense that it does not perceive conventional farming to have such negative environmental impacts. Although it regards permaculture as a desirable vision for farming in the future, the primary focus here lays on solidarity with farmers. A farmer who co-initiated the initiative in the KomEcoRura loads this factor highly on.

To conclude, the perspectives seem to complement each other. The first could be perceived as the perspective of frustrated consumers becoming activists, the third as the farmers' perspective, and the second a structural, moderating view. As correlation between factor one and three is very low at .11, this moderating function seems necessary.

7.5.4 Community capabilities for alternative food networks in Réiden

This section assesses the community capability for alternative food networks in Réiden. It translates the literature introduced in the in-sites section to the community capability framework. Specifically, it defines ideal, or required functionings of alternative food networks and puts these in dialogue with existing conversion factors in Réiden. These conversion factors are derived from coding the transcribed Q talks, and exploratory interviews.

Section 7.5.1 introduced literature on agricultural transition from the grassroots, particularly the concepts following the rural development paradigm such as CSA, AFN, SFSC, food democracy, and ecological citizenship. It discussed case studies and policy frameworks that convey good practices for agricultural transition. The aim of alternative food networks is to regionalize agricultural supply chains in order to improve the quality of food, and to internalize positive (such as profits) and negative (such as soil degradation) externalities. This would entail a reconfiguration of consumer-producer relationships in the sense that food is addressed as a common, rather than a market commodity, and a re-distribution of the responsibility and capacity of landscape-stewardship across the citizenry of a place. Often, comparative cases pursue bio-dynamic, or permaculture philosophies.

With the community capability approach, a range of functionings for successful alternative food networks can be derived from the literature. These functionings can be achieved and become community capabilities, if a range of conversion factors are in place in a community. The central functionings for successful alternative food networks in the reviewed literature are:

- setting in value social and natural resources of the canton
- local internal investments
- re-configuration and blending of consumer-producer relationships
- socially embedded economies of place
- preference for locally owned small-scale and diverse production sites
- territorial associations of producers and consumers
- distribution of knowledge on the ecosystem, farming techniques, and crops throughout the network
- joint development of quality criteria (often following permaculture and biodynamic standards)
- transparency of supply chain to foster trust among participants
- collaborative crop-planning
- upfront payments (beginning of the year)

7.5.4.1 Cultural conversion factors

Unlike the other initiatives, Q talks did not reveal a specific event or catalytic phenomenon that lend stimulus for the emergence of SoLaWa. The initiative was born out of lengthy discussions in KomEcoRura on the possibilities to support farmers in the canton and to regionalize food production (csa1, 2, 17, 19). Several participants indicated that the project is inspired by cases of AFN in Luxembourg and neighbouring countries (csa2, 4, 17, 19).

Q talks and exploratory interviews mainly centre on three themes of sustainability objectives and values of the community. First, SoLaWa is discussed with regards to the environmental impacts of conventional farming in the canton. A second theme is the quality and character of food distributed by SoLaWa and the attitudes towards their formalization. Third, participants discussed aspects of the internal decision-making culture within SoLaWa in the pursuit of these qualities. These themes are briefly discussed in the following.

The participants of SoLaWa seem divided regarding the ecological impact of conventional agriculture in the canton and the nutritional values of its products. As the Q study suggested, this divide broadly runs between private consumers and participants of Gaart à Vous, and farmers and processors. Q talks of two protagonists of SoLaWa are particularly representative of this. Csa2 claimed: "Everything is messed up. Once you start researching you find endless product lines that should be forbidden."²²⁴ Csa17 on the other hand emphasized: "I don't partake to get healthy food. I am sure everything we produce is healthy. (...) This is an achievement of the European agricultural policy: Healthy food. There is no bad food anymore."²²⁵ The perception of the soil condition is another line of conflict between the two. Csa2 holds: "Many things cannot be immediately done, because the soil is totally wrecked. It will take three, four, five years until it will have nutrients again. For this we must find interim solutions."²²⁶ Csa17, a yet conventional

²²⁴ „Sowieso, alles ist versaut. Man erst mal anfängt zu wühlen, findet mal unzählige Produktreihen, die eigentlich verboten sein müssten.“

²²⁵ „Ich nehme nicht teil um gesundes Essen zu bekommen. Ich bin mir sicher, was wir sonst produzieren ist auch gesund. Das für mich also nicht. Das ist schon eine Errungenschaft der Europäischen Agrarpolitik. Gesundes Essen. Es gibt kein schlechtes Essen mehr.“

²²⁶ „Diese Sachen sind jetzt nicht so schnell umsetzbar, weil der Boden ist total kaputt. Das dauert drei, vier, fünf Jahre bis der wieder Nährstoffe hat.“

farmer, stated: "My soil is not depleted. With conventional agriculture you can supply your soils well. This is often confirmed, the humus balance."²²⁷ While disagreeing on the ecological impact of conventional farming, these protagonists work closely together in the coop. Their common interest is the solidarity with the farmers in the region, and especially the support of small family-owned farms.

The quality of food-products is an on-going theme in AFN. The themes biological agriculture, regionalism, and transparency of the supply chain emerged repeatedly in Q talks. Several participants mentioned a divide among members on whether SoLaWa should only encompass products that fulfill distinct quality criteria. Some, especially those whose sorts loaded highly on factor 1, *Reclaiming the food system with our own hands*, emphasized the importance of having clear commitment to biologically sourced products (csa2, 3, 8, 11, 15, 16). Others argued that the idea of SoLaWa is to increase transparency along the food supply chain, and thus allow for individual judgment to overcome "labelism" (csa 4, 17, 19). The argument of the latter group was that it was easier for farmers to participate, if they were not confronted with one-fits-all regulations that may be costly (csa 4, 17). Transparency would serve to embed farmers again in their communities, as interested clients would seek direct exchange with them to inquire about products (csa4, 14, 17). A quote from csa19 summarizes this view: "A label is intricate, but when I know the producers, and the quality criteria are a consensus of the group, then we do not have to control, because we trust each other and agree with one another. Trust should be the central quality in the exchange between actors. Control would be regression, that is how I see it, ideally."²²⁸ There are no formalized definitions of product criteria in SoLaWa. Since Gaart à Vous is situated in a source-protection area (see chapter 7.2), the use of various pesticides and chemical fertilizers is prohibited here by higher-order legislation, and not by group-consensus.

This relates to discussions about the concept and purpose of locally sourced products. Participants' main reasons for supporting foodstuff from Réiden were to decrease the ecological footprint, to increase transparency, and to act in solidarity with farmers. Csa4²²⁹ summarized this: "Some are imperative about everything being bio. I say (...): Go there (to the farm) and see if you agree with it. (...) So regionalism is more important for the people (than bio). (...) It is a difference of you cheat somewhere, or if you cheat here. Then everyone is talking about you on the village fair (laughs)."

²²⁷ „Ich habe keine ausgelaugten Böden. Auch in der konventionellen Landwirtschaft kann man die Böden gut versorgen. Das wird ja auch bestätigt über Bodenanalysen, die Humusbilanz.“

²²⁸ „Ein Label ist aufwendig, aber wenn ich den Produzenten kenne, und die Qualitätskriterien ein allgemeiner Konsens der Gruppe sind (...), dann muss das nicht weiter kontrolliert werden, weil man sich vertraut und einig ist. Und das soll auch im Austausch zwischen den Akteuren eine andere Qualität haben, Vertrauen. Kontrolle wäre ein Rückschritt, so stelle ich mir das idealerweise vor.“ (csa40)

²²⁹ „Wobei manche unbedingt wollen, dass es Bio ist. Ich sage: : Du kannst hingehen und schauen, ob es dir passt. (...) Aber den Leuten ist Regionalität noch wichtiger. (...) Es ist ja etwas anderes wenn du irgendwo betrügst und wenn du hier betrügst. Dann wird auf dem Dorffest über dich gesprochen. (lacht)“

Another reoccurring theme of the interviews, triggered by statements on group synchronization, was the lack of a collective vision for routines for internal communication and decision-making. Several interviewees stated they felt that communication within the coop was very unclear and that several members had raised the issue that they were not given enough time to reflect on decisions, and that sometimes majority decisions were omitted (csa2, 5, 11, 14). These interviewees are active in Gaart à Vous and are still under the impression of the intensity of the first year of voluntary work. However, all stated that this issue had been addressed in the group and largely resolved by refining the coordination of different projects.

To conclude, on a abstract level the capacity to get behind a common vision, notably to regionalise the food-supply chain, is high. The initiative has not been triggered by a specific event, and participants have different hopes and motivations for this regionalisation. Central points of disagreement are quality of food, the ecological effects of conventional agriculture, and the modes of decision-making in the cooperative. This is quite similar to findings of case studies on the motivation of CSA participants, who often identify disagreements between producer and consumers (for example Cox et al. 2008; Lea et al. 2006). However, at a closer look, these visions are less stratified. The different opinions regarding food quality lay not so much in the character of relations between producer and consumer, but in the mode of quality assurance: Whereas some regard strict production guidelines as necessary to gain consumers' trust, others argue that transparent process would allow consumers to check for themselves of the production up to their standards. The latter approach corresponds to concepts of SFSC, perceiving trust and transparency as the most important qualities of food (Renting et al. 2003).

As the initiative has been established rather ad-hoc, it is plausible that the development of concrete visions regarding food-quality, and modes of quality-insurance require time to emerge. The overarching idea is compelling for many citizens, as summarised by csa4: "Healthy regional food is something that everybody is interested in and understands."²³⁰ The structures and routines to clarify these visions, depend on organisational conversion factors.

7.5.4.2 Organizational conversion factors

This section assesses the values and methods of the organisation of SoLaWa, and its relation to other grassroots initiatives, systemic instruments, businesses, and local administration. The initiative has diversified very quickly after its inception in 2016 and appears like an umbrella organisation of several agricultural grassroots initiatives. The following will therefore focus on the internal organisational dynamics of SoLaWa and of its managing institution vun der Atert, after a brief appreciation of the initiative's relations to other organisations.

²³⁰ „Gesunde Lebensmittel aus der Region, das interessiert jeden, und das versteht jeder sofort.“

SoLaWa has emerged from KomEcoRura and was piloted as a LEADER project. Following the rural development paradigm, the initiative strongly corresponds to the agendas of both institutions. Further, SoLaWa receives strong support from the commune Beckerich, for example in the provision of infrastructure for Gaart à Vous. Other organisations in the canton that have no relation to the agricultural sector, such as the Centre de Covalescence, the mineral water plant in Beckerich, and Energiepark Réiden support the project by donating land and tools and promote the project in their networks. The initiative further has close relations to other grassroots initiatives, particularly Beki and the new Grinngo platform that markets regional products. SoLaWa is in close exchange with other AFN and CSAs in Luxembourg and invites experienced famers and gardeners to Beckerich to teach the cooperative farming techniques and organizational forms and strategies of CSAs. The initiative has been recognized as an innovative distribution network by the Luxembourgish ministry of agriculture.

The diversity of projects challenges the organisational capacity of the cooperative that is yet an initiative of volunteers. At the time the data was gathered, there had only been one work-group responsible for the management of all projects of the coop. Around 10-15 members meet once a week for lunch and on the weekend on Gaart à Vous. Issues of all projects at these meetings. Several interviewees described the workflow of the weekly meetings as unstructured and stated that decisions with significant impact on the coop, such as the acquisition of the apple press, were taken without majority's consent (csa2, 5, 14, 16, 17). Interviewees hinted at group members being overwhelmed and confused by the range and amount of organizational issues (csa2, 5, 14, 16, 17). Several members of the group are more interested and dedicated to Gaart à Vous and cannot or want not to take responsibility of the development of a regional distribution platform (csa5, 14, 16). A board member of the coop described the meetings: "At the beginning, all topics were discussed in one group, and that was just too much. (...) The people didn't understand anything anymore. The people didn't know what was what anymore. (...) Some attended (the meeting) only for the garden, but so many other projects were being discussed. (...) At the beginning, I did not understand what was going on. (csa5)"²³¹ At the time the data was gathered, the group was in the process of re-organizing, for example by creating work-groups for the individual projects.

Q talks conveyed a lack of methods and routines of moderation and mediation of the workgroups. When asked about such methods, a member of the board said: "Yes, in one session we passed a ball around, and everyone who had the ball spoke. That's where it starts: Learning and listening. And then we have a very good reporting (of our meetings). That is very

²³¹ „(...) Die Leuten habe gar nicht mehr verstanden am Anfang. Die Leute wussten gar nicht mehr was was ist. (...) Es waren Leute die warne für den Garten da, aber da wurden noch so viele andere Themen besprochen. (...) Ich habe auch am Anfang gar nichts mehr verstanden.“

important to me.”²³² (csa17) When asked about how meetings were structured, another board member said: “Well, in the beginning not at all. (...) It happened that people were down after the meetings. And then we had a training (...) where (the facilitators) said if you do a meeting, you have to define a time and an agenda.”²³³ (csa5) These examples indicate that the basics of group work had not been practiced in the beginning and had to be learned with several projects emerging in simultaneously.

A lack of coordination and capacity building has also been mentioned regarding the management of Gaart à Vous (csa2, 5, 14, 16). Some members voiced their frustration about this in the interviews. Three interviewees stated that they enjoyed spending their time with the group in the garden, but were often annoyed that tasks were not properly explained to them. It was stated that members who put in more work than the others, did not pass on procedures, for example concerning accounting. Some active members stated that they felt at times superfluous and wasting their time, because tasks were not properly explained to them, and technical and procedural knowledge remained very personalized. It appears that members do not sufficiently empower each other in daily routines. This seems a vicious cycle: Because of the high work-load key figures apparently feel that they do not have the time to explain others how to do things, even though this would make for a more evenly distributed workload in the long-run. Therefore, knowledge about simple routines becomes monopolized in individuals, making the initiative dependent on their effort.

As the data for this analysis was gathered, the group had just undergone an intervention to resolve these problems, and many participants highlighted that they felt the situation improved afterwards (csa2, 5, 11, 14, 16). However, some stressed that the decision to restructure the organization and give projects their individual management and some cases individual legal forms, was inevitable (csa3, 4, 5, 11, 14, 16, 17). An active member of Gaart à Vous stated: “If vun der Aert is to endure, it has to be professionalized. I don’t think it can be run solely by volunteers.”²³⁴ (csa13) A board member suggested: “We should separate the field (Gaart à Vous) from the coop. There are people who have nothing to do with the cooperative, they only want to work on the field. And they shouldn’t have to deal with other projects. So, the first child now learns to walk, and we are looking for a legal form for it now. (...) The solution is to diversify the organization. It is time, we can feel that it is.”²³⁵ (csa17) Others however fear that differentiation will “harm the collective strength of the initiative” (csa19).

²³² „Ja, wir haben mal in der Versammlung so einen Ball in der Hand gegeben, damit auch jeder der den Ball hat spricht. Da gehts dann los: Lernen und zuhören. Und dann haben wir sehr gute Berichterstattung. Das finde ich sehr wichtig.“

²³³ „Ja wie gesagt, am Anfang gar nicht. Dann haben wir gemerkt... (...) Wie gesagt, es kam vor dass wenn das Meeting vorbei war, das man gemerkt das wie die Stimmung ein bisschen nach unten... Und in der Schulung, (...) die hat uns gesagt, wenn man schon ein Meeting macht, dann muss man schon eine Zeit definieren, ein Programm machen.“

²³⁴ „Auch durch vun der Aert, wenn es Bestand haben soll, muss auch irgendwann professionalisiert werden. Ich glaube es wird nicht genügen, das freiwillige da arbeiten.“

²³⁵ „Man sollte Kooperative und Garten schon deutlich trennen. Da sind Leute die haben gar nichts mit der Kooperative am Hut, sondern wollen nur Gärtner. Und die sollen sich nicht auch noch mit anderen Projekten beschäftigen müssen. Also das erste Kind

To conclude, since data was gathered in what seems a volatile transition phase of the initiative, it is difficult to assess organizational conversion factors. It seems clear that currently the organizational conversion factors do not meet the needs of the quickly diversifying coop, neither regarding the internal coordination of individual projects, nor the coordinating workgroup of vun der Atert. Corresponding to the variety of beliefs and motivations, the group follow a pragmatist approach in democratizing the system (Hassanein 2003), perhaps addressing too many aspects of the system simultaneously. The disagreements do not emerge around different regarding the system, but different vision regarding management.

However, it can also be argued that it was a lack of organization, especially regarding group moderation and democratic decision-making lead to this situation. It is doubtful whether all the ideas and expectations projected on vun der Atert can be successfully managed by voluntaries in one legal structure, and there are internal discussions addressing this. The group intervention may be a step in this direction. It seems that the initiative, or sub-initiatives require a formalization and professionalization to achieve its visions.

7.5.4.3 Personal conversion factors

SoLaWa is not yet managed by professional employees, unlike the other initiatives analysed in this thesis. It relies on volunteers and yet shows a comparably high organizational complexity. Tasks as gardening, networking, organization, group facilitation and others, require the efficient orchestration of a variety of personal conversion factors.

The initiative emerged from ongoing discussions in the KomEcoRura, which were driven by a farmer, who is now the coop's chairman. Several interviewees stated that many farmers in the canton felt disconnected from their communities or were too busy or shy to address their concerns in such arenas. The commitment of this person and the capacity to translate the problems to fellow community members that are not from the agricultural sector has been a catalyst for the initiative. Further, as discussions were meandering in KomEcoRura, a local entrepreneur with longstanding experience in establishing coops and other legal entities in the energy sector urged the workgroup to establish a cooperative and to develop a CSA. Several interviewees stated that being pushed to the start, even without having a clear vision, was a necessary step to end discussions.

Since the outset, a protagonist of the initiative has reportedly taken over a most of working, as well as practical gardening activities. The person's ability to bring different stakeholders together has been ascribed as the cause of the initiative's rapid expansion to several agricultural domains (csa2, 3, 5, 14, 16). Also, the skill of translating the idea to a broad audience is regarded

fängt an selbstständig zu laufen, und jetzt suchen wir eine neue Geschäftsform dafür. (...) Die Lösung wäre es organisatorisch auszudifferenzieren. Es ist an der Zeit jetzt, man merkt das." (csa17)

as crucial for the initiative. On the other hand, several interviewees stated that they felt this dynamic approach made decisions concerning the entire group, especially in the early stages, undemocratic (csa5, 11, 14, 16). The dominance of a single person would not allow more shy members to introduce their ideas, and not leave room for discussions, which would inhibit capacity-building and the efficient harnessing of diverse personal conversion factors in the group (csa5, 14). On a practical level, this would also lead to problems on Gaart à Vous, since tasks would not be explained properly and people. This monopolisation of knowledge would lead to inefficient work as the same issues were repeatedly addressed, which frustrated several members who spend their free time on the field (csa14, 16).

Interviewees who raised these issues did however all emphasize that the situation has much improved after an intervention and subsequent mediation. Further, the person stated in the Q talk: "I have to admit that I am forcing my head most of the time, because I don't like standing still. There are some who only come to talk, but they don't have the character to take initiative. Everyone has their own competences and it is working quite well now."²³⁶ Although these lines conflict were reportedly resolved, it can be assumed that more moderating or mediating capacities on the personal and group level might be needed if the flat hierarchies and inclusive character of the cooperative was to be preserved.

Besides administrative, organizational and moderation skills, practical project-specific knowledge is essential for the coop. Especially Gaart à Vous requires skills in landscape architecture and gardening, economics, supply chain management, and legal issues. This knowledge is introduced in several ways: A member of the initiative with a background in agriculture took responsibility in the planning of the first season of crops, while other members attended classes at the school of agriculture. The group also actively seeks knowledge exchange with other AFN.

Finally, the demands of time and energy investment on the personal level were lamented by many participants. Although a division of labour according to individuals' abilities was indicated, many felt the engagement very arduous in the first two years. This was ascribed mainly to work in Gaart à Vous. Here, several interviewees stated that it would consume so much of their time investment in the initiative that there was too little left for strategic and organizational meetings that may have made each individual's contribution more efficient (csa2, 5, 11, 14). For the second year of the initiative, a professional gardener has been appointed to manage the garden with the support of volunteers.

To sum up, the initiative, run by volunteers, requires a broad range of different technical skills, and knowledge for a very diverse range of activities. Therefore, it needs efficient management

²³⁶ „Ich muss zwar sagen, dass ich diejenige bin, die dann doch größtenteils den Kopf durchsetzt, weil ich mag nicht auf der gleichen Stelle stehen. Da sind viele, die kommen nur zum reden, aber die haben jetzt nicht den Charakter die Initiative zu ergreifen.“

of members' individuals' personal capabilities, as a professional manager does not exist. Due to the rapid development, some individuals had acquired more decision-making power and knowledge than others, but this problem had been addressed and is currently being dissolved by the group. Nonetheless, a capacity to better moderate and mediate seems missing, while a more strategic and professional management seems to be needed. In general, the cooperative would not exist without the voluntary commitment of diverse citizens. In this regard, the motivation and vision of the group represented by factor 1, *Reclaiming the food system with our own hands*, correspond to the ecological citizenship. Seyfang's (2006) description of rather altruistic and idealistic activists who bring forward local food initiatives as counter-practices to a hegemonic food-system is mirrored in the empiric findings presented above.

7.5.4.4 Infrastructural conversion factors

Infrastructural entities are very influential in the development of SoLaWa, because the addition of material elements often define or trigger new projects. The fast addition of infrastructure very much drives the initiative's diversification, which in turns creates management problems

Many elements were given as gifts or for low fees, which underlines the high degree of cultural conversion factors of the initiative. A statement of csa4 is emblematic for this: "We were given things from everywhere, also the land (for Gaart à Vous). And the Centre Covalescence, they gave us land as well. And apple press! That guy also gives us a lot of his clients and he is going to help us for the first year for free. He is happy that he found someone who takes it over. (Points to someone) She used to be manager of a branch office of the BGL, and she inherited a farm. (...) I don't know what happened exactly, but she spoke to (a member of the coop) to see if we could put a storehouse on the farm, and perhaps a store. All of this for free (laughs)!"²³⁷

The infrastructural items most frequently mentioned in Q talks are the field of Gaart à Vous and the apple press. Further, several participants emphasized Beki to play an integral role in SoLaWa, and the notes are regarded as an infrastructure connecting the network of members. The facilities of Energiepark in Beckerich are often used for meetings, which is situated adjacent to Gaart à Vous. Interestingly, participants frequently spoke about elements they thought were still missing, such as a mobile slaughterhouse, storage for produce, and retail shelves in supermarkets. Further elements in the individual branches of the initiatives are not included here, such as a mill for the old wheat variety.

²³⁷ „Von allen Seiten haben wir Sachen geschenkt bekommen, auch das Land. Und die Kooperation mit dem Centre de Convalescence, die haben auch Land zur Verfügung gestellt. Und eine Apfelpresse. Und der Typ hat uns wirklich viele Kunden mitgegeben und ein Jahr wird er uns gratis betreuen bei so Sachen. Der ist froh, dass er jemand gefunden hat, der das weiter führt. Und hier, die (unverständlich) die arbeitet bei der BGL, die war hier mal Filialleiterin, die hat einen Hof geerbt. (...). Ich weiß nicht genau wie es ausgegangen ist, jedenfalls hat sie mit (einem Mitglied der Koop) gesprochen, dass wir in dem Hof ein Lager machen können und eventuell einen Laden, uns das sogar gratis (lacht)!“

Statements referring to infrastructure show a divide between references to the field, and to other projects envisaged or run by vun der Atert²³⁸. Regarding the field, participants stated that basic infrastructure, such as better access to water, and an opportunity to clean and store tools, was still lacking (csa2, 13, 16). Others, taking standpoints similar to factor 2 and 3, found larger infrastructural elements lacking (csa2, 4, 17, 19).

Higher-order legislation, such as the WFD and rules for food hygiene, hamper the development of required infrastructure. Several interviewees stated that complying to standards made necessary infrastructure very difficult to finance (csa2, 11, 17, 19). Csa17 summarized this: "Lack of leeway is a problem! Politicians need to abide by the law, but they should give the opportunity for temporary exceptions. And then after two years, we could decide if we need to keep it or tear it down (a barn on Gaart à Vous). That would be ok. But prohibiting everything is not the way to nurture creativity. If you want to encourage people to walk new paths, you have to open doors."²³⁹

To conclude, elements given to the coop as two-edged sword: On one hand they help the initiative to expand into different domains of food production and to diversify the value chain. On the other, each new element requires additional investment in order to be integrated in the coop, which may be difficult to acquire. Thus, the fast growth of infrastructure strains the other conversion factor dimensions, especially organization of the coop.

7.5.4.5 Conclusion community capabilities

This section summarizes the findings made in the four conversion factor dimensions and reflects upon the overall community capability for alternative food networks in Réiden. The initiative has been very well received in the canton and the cultural conversion factors are very strong. Various citizens, companies, and organisations approach vun der Atert with project ideas and donations. This, in consequence expands infrastructural conversion factors. As the cooperative is managed by volunteers, personal conversion factors are even more relevant than in other initiatives. Organisational conversion factors on the other hand seem lacking. The grassroots initiatives is strongly embedded in a network of firms, organisations, local administration, and other initiatives, but the internal group dynamics appear to be unstructured and inefficient. It appears that the strength and dynamic development within the other conversion factor dimensions strain the organisational capacity of the initiative. The problem has been recognized by the initiative and current efforts are made to professionalize group-work and the management of Gaart à Vous, and to formalize and outsource individual projects.

²³⁸ This might be due to many participants being engaged in the garden, whereas livestock-breeders, or shop owners where not part of the sample.

²³⁹ „Also mangelnder Spielraum ist schon ein Problem. Also Politiker sollen sich schon an Gesetze halten, aber da muss man eine Möglichkeit einbinden, damit man Zeitweise eine Ausnahmeregelung bekommt. Und dann bestimmt, nach 2 Jahren muss entschieden werden, ob das bestehen bleibt, oder 'Ok, Abriss'. Das finde ich schon ok. Aber nicht alles unterbinden, so kann man nicht Kreativität fördern. (...) Wenn man neue Wege gehen will, muss man Türen öffnen.“

Although the initiative is still young, the conversion factors widely respond to the functionalities for successful alternative food networks. The fast growth in infrastructural conversion factors, as well as the expanding operation of food-box schemes indicate a considerable effect of setting in value social and natural resources in Réiden (Marsden et al. 2002; Renting et al. 2003). Here, a stronger focus on internal capacity building among the member base may promote personal conversion factors and foster the re-configuration and blending of roles along the supply chain (Seyfang 2006). The territorial approach of the initiative addresses in theory all producers and consumers in Réiden and therefore promotes socially embedded economies of place (ibid.; Goodman et al. 2012).

The cases of the wheat variety and the mobile slaughterhouse suggest that these go beyond the establishment of new distribution schemes and actively foster the development of new local supply chains. These supply chains are however not linked to distinct quality criteria, but are supposed to promote transparency and trust among producers and consumers (Renting et al. 2003). The avoidance of formalization of food standards, such as permaculture or biodynamic criteria, further allows accommodating a range of visions and motivations pragmatically (Cox et al 2008; Hassanein 2003).

This, however, does not amount to a commoning of food, or democratization of food (Dowler et al. 2009). Aside from *Gaart à Vous*, which serves as a pilot project to experiment with distribution schemes and cultivation practices, there is yet no indication of the classical functions of CSAs, notably collaborative crop-planting and collective mitigation of risk for ecological farming transitions through upfront payments (Adam 2006). Given the scale of SoLaWa, and its nature of addressing not a single farm, but an entire sector, these functionalities can arguably only be achieved if the initiative is professionalized.

To conclude, the reflection of existing conversion factors with functionalities suggests a high community capability for alternative food networks in Réiden. As the initiative pursues several AFN models simultaneously in various agricultural domains, the grassroots initiative runs the risk of straining the available organisational and personal conversion factors.

Table 16: Summary of enhancing and inhibiting conversion factors of SoLaWa.

Conversion factors	Cultural	Organisational	Personal	Infrastructural	
Enhancing factors	Decline of small family-owned farms	Emerged from discussions in KomEcoRura	Very high voluntary commitment of individuals	Gaart à Vous was leased to the initiative for 1 Beki	
	Negative ecological impacts of conventional farming	Supported by LEADER resources	Building on experienced self-efficacy of energy transition	Infrastructure for Gaart à Vous donated by communes	
	Food plagues	Close relations to other organisations, grassroots initiatives, and administration	Diverse capacities of volunteers allow for fast project growth, particularly regarding public relations	Donations of facilities for storage and potentially sale	
	General agreement on the vision of regionalising the food supply chain in Réiden among members	Strong links to Beki and Grinngo	High communicative capacity of individuals promotes member recruitment	Purchase of apple press allows setting in value old apple tree varieties on Gaart à Vous	
	Very high acceptance among several companies, organisations, and administration	Sub-projects are interlinked (Gaart à Vous pilots for food-box scheme, mobile slaughterhouse emerges from meat-subscription scheme)	Strong links to other initiatives through individual members	Planned development of mobile slaughterhouse as a greater region INTERREG project	
	High emphasis of transparency to enable consumers to conduct quality controls themselves			Potentially sections in local supermarkets will offer vunder Atert produce	
	High external visibility through distinct cooperative designs and use of social media			Strong ties to Beki	
Inhibiting factors	Lack of a catalytic event	Lack of internal group-work routines	Monopolization of knowledge and decision-making power	Higher-order legislation hampers infrastructural experimentations,	
	Dissent regarding the quality of conventional food among members	At times undemocratic decision-making processes	Lack of capacity-building among member-base		
	Dissent regarding the environmental effects of conventional agriculture among members	No professionalization of project management and coordination			
	No formalized food quality criteria	Very fast growth of project diversity			

7.5.5 Discussion of findings

A brief review on the agricultural regime in Luxembourg conveyed that the government policy promotes conventional agriculture of large-scale corporations for export, while the consumer's demand for locally produced, biological products is high. Several grassroots initiatives have emerged recently in Luxembourg that re-configure producer-consumer relations in their respective localities. SoLaWa is a particular in this context, as it is not a CSA scheme of one farm, like Terra, or a producer` cooperative like BioG and Oikopolis, but a territorial approach to linking several farmers to consumers in Réiden.

As Seyfang (2006, p. 394) argues, more sustainable consumption "requires changes not simply from individuals, but from communities and their enmeshed personal and social relationships." The grassroots initiative SoLaWa re-configures social relationships in Réiden, as it conflates traditional concepts of consumer, intermediary, and producer. The initiative is a common rural development effort that engages with negative repercussions of land use by the agro-industrial

logic²⁴⁰. Notably, it aims to help farmers to (re-) develop economic relations in the canton, foster more ecologically, economically, and socially sustainable farming practices, and to provide healthy food. SoLaWa differs from other initiatives analysed in this thesis in the sense that it is the sustainability intervention in a policy field, and not a constitutive part of it. Naturally, there are other projects in the canton addressing agricultural transitions, especially the CELL, but the claim of vun der Atert is the restructuring of the sector in and of itself.

SoLaWa is different to most reviewed cases, since it is not a one-farm business model, a community field, or a consumers' cooperative. It incorporates aspects of all these concepts for a variety of agricultural produce lines. It is currently managed by volunteers, whose Leitbilder centre on cooperative and pragmatic commitment and resemble the ecological citizen concept. The social perspectives mirror the width of activities of SoLaWa. While the activist perspective *Reclaiming the food system with our own hands* was loaded on mostly by participants of Gaart à Vous, a farmer loaded on *Supporting for the farmers of Réiden*. These statistically unrelated perspectives seem to be moderated by a structural perspective focusing on regionalizing supply chains, on which the (informal) project coordinator loads.

When assessing the community capability for AFN in Réiden, it must be remembered that the data was gathered only a year after the cooperative's establishment. During that year, a variety of associated projects have formed under the umbrella, and the coop was in a process of deep re-organization. Like other initiatives, it is a LEADER project with support from the commune of Beckerich. Eventually, it will have to sustain itself economically, but the current phase has the very purpose of allowing for experimentation. It can be assumed that vun der Atert will eventually professionalize, similar to Beki and Energieatelier.

The community capability analysis suggested that the positive reception of the cooperative lead to quick increase of infrastructural conversion factors that strained the organizational and personal conversion factors. This can be regarded as part of a social learning process, which, regarding the strong commitment and constant growth of the member group, can be assumed to continue.

SoLaWa is deeply intertwined with other initiatives and institutions in the canton. It comprises of a very diverse stakeholder group regarding professional backgrounds, and Leitbilder of participation, even in the inner circle. Further, all protagonists of the other initiatives of this analysis play central roles in von der Atert. It links to the ecological visions of the Contrat Rivière, the solidary economy visions of Beki, and the aim to provide regional production systems with Beki, Grinngo, and elements of the energy transition.

²⁴⁰ Interestingly, there is no indication the interview data referring to the third logic, describing suburbanization pressures on the rural. This seems surprising given the population development in Luxembourg and in the canton, as well as the recently implemented planning legislation.

Finally, regarding the overarching research interests of this thesis, the case SoLaWa allows to infer on of social learning for rural development in Réiden. The initiative had been a long-standing subject of the KomEcoRura. It was only after a local entrepreneur who had made positive experiences in the energy transition in the 1990's and 2000', and who had experiences with setting up cooperatives, encouraged members to take a leap of faith and register the cooperative vun der Atert without a concise vision, or business plan. The energy transition can from this angle be seen as prefiguring the grassroots initiative. Curiously, the entrepreneur did not get actively involved in the daily management of the cooperative, which, regarding the lack of organizational conversion factors, could use an experiences moderator and manager. Internal factors of group-synchronization such as project management and capacity building skills seem lacking in SoLaWa, although its core group comprises of several protagonists who are active in other successful grassroots initiatives. It seems that only aspects of previous social learning processes are effective in SoLaWa. This suggests that the learning effects remain personalized, and the transfer of skills and knowledge between the generations of activists could be improved.

8. SYNTHESIS

This chapter synthesizes the findings made in chapter 7 and reflects these with theories introduced in the beginning of this thesis. Section 8.1 summarizes the findings of the in-sites sections, social perspectives, and community capabilities. Section 8.2 discusses the two research complexes and indicates subjects for further research. Section 8.3 theorizes on selected findings for transformative rural development practice. Section 8.4 discusses possible future developments in Réiden with particular focus on the potentials of blockchain technology for the regional currency Beki.

8.1 SUMMARIZATION OF FINDINGS

This section summarizes and consolidates findings made in chapter 7 in the analytical domains in-sites, social perspectives, and community capabilities. The summarization lays out key insights for the final discussion of the research complexes in section 8.2 and prepares the foundations for the theoretical reflections in section 8.3.

8.1.1 In-sites

In-sites is an approach derived from site ontology that is in this thesis used to characterize a given practice-arrangement-bundle (PAB), or grassroots initiative. In a first step, it situates a grassroots initiative among the realm of phenomena, or scientific concepts of which it is part. In a second step, it introduces the specific temporo-spatial context of an initiative's emergence. This context consists of the practices, practitioners, institutions, and materialities of an initiative, and their location and expansion in time and space. A third step synthesizes the two in-sites in an overall conceptualization of a grassroots initiative. Besides characterizing a specific grassroots initiative in Réiden, in-sites provide descriptive and analytical concepts that inform the subsequent steps of analysis. This section presents key similarities and differences in grassroots initiatives' in-sites. It lays the foundations for the discussion of the two RC, the theoretical reflections, the concluding thoughts on rural development in the future.

Realm of phenomena of which the initiatives are part

The introduction of the scientific discourse relating to a grassroots initiative has been performed in the same manner for all four grassroots initiatives. They set out with concepts addressing the highest level of extension in timespace, describing transitions of entire policy domains, move to concepts describing group dynamics and strategies, and end with concepts that characterize practitioners.

Table 17: Scientific concepts in different levels of analysis.

Level of analysis	Contrat Rivière Atert	Energieatelier	Beki	SoLaWa
Policy domain/ Constellation	Resilience of socio-ecological systems	Low-carbon transition	Ecology of money, Vollgeld-theory	Alternative food networks, Short food supply chains, Permaculture
Initiative/ PAB	Collaborative ecosystem governance	Energy democracy, citizen energy, energy democracy, energy justice	Complementary currencies, regional currencies	Community supported agriculture, food justice
Activists/ Practitioner	Ecological citizenship	Energy citizenship	-	Ecological citizenship

Table 17 gives an overview on the concepts introduced in chapter 7. The level of policy domains, homologous to constellations in site ontology, is characterized by systemic approaches to change entire systems of provision, or governance. The initiative, or practice-arrangement bundle, is addressed with concepts describing the pursuit of specific norms or functionalities of a community of practice. The individual practitioner, and particularly the core group of activists within an initiative, is characterized with concepts describing that the nature of their activism. Concepts of the reviewed scientific literature describe democratization processes in different policy domains. Comparative cases aim at re-gaining sovereignty and regionally internalize the positive and negative externalities of a socio-ecological, or socio-technical system. For example, by regionalizing the agricultural and energy system, the economic value created benefits the citizens of a place, while negative ecological effects, such as CO₂ emissions and soil depletion, are mitigated. To achieve this, the initiatives re-configure supply chains, or the governance of a common. They pursue the principle of subsidiarity in a political and an economic sense. In the literature reviewed, agricultural and energy initiatives are at times discussed as commoning efforts. This, as will become clearer below, is not the case in Réiden.

The internal dynamics of similar successful grassroots initiatives are assessed with concepts that highlight democratic and egalitarian forms of decision-making. Since initiatives are generally voluntary associations of diverse citizens, businesses, local administration, and organisations, they require negotiation and bargaining processes that allow for fair distribution of benefits and burdens to remain stable and expand. The re-configuration of supply chains requires the alignment of diverse stakeholder's capacities, motivations, and problems, that may have not cooperated before in new relations and social practices. Research on low carbon and agricultural

transition suggests that changing established social practices in these domains finds higher acceptance among the population if the benefits are distributed fairly.

Re-configuring supply chains, or governance systems often goes hand in hand with conflating and blending traditional practitioner roles. Private citizens become energy producers, scientists monitoring the state of a socio-ecological system, and participate in crop-planning of farms, while farmers may become members of consumer cooperatives. In the reviewed literature, the individual practitioner is not only concerned with executing a specific function, or routine in a given system, but actively engages in the governance of the system as a whole. This, in turn, requires social learning processes and continuous capacity-building, and the effective harnessing of diverse skills and knowledges. Further, literature reviewed highlights that such engagement is inherently political, because these citizens tend to lobby for wider political change.

Emergence of initiatives

This section briefly discusses commonalities and differences of the grassroots initiatives' journeys. The section proceeds in three steps: First, a characterization of an initiative's development over time is presented, followed by an assessment their territorial expansion. The section closes with a summarization of central elements for theoretical reflection. The distinct factors of success and failure of grassroots initiatives in Réiden are discussed in the section summarizing the findings of community capabilities.

The grassroots initiative in Réiden show similar patterns of emergence. The three systemic instruments play a central role in their development. Each initiative can be linked back to a specific catalytic event, despite SoLaWa, which is in part a reaction to the ongoing decline of small family-owned farms in Réiden. These stimulate ideation processes among diverse citizens, who are often protagonists in various initiatives. The central systemic instrument for ideation is KomEcoRura in Beckerich. Here, diverse citizens have over the years learned to communicate their needs and aspirations and have developed trusting relationships that encourage out-of-the box thinking. In several cases, members would travel together to visit cases in neighbouring countries. Further, as several successful initiatives stem from KomEcoRura, participants have acquired self-efficacy and trust from the wider population.

In the pilot phase, grassroots initiatives are often LEADER-projects. Financial resources and know-how of the LAG allow for experimenting with legal forms and business models, without having the initiative competing for financing in the communal budgets. During the pilot phase, a professional employee is hired for an initiative, who builds links to businesses and organisations in Réiden and beyond.

As described above, the grassroots initiatives analysed in this thesis are not singular interventions in a governance network, or supply chain (like one cooperatively-run wind park, or one CSA for a farm). Rather, they promote change along the entire system. Their managing institutions are therefore service providers that stimulate and orchestrate the re-configuration of the system by creating new social practices, new institutions, and new stakeholder relations. Following the aims of the LEADER program, these have to be economically advantageous for local various stakeholders. Therefore, if the pilot-phase has been successful, e.g. if a grassroots initiative has proven socio-economic benefits, it is formalized and transferred to co-financing of the inter-communal syndicate and their respective base of members, or stakeholders. In several cases, the grassroots initiatives still receive support from the commune Beckerich, for example as financing, or by granting office space. With the formalization and professionalization of an initiative, the voluntary engagement lessens. In the stable formalized set-up, the managing institutions of a grassroots initiative promotes change among its network. It engages in capacity building among the citizenry, forges cooperation among businesses and with other grassroots initiatives, and lobbies for change in communes and national government.

The initiatives' phases of emergence have distinct spatialities, and territorial expansions. During the ideation phase, an initiative often is territorially anchored in Beckerich, and the commune can be regarded as the nucleus from which transformative practices spread throughout the canton. Further, during this phase knowledge is imported through reviews of and excursions to other places. The pilot phase is the expansion of an initiative throughout the territory of all participating communes. Specifically, a network is forged of relevant stakeholders from the canton. The formalization of a grassroots initiative defines the territory in which the services of an initiative's managing institutions apply. Since most grassroots initiatives are co-financed by the inter-communal syndicate, their services apply only within the territory of the syndicate's member-communes, being the area of the canton. Naturally, their social space reaches wider in the sense that they entertain relations to distant other places and higher levels of government. Their main transformative practices, however, are territorially defined. This aspect of sustainable place-making will be explored further in the theoretical reflections in section 8.3.

8.1.2 Social perspectives

This section discusses findings of the four Q studies on the grassroots initiatives and provides the foundation for answering RC2. This thesis applies Q method as a heuristic to examine the character and relations of Leitbilder within grassroots initiatives and assess patterns across initiatives. Factor analyses of the Q sorts within the four grassroots initiatives resulted in three

factors, or social perspectives for each initiative. These are illustrated as first-person narratives²⁴¹. Table 17 displays the signifiers of the social perspectives within the four grassroots initiatives. A comparison across grassroots initiatives suggests a pattern of social perspectives among them that is captured by descriptors.

In each initiative factor 1, which explains the sorts of most participants, has a systemic view on the initiative and links it to intra and intergenerational issues of social justice and ecological sustainability. The grassroots initiative is regarded as a local engagement with these often global problems. Participants whose sorts load on this factor tend to show altruistic motivations, meaning that they are motivated by a deep sense of responsibility rather than personal benefits and advantages. These sorts often stem from private citizens who participate as volunteers, or consumers in an initiative. A comparison of these factor 1 across grassroots initiatives suggests them to represent *systemic-altruistic* Leitbilder of participation.

In each initiative, factor 3 explains the fewest sorts. From these perspectives, the primary purpose of an initiative is to serve the immediate needs of participating stakeholders. In the case of Energieatelier it highlights the importance of financial incentives for the low-carbon transition, in the case of SoLaWa it argues that the initiative should serve farmers, and in Contrat Rivière Atert it argues for more support of technological fixes brought forward by government agencies. The sorts loading on this factor usually stem from representatives of companies or government agencies. Data of Q talks suggest that these participants acknowledge and generally support the views of the factor 1, but perceive their practices to support this Leitbild intrinsically. Therefore, the grassroots initiative is seen as a service provider that should support and facilitate the existing practices of its associated members. These factors are described as *instrumental-utilitarian*, as they do not link the initiative to global systemic problems and idealistic motivations, but concentrate on the participants' individual benefits and advantages.

²⁴¹ These patterns are common for Q sorts and experienced researchers argue that the number of factors. The number of factors and the distribution of sorts across factors does not change much with higher numbers of sorts (Webler, Tuler, and Danielson 2009).

Table 18: Patterns of social perspectives among grassroots initiatives.

Grassroots initiative	Social Perspectives	Descriptor
Contrat Rivière Atert	<i>Nurturing the environment is an inter-generational responsibility</i>	systemic-altruistic
	<i>Higher-order interventions are needed to break project gridlock</i>	regional-cooperative
	<i>Technological fixes for flood protection suffice for improving the socio-ecological system</i>	instrumental-utilitarian
Energieatelier	<i>Mitigating climate change is our local responsibility</i>	systemic-altruistic
	<i>Only financial incentives will stimulate more sustainable energy practices</i>	instrumental-utilitarian
	<i>Cooperation for regional energy autonomy improves everyone's quality of life</i>	regional-cooperative
Beki	<i>A contribution to a more just and sustainable economic system</i>	systemic-altruistic
	<i>An instrument for a more dynamic and green regional economy</i>	regional-cooperative
	<i>An instrument for economic solidarity and local business</i>	instrumental-utilitarian
SoLaWa	<i>Reclaiming the food system with our own hands</i>	systemic-altruistic
	<i>A regional production and sales system</i>	regional-cooperative
	<i>Support for the famers in Réiden</i>	instrumental utilitarian

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Finally, in each initiative factor 2 describes a Leitbild that emphasizes solidarity among regional stakeholders, while also showing strong systemic awareness. In the cases of Energieatelier, SoLaWa, and Beki this perspective highlights the importance of cooperation among regional stakeholders. The grassroots initiative in this view serves to align needs and aspirations of

various stakeholders with local resources. For the case of Contrat Rivière Atert, an initiative which as been referred to as dormant by interviewees, this perspective emphasizes the importance of higher-order interventions. Here, interview data suggests that the people loading on this factor support the purpose of ecosystem governance, but do not believe that the current set-up of the grassroots initiative and its managing institution Maison de l'Eau can provide it. These factors tends to be loaded on by sorts of volunteers in the initiatives and employees of the managing institutions. These factors can be described as *regional-cooperative*.

The three factors within the grassroots initiatives seem to be complementary. Considering the aim of transforming entire policy domains in the canton, a homogeneity of Leitbilder among all participants seems unlikely, and the results of the four Q studies show a diversity of Leitbilder. Regarding their statistical indicators, they never oppose one another, but are mostly unrelated. Each grassroots initiative addresses the re-configuration of a supply chain, or the governing of a common. They require the voluntary association of diverse stakeholders with varying needs and aspirations, as well as capacities and responsibilities.

The social perspectives correspond to the social practices of a grassroots initiative, their organizational set-up and purposes: The instrumental-utilitarian perspective represents the views a client, or business that regards the initiative as a service-provider. The *systemic-altruistic* perspective corresponds to the voluntary engagements in the pilot phase of an initiative and engaged consumers once it is formalized. The *regional-cooperative perspective* can be understood as mediating between the two sides.

These assumptions are supported when relating sorts back to participants' roles in the grassroots initiatives. Interestingly, the sorts of participants who have volunteered in the pilot phase of an initiative, or who are working for the managing institution never load on the *instrumental-utilitarian* factor, with the exception of a farmer in SoLaWa. Rather, most of these participants' sorts load on the *regional-cooperative*, and some on the *systemic-altruistic* perspective.

The hypothesis of these functional relations among social perspectives, and their representation of distinct roles within initiatives has been confirmed by participants of the validation workshop. One participant stated in the discussion: "The individualization of (sustainability issues) is a big problem. (...) It is said that social problems can be solved by individual action, but that is wrong²⁴²." Another participant, being active in several initiatives and communal politics said: "We all wear different hats. I don't see myself as a politician, but I enjoy nurturing a community. I feel it is my duty, that when I see people do not know about an initiative, but they should, that I bring them in contact. (...) And that is what we have achieved, for example with the syndicate, that we can create links between what already exists, and what is desired and needed. And put

²⁴² „Die Individualisierung (der Probleme) ist eigentlich auch ein großes Problem. (...) Zum Beispiel wird immer gesagt, dass die sozialen Probleme durch individuelles Handeln gelöst werden können. Und das stimmt nicht.“

the right people in contact with one another. So that process move ahead faster²⁴³." The participants of the validation workshop, all protagonists of the initiatives, perceive of themselves as mediators of different needs and aspirations, and their roles in the grassroots initiatives in aligning existing capacities in the canton.

To conclude, the findings of the four Q studies research on the four initiatives suggests patterns of social perspectives across initiatives. The social perspectives can be interpreted as comprising of a *systemic-altruistic*, a *instrumental-utilitarian*, and a *regional-cooperative* perspective. These social perspectives are complementary and the reflect the roles of participants in the grassroots initiatives. Naturally, Q study may have produced different results, had the samples of participants been more even, e.g. included more companies and farmers. Further, there has not been sufficient ethnographic research to confirm the hypothesis that the social perspectives relate to distinct social practices within initiatives. This could be a task for further research (see section 8.2). The data does however allow these conclusions and they have been confirmed in the validation workshop by protagonists in Réiden. The results of Q study are central to the answering of RC2 and feature in theoretical reflections in section 8.3.

8.1.3 Community capabilities

The community's capability for transition is assessed by reflecting the functionings of successful comparative cases with the existing cultural, organisational, personal, and infrastructural conversion factors in Réiden. This section synthesizes the findings made in the four initiatives, amends them with insights from the validation workshop, and puts them in dialogue with theories introduced in chapter 3 and 4. The section concentrates on selected aspects within each conversion factor domain in order to answer the research complexes in section 8.2.

Cultural conversion factors

Cultural conversion factors refer to to an initiative's legitimacy of sustainability objectives in the light of the history, the values of communities of practice, and how these are brought together in narratives of a place. This dimension assesses how Leitbilder within grassroots initiatives are negotiated, aligned, and re-produced. With regards to the theoretical reflections, this synthesis concentrates on the roles of catalytic events and systemic instruments as cultural conversion factors.

²⁴³ „Wir haben auch verschiedene Kappen. Ich sehe mich nicht als Politikerin (...), sondern als jemand der sich gern um eine Gemeinschaft kümmern mag. Ich fühle, dass es meine Pflicht ist, das ich Leute, die Initiativen nicht kennen, die sie aber kennen sollten, dass ich Vernetzungen herstellen kann. (...) Und das haben wir hier geschafft (...) zum Beispiel mit dem Syndikat, dass wir Verbindungen herstellen können zwischen dem was schon existiert, und dem was vielleicht noch kommt oder gewünscht ist, und das wir die richtigen Leute in Kontakt mit einander bringen können, sodass die Prozesse schneller voran gehen.“

Three of the four grassroots initiatives under analysis are responses to catalytic events: The financial crisis stimulated re-thinking of financial flows, the flood experience demonstrated the needs for collaborative ecosystem governance, and the government plans for a high-voltage grid lend a crucial argument for the low-carbon transition. These phenomena are windows of opportunity to align various different needs and aspirations under one over-arching problem-engagement (Rohracher and Spath 2014). The “big problem” cannot be solved by the business-as-usual and requires diverse stakeholders to engage with one another. This is achieved by designing the collective problem-engagement in a way that it allows the satisfaction of various particular Leitbilder. For the case of Réiden it seems that the more direct a problem affects people’s life-worlds in the canton, the more comprehensive and committed the response. For example, the flood experience and the high-voltage grid stimulated the creation of ad-hoc institutions that were soon formalized and transferred to concrete project agendas, whereas Beki, stimulated by the financial crisis, struggled with public opposition.

This interpretation of the nature of catalytic events in Réiden corresponds to the literature introduced in chapters 3, 4, and 5. In site ontology (Schatzki 2013), general understandings refers to shared perceptions of an event or phenomenon that lies outside the realm of a community’s influence, but still defines a social practice, for example climate change. The catalytic events can in this regard be interpreted as instances that lend general understandings for the design of new social practices, e.g. they provide the overarching need for action under which diverse particular action understandings, rules, and teleologies are assembled and integrated.

In their development of the Leitbild approach, de Haan, Kuckartz, and Rheingans-Heintze (2000), introduce the term Sozietät as communities of people who share visions and intentions. This corresponds to Loeber et al.’s (2009) concept of congruency, which describes that diverse actors need to regard the same line of action as meaningful for collective action. This congruency, often stimulated by a collective crisis experience, would promote transformative social learning process among practitioners (also Dewey 2002; and Koller 2012).

A second kind of historic event promotes the emergence of grassroots initiatives as well. Several interviewees emphasized the importance of acknowledgement and appreciation of grassroots initiatives from the outside and participants in the workshop argued that it has become much easier to bring forth grassroots initiatives over time. Successful grassroots initiatives and their international recognition would legitimize previous experiments and empower protagonists to bring forth new ideas. For example, protagonists of the developments in the 1990’s argued that the village renewal prize gained them the trust of what Camille Gira referred to as the silent majority of citizens. Specifically, several interviewees stated that it became much easier to find consent for funding at different bodies of local government. This evokes parallels to Bandura’s (1974) concept of self-efficacy, describing an individual’s belief in the ability to achieve certain

goals, and the understanding of one's role in the contribution to a social group in given problem situations.

A second crucial factor for Leitbild-alignment in Réiden are the systemic instruments. As the synthesis of the in-sites showed, a grassroots initiative often emerges through ideations in KomEcoRura, is piloted with support of the LEADER program, and formalized with funds of the intercommunal syndicate. The alignment of diverse Leitbilder occurs mainly in KomEcoRura and the LEADER LAG. They provide an interface between diverse actors and offer create protective arenas for experimentation (Loeber et al.'s 2009).

Interviewees state that a trusting collaborative culture has emerged in these institutions over the years, that is reinforced through successful grassroots experiments. The character of these two arenas show parallels to Longhurst (2015) concept of alternative milieus. Participants of the validation workshop highlighted that participants, although coming from various professional backgrounds, would have developed a common language and have learned to engage critically with one another. Further, participants stated that many have become friends over the years and are therefore not afraid to bring forth at times far-fetched ideas. KomEcoRura and the LEADER LAG therefore accommodate ontological and epistemological multiplicity that allows transdisciplinary problem-engagement and systems thinking, as well as ontological security to encourage unconventional ideas.

To conclude, two main cultural conversion factors emerge from the analysis of the four grassroots initiatives in Réiden. First, catalytic events provide windows of opportunity for aligning diverse particular aspirations and needs to address a problem that requires collective engagement. The event lends general understandings of collective social practices that allows accommodating various individual Leitbilder for participation. Second, systemic instruments, and particularly KomEcoRura and the LEADER LAG are the protective social spaces where these various Leitbilder are aligned. Both of these points are central to the theoretical reflections in section 8.3. The values of the systemic instruments are explored under organisational conversion factors.

Organizational conversion factors

Organizational conversion factors refer to the values of the formal organizations active within a community, how they align with attempts to encourage sustainability, and the resulting support available for community action to stimulate transitions. With regards to the theoretical reflections, the following focuses on social practices of "doing" grassroots initiatives, and social learning processes that foster a sustainability culture in systemic instruments. The values within the grassroots initiatives themselves, and the methods of their alignment change over development phases of an initiative.

The grassroots initiatives under analysis address entire supply chains, or governance systems. They include a wide range of stakeholders with varying Leitbilder and capacities. The managing institutions forge diverse networks, and there are no examples of exclusions of stakeholders in the interviews. Once the differentiation-phase is reached, sub-projects may be transferred to independent set-ups, to avoid and overstraining of a grassroots initiative's management (like in the case of the SoLaWa).

A core group of the same citizens is engaged during the ideation and pilot phase of an initiative. An implicit assumption of this research project had been that these people have acquired distinct strategies and methods of project management, group moderation, and capacity building. In other words, the researcher assumed that these key protagonists had learned action understandings of "doing grassroots initiatives" that would be used in forming new initiatives in different policy domains.

This assumption cannot be confirmed. Most Q talks revealed that participants believe that there is a special capacity for cooperation in the canton, which has been learned over the years²⁴⁴. This, however, does not translate to specific practices of internally organising or facilitating emergent grassroots initiatives. The conflicts in *vun der Atert*, an initiative that is still in the pilot phase, are an example of this.

When asked about it in the validation workshop, participants stated that the core group would rarely pursue a clear vision, or strategy during the ideation and pilot phase. They described their approach as "swarm intelligence", meaning that the sum of participants' knowledges and actions would guide the initiatives in certain development trajectories, often without the conscious or intentional steering of individuals. One participant of the workshop stated: "Our principle of organisation is the chaos principle²⁴⁵."

This corresponds strongly with various action and learning theories introduced in the early chapters of this thesis. Perhaps most notably, it mirrors the assumption in site ontology that social practices are guided by mental states, which function as objective spirits of which individual practitioners would merely hold versions (Schatzki 2003; 2013). Furthermore, pragmatist action theory, as introduced in this thesis, assumes that visions and values are explored during collective problem engagements, and only exist as vague concepts, or "ends-in-view" beforehand (Dewey 1997; Joas 1992). Transformative learning theory, building on objective hermeneutics and Peirce's theory of abduction, holds that this lies in the very nature of problem-engagements (see Koller 2012): A collective problem is a situation that cannot be addressed with existing knowledge and routines and therefore requires learning in practice. One change in an interact (Oevermann 1991), or an alternative action within a broader practice arrangement

²⁴⁴ Respective statements are part of every concourse, and participants were asked to elaborate on them everytime they placed it.

²⁴⁵ „Das Chaosprinzip ist unser Organisationsprinzip.“

bundle (Schatzki 2015), may create a situation that offers new possibilities for action, which had not existed before (see also Joas 2012). Therefore, visions, or Leitbilder, are experienced in practice, but do not exist clearly in the outset. "Swarm intelligence" then, can be a method to mitigate risk of action in uncertainty, as a variety of knowledges is included in the tentative design of a social practice. This relation between grassroots initiatives as collective problem engagements and social learning will be further discussed in the theoretical reflection in section 8.3.

However, overall the grassroots initiatives in Réiden do follow a similar philosophy, and the Leitbild-alignment cannot be entirely contingent. The longevity of the grassroots initiatives under analysis, their continuous growth in membership, and common impetus in increasing socio-economic resilience suggests that this "chaos principle" only applies to the ideation and pilot phases of a grassroots initiative's journey. A shared sustainability mindset and knowledge on "doing" initiatives is not foremost located within the grassroots initiatives themselves, or their respective member-bases, but in the systemic instruments that guide their evolution (Loeber et al.'s 2009; Longhurst 2015).

Participants of the validation workshop confirmed this. They stated that over the years sustainability-related Leitbilder have become a common frame of reference in the development of problem-solutions in these organisations. One protagonist stated: "Well, that (representatives of the inter-communal syndicate and the LEADER action group) think like this is probably the result of 40 years of brainwashing²⁴⁶." Regarding the planning workshops for the current LEADER period, another participant, who had been active in several initiatives since the 1990's, argued: "For me, the most positive experience was the preparation of the current LEADER-period. We had two-three workshops with all actors. The quality impressed me. For example, sustainability criteria, be it in tourism, food production, or whatever, they are always implied. They are not being discussed. This is like a trademark that is accepted as self-evident in this region. If we do something, it must be sustainable. Also, the quality of the discussion impressed me. When I compare this to other regions, it is not too bad²⁴⁷."

To conclude, the organisational conversion factors to initiate and support community action for sustainability are located mainly in the systemic instruments. The support for community action is in these three formal organisations, and each instrument assists an initiative in specific phases of development. However, this support applies for the formal organisation of initiatives, and not for the internal project management practices of associative democratic engagements. The

²⁴⁶ „(...), dass die so ticken ist wahrscheinlich auch das Resultat von 40 Jahren Gehirnwäsche.“

²⁴⁷ „Die für mich jetzt positivste Erfahrung war der Vorbereitung der aktuellen Leader-Periode, da waren zwei-drei Workshops mit allen Akteuren (...), die alle mitgemacht haben. Die Qualität hat mich beeindruckt. Wie beispielsweise Kriterien über Nachhaltigkeit, ob das Tourismus, ob das Lebensmittelproduktion oder irgendwas war. Das ist immer gesetzt. Das wird nicht diskutiert. Das ist wie ein Markenzeichen, dass jeder, der hier in der Region ist, als selbstverständlich aufgenommen hat. Wenn, dann muss es nachhaltig sein. Auch die Qualität der Diskussionen fand ich schon beeindruckend. Im Vergleich was ich so in anderen Regionen sehe, das ist schon nicht schlecht.“

project SoLaWa suggests that the internal dynamics in the early phases resemble a "muddling through" guided by "ends-in-view" until an initiative is professionalized with a managing institution. Several formal organisations have not been reflected above, because they do not apply for all of the grassroots initiatives. First, the commune Beckerich offers extensive support for grassroots initiatives in forms of financing, office space, and networking. Second, the grassroots initiatives support each other. For example, Beki is an integral part of SoLaWa and some energy cooperatives, while they promote the currency's circulation. The initiatives in this regard promote each other's purposes. The links between the initiatives are mainly established and promoted by individual practitioners.

Personal conversion factors

Personal conversion factors capture member's resources for community action, the general understandings individuals share on sustainability issues, the willingness they have to act (enthusiasm, values), and the skills they draw on to act. This section focuses on the core group of protagonists and highlights two types of conversion factors: The contribution of diverse complementary professional skills, and leadership practices. The personal engagement of Camille Gira is of special relevance for the rural development. It has however not featured in the analysis, because of the focus on the four grassroots initiatives. His role is briefly discussed in a text box 20 at the end of this section.

A crucial factor in all the grassroots initiatives throughout the 40-year period of rural development is that protagonists of the core group contribute their distinct professional skills, experiences, and networks in a complementary manner. In the ideation and pilot phase of an initiative, the skills are often voluntary contributions, which may evolve to professional contracts, once an initiative is formalized. This is particularly evident in the early phases of the low-carbon transition, where engineers, architects, local policy makers, and farmers collaborated to bring forth various initiatives that would later become role models (such as biogas plants, energy consulting, energy efficient architecture). A recent example is the engagement of an activist who owns an advertising agency in Beckerich and creates the designs and slogans for several initiatives. Further, Réiden attracts migrants who seek to get engaged in sustainability initiatives.

Interviewees stated that ability to align various professional skills of diverse voluntary participants increases the quality of project proposals and their likelihood to be supported by the LEADER LAG and the syndicate. From a social learning perspective, the integration of diverse interdisciplinary knowledges increases a groups capacity of systems' thinking and reduces the risk of initiatives' failure (Loeber et al. 2009; Dyball, Brown, and Keen 2009). This diversity is mirrored in the participant group of the validation workshop, participants had professional backgrounds in farming, engineering, forestry, finance, marketing, and environmental sciences.

Another crucial personal conversion factor for community action is protagonists' ability to enroll others in their projects. This is particularly relevant after the pilot phase. Analyses in the four initiatives suggests that this stems from knowing about the diverse needs, aspirations, and capacities of citizens in the canton, and convincing that participation would be in their best interest. This is mirrored in the regional-cooperative Leitbilder identified in the synthesis of the Q studies. It was confirmed by participants in the validation, who described themselves as network agents that would align existing capacities.

This speaks to leadership theories discussed in chapter 3. Wright (2010) argues with Gramsci that leaders are followed, because their constituents believe that they have their interests at heart and follow the same vision for a good society. Regarding the rather pragmatic alignment of needs in the grassroots initiatives in Réiden, the second part of this concept seems overly romantic. Also, Max Weber's concept of charismatic leaders (in Joas 2012), people who have extraordinary personal capacities and can seduce others to break with traditional norms, does not seem to apply to protagonists in the local transition initiatives analysed in this thesis. Rather, the instrumental-utilitarian Leitbild, mostly loaded on by participants who represent business, or administration, suggest that many participate because it is instrumental to their interests. This factor does not relate the initiatives to visions of a good society, but to personal utility. Participants in the workshop confirmed that several of Gira's projects were implemented principally because the proposals were worked out convincingly and in detail, and not because of his charisma. The art of forging initiatives, then, seems to lay recognizing what individual needs and desires exist among citizens and how to communicate an idea about an initiative that makes them see their personal benefit in the engagement (Mead 1998). Findings in this study suggest that the capacity to perform such communication, or the nurturing of a Me in symbolic interactionist terms, is learned through social engagement over time (see also Koller 2012): The more people collaborate and talk to others, the more they have a feeling for the general norms and needs within a community. Today, this skill is distributed among a wider group of people.

To conclude, the core group of protagonists who are initiating and managing grassroots initiatives align several complementary professional and leadership skills. Whereas these are voluntary contributions in the ideation phase of an initiative, they can later become formalized business-relations. Leadership in the canton is based more on pragmatic problem-alignment than charismatic persuasion. The canton's reputation attracts immigration of people who share similar ethics and bring new skills and action ideas to the canton. Today, personal conversion factors are contributed by a larger group of protagonists than in the 1980's and 1990's and leadership is more distributed.

This thesis has taken a social practice approach in part to take the focus off individuals' agency and to focus on group efforts. It therefore did not attend much to Camille Gira's role in the rural development. Nearly all interviewees and participants of the Q study stated that most of the initiatives in Réiden would not have occurred without the commitment of Gira. Interviewees stated that he contributed in-depth background knowledge in various policy domains, know-how on legislative procedures, moderation and presentation skills, and that he was ideologically committed and charismatic enough to push initiatives against public opposition. In an interview in 2012, I had asked him to explain his role in the overall development, and whether he thought that the overall acceptance for progressive policies in Réiden would be exhausted. He answered:

"No, the other way around. With all modesty, in the beginning, I really played an active role, and I took care of everything. I have read a lot about environmental communication and transition processes, especially in rural areas, because that's where I come from. It's clear that you need a local hero everywhere (*for the transition processes*), that's the way it is. (...) Especially in the beginning these processes need an identification figure. I would say that I was this figure from the mid-80's until the village renewal prize, and possibly afterwards. Perhaps I pulled things a little, but not alone- never alone! However, the longer this lasted, the more I had the feeling that it was not my doing anymore (*referring to the transition process*). The only thing that I have done on several occasions was bringing people together. (...) I played the catalyst."

Gira's role in the development was subject to the validation workshop, which took place a few months after his death. The following is an excerpt of the lively discussion that had emerged among participants.

Participant A: "Often initiatives were started in Beckerich, and then we were encouraged to transfer them to the level of the canton, so that the others would not feel neglected. You can say what you want, since Camille is gone, there is no guiding figure anymore, and whole thing falls apart, because there is not so much courage anymore. (...) As long as he was there, things were good enough, because someone did the job and the rewards were shared, and everyone could adorn themselves (*with the accomplishments*). But now he is gone. And what happens now? Nothing. (*the other disagree, she laughs*) Ok, little."

Participant B: "I think, in the beginning Camille had really pushed a lot. Now there is no politician pulling things like he did. But thanks to the seeds that have been sown, we have committed people in the right positions, and things will continue to flourish (*refers to initiatives*)."

Participant C: "Maybe it doesn't need someone like Camille anymore, who forces his head all the time. There are quite a few people who didn't begrudge Camille all these things, and who are now saying: Well shit, he did accomplish a lot after all. Beki, for example, is relatively little subject of discussion in the syndicate now."

Participant D: "I think Beki was a moment when this way of forcing one's head came to an end, because at some point people stop following you. (...) Mr. (names a mayor from the canton who has been opposing several initiatives) said it exactly in these words. That it would be enough now, and that all those things (*refers to initiatives*) should be given some time to settle now. This way of continuously pushing things further, this has changed."

Text Box 21: Excerpt from a discussion about on the role of Camille Gira in the overall development.

Infrastructural conversion factors

Infrastructural conversion factors refer to the provision of facilities for sustainable practices by government, business, and community groups. This dimension addresses material arrangements that are integral or conducive to the social practices of grassroots initiatives. This section focuses on common infrastructural conversion factors across initiatives, and their relation to other conversion factors within grassroots initiatives.

Material links between initiatives were found mostly regarding shared spaces of administrative and managing practices. Examples are Infostuff in the village Redingen, hosting the offices of Energieatelier, Klimabündnis and Maison de l'Eau in one building. Another are the premises of Energiepark Réiden s.a. in Beckerich, which accommodate several energy-related enterprises, as well as the advertising agency that is responsible for the public appearance of several grassroots initiatives, enterprises, and local government bodies in the canton. Gaart à Vous and the office of de Kär are within walking distance from Energiepark. This spatial proximity, interviewees argued, creates synergies between initiatives, and increases visibility for their clients.

The grassroots initiatives are rarely linked through other materialities. Beki-notes are the only physical infrastructural conversion factor that links several initiatives. For example, energy cooperatives offer the dividends in Beki, which can then be used to acquire products via SoLaWa. The use of Beki is encouraged in several initiatives, but not the only accepted form of payment. It is an integral part of these initiatives, but not constitutive of them. Further, the physical nature of the currency impedes the initiatives' capacity to stimulate more economic activity, because business cannot do transaction amongst each other easily. In this case, the nature of the material artefact impedes the community capability to bring forth a financial transition. The problem is being addressed by transforming Beki to a digital currency. This, some interviewees have argued, may come at the costs of its symbolic value and thus to the detriment of other Leitbilder. In cases, infrastructural conversion factors stand in a suspenseful relation to other conversion factors. The case of SoLaWa suggests that a high degree of cultural conversion factors, in this case a strong appeal of an the initiative's Leitbilder to the local population may strain the organisational conversion factors of an initiative. In this case, the initiative is approached with donations, and project proposals that align with it's Leitbilder, but that exceed the managing capacities of its volunteers. This leads to conflicts, and eventually to the outsourcing of initiatives. Vice versa, the case of Maison de l'Eau suggest that a lack of collective engagements with collective materialities may result in an initiative to fall dormant.

To conclude, the main way that infrastructure link grassroots initiatives is through shared facilities. These are spatial nodes in which people meet, exchange ideas, and recruit of new members. There is little indication of material artefacts that are being produced in one practice becoming a constitutive element of another, with the Beki notes being an exception. Within

initiatives, infrastructural conversion factors may strain or stimulate the realization of other conversion factors to become capabilities.

8.2 DISCUSSION OF THE RESEARCH COMPLEXES

The following discusses the two research complexes in face of the findings introduced above. A research complex consists of an hypothesis and a research question. Each section briefly recapitulates the conceptual approach and answers the research question by drawing on the findings laid out in the above section 8.1. The sections close with recommendations for further research.

8.2.1 Research complex 1

This research complex hypothesizes that: The diverse grassroots initiatives in different sectors are linked and prefigure one another (through people, materialities, understandings, norms, activities etc.). Understanding these links is the key to understanding the entire transition. It asks: *Through which elements are the initiatives linked (understandings, people, materialities, activities) and what is the character of these links (constitution, prefiguration, causation)?*

Conceptual approach

With site ontology, grassroots initiatives are perceived as practice-arrangement-bundles (PAB) that stimulate a transformation of a given policy domain in the canton, referred to as a constellation. The links between social practices and material arrangements are perceived to be of the same quality as links between PAB and constellations. The only difference between these units of analysis is their degree of extension across time-spaces and there is no ontological hierarchy between them. That is why the ontology is referred to as flat. Site ontology assumes five kinds of relations: Causality, prefiguration, constitution, intentionality and intelligibility.

The community capabilities concept captures the qualities that emerge through the enactment of elements of a practice. Unlike several other case studies on similar initiatives drawing social practice theory, this study did not make an inventory of existing social practices and materialities of grassroots initiatives, but coded interview data directly for these qualities, e.g. the conversion factors. This allowed comparing the existing qualities, or conversion factors of a grassroots initiatives with ideal functionalities for transitioning, which are derived from comparative cases. The community capability for energy, or agricultural transition is therefore assessed by the degree to which existing conversion factors allow realizing functionalities in a specific site. The advantage of this approach is that it acknowledges that various participants partake in a grassroots initiative voluntarily for very different reasons. The community capability approach

recognizes that each grassroots initiative only exists because of the various complementary activities of diverse participants, and that these participants engage because they hope to realize their diverse Leitbilder through this engagement. A community capability is therefore the sum of action opportunities that the individual participants can take up or not, according to their own preference.

Discussion

This thesis analysed grassroots initiatives in four types of conversion factors and section 8.1 presented the commonalities and difference of conversion factors across the four grassroots initiatives. The following summarizes these commonalities and differences to answer the research question. Findings suggest that the four grassroots initiatives in the canton Réiden rarely share common activities. The only purposeful integration of one grassroots initiative in several others in the case of Beki. However, grassroots initiatives are linked through personal, organisational, and infrastructural conversion factors. Further, there are clear patterns in the initiatives' development, and it can be argued that grassroots initiatives stimulate learning process that cause the emergence of others. This allows assuming that there are spill-over effects across different policy domains within the same territory that make for an overall more sustainable rural development.

Although the grassroots initiatives are addressing different policy domains, they are brought forward by a core group of citizens from the canton. Participants often wear several hats, for example the chairman of one initiative is likely to participate in another, for example as an employee of the managing institution. Learning effects of one initiative can thus be transferred to another. Protagonists of the low-carbon transition, for example, encouraged and supported initiatives of the agricultural transition. Today, such synergy-effects are promoted by co-locating the managing institutions of several initiatives.

Another link between the initiatives are the formal organisations, or systemic instruments in the canton. Each initiative is linked to one or several of these, and over the years knowledge on "doing" grassroots initiative has accumulated here. Further, these institutions promote distinct sustainability values that constitute all grassroots initiatives.

Analysis of cultural conversion factors showed that most grassroots initiatives emerged as response to catalytic events. These allow assembling diverse needs and aspirations under a collective problem engagement, which become the grassroots initiatives. Further, successful grassroots initiatives lend legitimacy to the creation of others. This manifests in increased trust of the citizenry in protagonists, and an increased self-efficacy of protagonists.

Beki and the emerging Grinngo platform, which functions as a web-based yellow-pages in the canton, are efforts to link grassroots initiatives in the canton. Beki is a particularly relevant effort

in this regard, because it may act as a multiplicator of transformative effects. On one hand, it stimulates economic activity and may thus increase product turnover of other grassroots initiatives. An increase of turnover of a grassroots initiative that aims at regionalizing a specific supply chain (for example in energy or agriculture) means that it is able to transfer larger parts of the market into its domain. It therefore encourages the community capability for transition. Further, should de Kär establish a lending system in Beki, like comparative cases of Regios, the value created in one grassroots initiative could be used as investment to create another.

To conclude, grassroots initiatives are interlinked through common elements, or conversion factors, but do not share common activities. Beki is the only case of purposeful integration of one initiative into others. Learning effects of grassroots engagements inform the creation of new initiatives, stimulated by a core group of protagonists and systemic instruments. Initiatives show clear patterns of emergence and forms of organisation. The similarities of the low-carbon and agricultural transition suggest that successful grassroots initiatives in one domain can encourage experiments in others.

Further research

Regarding geographic debates on local sustainability transitions, this research project proposes an alternative way to approach the effects of grassroots initiatives. Instead of examining how an initiative engages with a socio-technical regime or changes a social field in the same policy domain or economic sector, it perceives of the effects as an expansion of the community capability to bring forth transitions in other policy domains in the same place. A research agenda, situated at the intersection of sustainability transitions and rural development, that examines such learning effects may empower local initiatives and help overcoming neoclassic regional development paradigms.

8.2.2 Research complex 2

This research complex hypothesizes that: The initiatives are bought forward by heterogeneous actor groups, holding different motivations, beliefs, referred to as Leitbilder. Unlike the dominant narrative on the development suggests, it is not the intentionality of the group that allows the transition to occur, but the capability to align at times divergent interests in practice. It asks: What are the Leitbilder within the grassroots initiatives? How diverse are they? Are there patterns in the constellation of social perspectives among the initiatives?

Conceptual approach

This thesis assumes that practitioners of a grassroots initiative have Leitbilder of participation. Theodore Schatzki's early works argue that social practice are governed by mental states. These

mental states consist of general understandings (of matters germane to a practice, such as climate change), the teleological structure (hierarchy of ends), rules, and action understandings (actionable knowledge). They are regarded as meta-personal “objective spirits” that guide social practices, whilst individual practitioners merely hold version of them. These versions, however, are assumed to have a certain degree of intelligibility, or congruence that allows for interaction. While practice arrangement bundles are the site ontology-equivalent of grassroots initiatives, mental states are the equivalent of (collective) Leitbilder. The framework of Leitbildanalysis lends a category system that allows comparing the character of Leitbilder, or mental states, within and across initiatives.

In order to operationalize this concept for fieldwork, this thesis assumes participants’ versions of mental states to be operant subjectivities, e.g. only existing in immediate action. Q methodology creates a research situation where the participants of a grassroots initiative renders her Leitbild, or subjectivity, being operant. Such a Q sort of a participant is a still a still-frame of her Leitbild, or version of a mental state. Factor analysis of various participants’ sorts allows generating social perspectives (the Q method term for collective Leitbilder and mental states) of a social practice. In this thesis, these social perspectives serve as heuristics to examine the Leitbilder of grassroots initiatives.

Discussion

This section builds on the synthesis of Q study-findings presented in section 8.1.2. The character of Leitbilder has been discussed in-depth in that section, as well as the analyses in chapter 7 and will not be repeated here. The discussion will focus on the degree of diversity Leitbilder, and patterns across initiatives. The section begins with a disclaimer on the data’s reliability and informative value.

The recapitulation of the conceptual approach and the method indicates that substantial reduction, standardization, and fragmentation of qualitative data was required to address this research complex. Further, the data was treated in Luxembourgish, German, and English. The findings are also biased by the samples of participants: In each Q study, all people who responded positively to the request for participation were invited. The samples comprised therefore much more private persons, volunteers, and clients than representatives of businesses. It stands to assume that particularly factor 3, the instrumental-utilitarian view would have had more loadings. Nonetheless, all statistical requirements of Q method were fulfilled in each of the four studies.

The four Q studies on the selected grassroots initiatives produced three social perspectives in each initiative. In all cases, one perspective describes around two-thirds of all participants’ sorts, with the other two describe few participants each. In each case, this main perspective slightly

correlates with one other. Further, in each initiative one social perspective showed no correlation, or a slightly negative correlation with the dominant perspective. This means that the social perspectives within the grassroots initiatives have very little similarities. This, however, does mean that they are divergent or opposing: A correlation of -1 would be the exact opposite, 0 mere means that they simply do not share commonalities. Therefore, findings suggest that most participants widely share the same social perspective on the grassroots initiatives, and there are no divergent social perspectives. The degree of diversity of social perspectives among the participants of the study is therefore lower than initially expected.

The synthesis the Q method results in section 8.1.2 identifies a pattern of social perspectives, or Leitbilder, among the four grassroots initiatives. The social perspectives that describes most participants views are the described as *systemic altruistic*, while the others represent *instrumental-utilitarian*, and *regional-cooperative* views. These social perspectives seem to correspond with the roles of the people whose sorts load on them, and their roles in the initiatives. Notably, protagonists who volunteer or work in the managing institutions tend load on the systemic-altruistic, or the regional-cooperative view. The instrumental-utilitarian view is loaded on by representatives of government agencies, farmers, and business owners. This suggests that the different social perspectives are complementing each other, because the engagements they represent are essential to a grassroots initiative.

The last aspect of this research complex addresses practices of the alignment of diverse social perspectives. The previous sections indicate that the analysis does not suggest a common practice of such alignment across initiatives. Rather, within each initiative the stakeholders find specific ways to align views of the participants, depending on the organizational structure and the respective social perspectives of their members. Looking beyond the initiatives themselves, the three organizations discussed under organizational capabilities seem to support this process throughout different stages of an initiatives' development.

However, the practices of alignment and the relation between social perspectives, or collective Leitbilder, and the actual social practices with initiatives were not analysed in this research project. Exhaustive ethnographic field work would have been necessary to identify patterns between social practices and social practices. This would have required a structured and standardized assessment of the social practices within these very different grassroots initiatives that would also have allowed comparison across initiatives.

To conclude, the social perspectives within grassroots initiatives in Réiden are not as diverse as initially. No opposing views were identified in the study. The study identified patterns of social perspectives across initiatives. In each, a systemic-altruistic view is loaded on by most participants, whilst a regional-cooperative and a instrumental-utilitarian view represent fewer sorts.

These social perspectives, or Leitbilder, seem to represent different complementary forms of engagement that are needed to (re-) produce an initiative.

Further research

This study addressed grassroots initiatives as pragmatic problem engagements. Unlike paradigmatic comparative cases, Réiden is not an intentional community of like-minded people pursuing one sustainability vision, but a natural community of people who happen to share the same place. The concept of grassroots initiatives is also used differently than in several other studies: Whereas often the concept refers to a singular initiative (one CSA, one energy cooperative), this study perceives of them as efforts to regionalize entire supply chains, or to govern a common. Therefore, the Leitbilder in these grassroots initiatives are more diverse.

The findings suggest a more liberal and pragmatic approach to transitions, by showed how diverse Leitbilder, also those seeking individual economic advantages, can be aligned and harnessed to regionalize supply chains and make them more social just and environmentally benign. More research is required to validate and elaborate further on these findings. For one, similar case studies based on Q method are needed to refine the category system of Leitbildanalysis and the categories of social perspectives. As Q method regularly results in three factors, another method may render a more differentiated system of social perspectives. For example, an analysis using discourse coalitions concept, such as in the works of Martin Hajer, could develop more refined categories abductively. A second trajectory for further research is to explore the relations between social perspectives and social practices. As discussed above, this would require a standardized category system of social practices composing a grassroots initiative, and extensive ethnographic field work to observe these practices. Alternatively, an network analysis could assign roles to individual participants of grassroots initiatives and compare the factor loadings of their sorts to these roles.

8.3 THEORIZATION

The previous sections synthesized findings about the rural development in Réiden and put these in dialogue with theory. The research questions were discussed and trajectories for further research indicated. This section theorizes about specific aspects of these discussions and it takes a pragmatic action theory perspective that may be particularly relevant for rural development and sustainability transition practitioners. Focus lies on the application of the capability approach for transition and development practice, the acknowledgment and awareness of the benefits of a functional diversity of Leitbilder, and the lessons of the case Réiden for researchers

and practitioners in Luxembourg. These thought experiments follow the Transition Movement's philosophy of embracing interdisciplinarity, diversity, and ambivalence with an pragmatic inclusiveness, and to stimulate social learning. The section begins with assembling relevant take-away messages from the syntheses of findings.

The grassroots initiative concept has been interpreted in a very broad and inclusive manner in this thesis. Whereas most comparative cases would refer to a grassroots initiative as one CSA project, or one energy cooperative, this thesis described efforts to transform an entire supply chain, or govern a common, as grassroots initiatives. This decision was informed by the character of the case: The non-for-profit managing institutions of the grassroots initiatives entertain diverse and complex stakeholder networks that aim at including an outmost diversity of stakeholders and activities within the territory of the canton. The results of this research project suggest that by including a wide range of participants with diverse interests and objectives, the initiatives generate measurable sustainability impacts and promote the rural economy.

The above sections have elaborated on a range of factors that explain and elucidate the dynamics of the rural development. Particularly, they emphasized the role of catalytic events as windows of opportunity for the alignment diverse problems under a common associative effort that becomes a grassroots initiative. The grassroots initiatives show clear patterns in their extensions across space and time, and the systemic instruments play fundamental roles in designing and guiding initiatives throughout their phases of emergence. The syntheses further discussed on the agency of protagonists in the canton within the grassroots initiatives and formal organisations, with attention to their role in aligning diverse *Leitbilder*.

A red thread throughout these discussions is the conceptualization of grassroots initiatives as associative democratic experiments that diverse stakeholders engage in voluntarily, because they allow them to address their diverse individual problems. These collective engagements are guided by overarching problem-framings, or general understandings, which are often created through catalytic events. Initiatives are guided by norms and rules of sustainability that are mainly situated in the systemic instruments. Through engagements in grassroots initiatives, these norms and values may be taken up by practitioners in process of social learning.

This section briefly theorizes on three aspects of this development: First, the interpretation of the capability approach in this thesis is discussed. Community capabilities is used as an analytical concept in this work, but it has also implications for a transformative action theory in the context of neo-endogenous rural development and sustainability transition practice. Second, analysis suggests that a functional diversity of *Leitbilder*, or social perspectives, may stabilize grassroots initiatives, particularly those encompassing entire supply chains. This suggests a pragmatic and inclusive engagement with practitioners and organisations that may not share sustainability and development visions, but that can nonetheless contribute to achieve them.

Third, the revival of the canton as a social space for socio-economic development can be regarded as the emergence of a new meso-level in the two-tiered government system in Luxembourg. This finding holds relevance for socio-scientific research in Luxembourg, and the strategies and organisations established in Réiden may be instructive for transition practice in Luxembourg and beyond.

8.3.1 Transformative rural development as the provision of collective conversion factors for the individual pursuit of life-forms

This section elaborates on this thesis' assertion that collective engagements produce diverse conversion factors that expand the freedoms of participants to realize specific doings and beings according to their individual preferences. It applies the notion of theories of qualitative, and social freedom to the grassroots initiative concept, by showing that an individual's opportunities to achieve certain life-forms are improved through entering social bonds, or practices that are the initiatives.

The application of the capability approach in this thesis deviates from the concept's original purpose and general manner of application. As discussed in chapter 3.3, it even dissents with the leading scholars of this approach by applying it to communities of practice, and not just to individuals. Also, the capability approach is not used to identify indicators of well-being and human flourishing that go beyond neoclassic and reductionist approaches, such as FDI and GDP growth. In this thesis it has been employed to capture the wide range of conversion factors an initiative provides for diverse participants through collective engagements. This approach is particularly insightful for associative democratic initiatives. Here, diverse people engage in collective activities not necessarily because they pursue the same visions, but because these collective engagements allow the creation of an array of opportunities that participants can realize according to their own preference.

The community capability approach is used in this thesis as a philosophy to explain and (vaguely) examine the constitutive elements and qualitative or social freedoms created through associative democratic engagements, and not foremost as a tool to assess the well-being in a defined social space, or territory with ready-made indicators. Community capabilities builds on the theory's original liberal approach to human development in the sense that it identifies qualitative capabilities, provided by grassroots initiatives, that participants can realize according to their own preference. Consequently, the various social practices that make up a grassroots initiative are not assumed to follow one teleology, but they are largely contingent assemblages of diverse practices aiming to fulfil diverse needs and aspirations. Nonetheless, these social practices are integrated in a manner that stabilizes the grassroots initiative.

The capabilities perspective concentrates on the qualities that emerge from the social practices within a grassroots initiative. In the case of Réiden, the diverse qualities co-constitute and condition one another in efforts to regionalize supply chains or govern a commons. For example, the low-carbon transition requires farmers to establish biogas-plants, which can feed excessive heat into the district heating grid so that private households can get off fossil energy carriers. For the plant to be profitable, the commune guarantees the uptake of heat long-term. For the grid to be functioning, the farmers guarantee the feed-in of heat. For the commune-owned grid to be profitable, citizens need to connect their houses to the grid. The farmer may want to establish new lines of income, the citizens may be interested in having access to cheaper, or carbon-neutral energy sources, and the commune may aspire to cut its CO₂ balance. The collective engagement produces co-constituting conversion factors that allows for the diverse participants to realize their respective desired capabilities, without everyone having to aspire the same capabilities.

All four grassroots initiatives address issues that directly relate to most people's life-worlds: The integrity and resilience of socio-ecological systems, and socio-technical systems providing food, energy, and money. They address basic systems of provision, since these are the primary economic domains in the canton, but also domains that can to a large extend be quite comprehensively regionalized and democratized. The regionalization of supply chains can be understood as a process of re-directing rural economies towards citizens' desired life-forms, e.g. to provide conversion factors to realize the desired capabilities for achieving these life-forms.

This is achieved by aligning private people's needs and aspirations with those of producers, intermediaries, and local government. The term capabilities refers to the existing options one has for realizing certain functionings, e.g. to do or be something that he or she wants, or not. Put generally it refers to the ability to realize a certain life-form in a given site. The example given in chapter 3.3 showed that the desire to live according to certain norms cannot be fulfilled solely with personal conversion factors, such as financial wealth. Likewise, several business owners, and particularly farmers find that their traditional practices do not allow them to sustain their desired life-form, either. Both parties face problems that cannot be solved individually.

Therefore, in this reductionist example both parties become engaged in voluntary local associations to redirect and steer the community development. In this sense, the three systemic institutions are the social spaces where citizens seeking to create conversion factors to achieve their desired life-forms meet with economic actors of the canton, who themselves seek conversion factors to pursue theirs. In these arenas, the diverse participants develop grassroots initiatives that produce the various conversion factors all participating parties aspire. This study suggests that catalytic phenomena render overarching problems, or collective crisis experiences that bring diverse actors to the table and create grassroots initiatives that react to these phenomena,

while also producing manifold conversion factors. With site ontology terminology, these events lend the general understandings required for collective interdisciplinary engagement.

That is why pragmatist action theory is so relevant for this thesis: Understanding grassroots initiatives as collective problem-engagements of participants pursuing diverse "ends in view" elucidates why people who aspire diverse conversion factors for realizing different capabilities of diverse life-forms would engage in voluntary grassroots initiatives. Assuming intentional communities of practices pursuing collective sustainability, visions cannot explain why interdisciplinary stakeholders with different Leitbilder would engage in these initiatives.

Therefore, this approach to development is practicable in "the real world", or heterogeneous natural communities. In a philosophical sense, it builds a mid-way between utilitarian individualism and communitarianism. Regarding contemporary debates on post-growth economies, it could encourage a less dogmatic and more compassionate and liberal stance that acknowledges that moving towards such economies does not require all practices and practitioners to be orthodox about the end-goals.

Naturally, such engagements are only possible in policy domains, or economic sectors that exist in a given territory and that can be regionalized. The neo-endogenous development paradigm emphasizes setting in value and expanding existing social and material resources. The functions of rural space in general, and particularly in Réiden, mainly comprise of basic systems of provisions, or supply-chains of primary goods. This application of the capability approach may therefore only be relevant for selected policy domains and economic sectors, and remote rural areas.

8.3.2 A functional ecology of Leitbilder

This section theorizes on the characteristics and relation of diverse Leitbilder in grassroots initiatives. Following Schatzki's social practice theory, a Leitbild is perceived as a shared mental state of various participants of a social practice, consisting of general understandings, rules, the teleoaffectionate structure, and actionable knowledge. With reference to the section above, it can be understood as a shared set of aspirations and needs, or shared pursuit of conversion factors to achieve capabilities.

This thesis shows that none of the initiatives could be maintained if practitioners would not be able to align a diversity of Leitbilder in a complementary manner: It does not matter for the impact of the low-carbon transition if the farmer believes in climate change or not, what matters is that he sees any advantage in joining the biogas-coop. The biogas cooperative creates conversion factors that help the farmer, such as alternative revenue streams, and the citizens, such as access to local renewable resources to achieve sustainable life-forms.

The synthesis of the four Q studies identified patterns of Leitbilder among the grassroots initiatives. In each case, a system-altruistic view is loaded on mostly by private citizens, who

participate in initiatives as volunteers or private consumers. An instrumental-utilitarian view is mostly loaded on by government representatives, farmers, and business owners. The regional-cooperative perspective can be seen as mediating and aligning the two.

Each of these perspectives therefore describes roles of practitioners and practices within the grassroots initiatives, and, as shown in the previous section, these are co-depended. The Leitbilder can be seen to correspond to different functions that make up and stabilize the initiatives in Réiden. In initiatives that address supply chains the three categories can be related to the roles of producers, consumers, and mediators.

This insight refines the understanding of a heterogeneity of Leitbilder: On one hand a homogeneity of Leitbilder would not allow to assemble a required diversity of participants, on the other the heterogeneity is not absolute either. Findings suggests that grassroots initiatives are not stabilized by an outmost diversity of Leitbilder, but by a certain degree of diversity. Lending a term from research on resilience in socio-ecological systems (Folke et al. 2004; Rockström et al. 2009): What seems to enable and stabilize an initiative is not the monoculture of one Leitbild, nor the outmost (genetic) diversity of Leitbilder, but a functional diversity of Leitbilder that guide the variety of co-depended transformative social practices and material engagements that are the grassroots initiatives. This diversity is subject to constant re-forging and alignment, as the dormant Contrat Rivière Atert and the secession of initiatives in SoLaWa show.

As discussed above, the number of the identified Leitbilder is biased by the statistical procedures of Q method. Notably, three factors is the common result of most Q studies, and other methods would have rendered different numbers and characteristics of Leitbilder. Further, the relation between Leitbilder and social practices and functionings within initiatives remains hypothetical, because of the lack of corresponding ethnographic observations. Further work is needed to elucidate the relations between Leitbilder and social practices in grassroots engagements.

The hypothesis of functional ecology of Leitbilder within grassroots initiatives as rural development experiments holds value for the kinds thesis and commoning practices. The initiatives are associative democratic and interdisciplinary stakeholder engagements that often blend and conflate stakeholder roles: The farmer may be a member of the consumer cooperative buying foodstuff, a house-owner may become an energy-producer, and so on. The above described types of Leitbilder could therefore describe these new multi-faceted stakeholder roles. On the other hand, these findings will be redundant for more traditional approaches to regional development that look at the interactions or formal organisations and institutions and assume fixed functions and responsibilities.

Nonetheless, this is a promising trajectory for further research on grassroots initiatives and resilient communities in general. Understanding better the diversity of Leitbilder within such

initiatives, and perhaps identifying constellations that work, may make for a more inclusive and pragmatic approach to local engagements that perceives diversity of Leitbilder as something to be harnessed and not judged by ready-made norms. Such research should be attentive to the roles of systemic instruments, because this research project suggests that these are the social spaces where the diversity is aligned, and where social learning process that change these Leitbilder occur.

8.3.3 The emergence of a new bioregional meso-level in Luxembourg

This final section reflects on the rural development in the canton Réiden as a regionalisation process. It discusses the relationship between Beckerich and the wider canton, adopting the perspectives of place-making and alternative milieus, and argues that the initiatives in Réiden contribute to a re-emergence of a meso-scale in the two-tiered government system in Luxembourg.

Beckerich as the nucleus for rural development initiatives

The conditions for sustainable or progressive policies in Beckerich and the systemic instruments have in been discussed with Longhurst's (2013; 2015) alternative milieus concept. Based on a case study of the classic example of a transition town, Totnes, he argues that certain places have over time developed conditions and capacities that are conducive for the emergence of progressive policies: *Ontological and epistemological multiplicity, spatial imaginaries, and ontological security*. These concepts apply to the systemic instruments and the place Beckerich in different ways, as discussed in the previous sections.

The concept certainly captures well the cultural preconditions for the initiatives emanating from Beckerich. However, these conditions provide a favourable social space in Beckerich, because more mundane factors are in place as well. First, the commune has on several occasions contributed to the financing of initiatives. Over the years Beckerich's community council supported projects that other neighbouring would not finance through the inter-communal syndicate, at least in their pilot phase. Second, civil servants of the commune are actively included in initiatives and are given responsibilities in them. The commune invests in their continuous training and qualification for these tasks. Third, the commune has developed a tradition of knowledge exchanges with other places across Europe. Beckerich organizes excursions to other places, and hosts policy tourists on the *Energie-Tours*. Fourth, interviewees from various neighbouring communes suggested that the deliberative commissions in Beckerich, among them KomEcoRura, are the most vibrant in the canton and were in very close relation to the community council.

Sustainable place-making and the emergence of a new meso-level in Luxembourg

The synthesis of the initiatives' in-sites in this chapter concluded that Beckerich is the nucleus from which many sustainability experiments emanate. However, none of the initiatives could achieve their functionalities on the local, municipal scale. Rather, all of the initiatives analysed in this thesis assemble stakeholders from and provide services for the entire canton. This lies in the nature of the initiatives: A socio-ecological system cannot be governed without the inclusion of neighbouring communes up-stream, and a complementary currency can hardly stimulate economic activity in the local economy of a single village. These initiatives require a specific geographic scale in order to be effective.

For initiatives aiming at democratizing and re-gaining sovereignty of supply chains, such as Energieatelier and eventually SoLaWa, this translates to a pursuit of bio-regionalism, or functional regionalisation (see also Faller 2015). Certain functions of rural areas, and particularly the provision of primary goods are spatially re-embedded through these initiatives.

This emerging bio-regionalisation occurs within the old territorial boundaries of the canton. Luxembourgish cantons have existed for a long time, but today mainly serve simple administrative purposes today. In Réiden, however, all initiatives under analysis are designed in and supported by the systemic instruments. As the synthesis of the in-sites in this chapter has shown, these two systemic instruments complement each other in developing and supporting grassroots initiatives. The inter-communal syndicate comprises of all 11 communes of the canton and administers a common budget to provide public infrastructure and services that the communes could not afford individually. Since the beginning of this LEADER period (2014 - 2020), the boundaries of the LAG, are congruent with those of the inter-communal syndicate, and the canton (plus Mertzig). Considering the socio-economic impact of the initiatives, one can speak of the emergence of a new meso-level for socio-economic governance that does not exist anywhere else in the country (see Lorig 2008).

These developments can be seen as a form of functional regionalisation in the sense that supply chains and governance issues are re-embedded within the territory of the canton. The case also renders interesting insights for discussions on sustainable place-making (Jessop et al. 2008; Mason and Whitehead 2012; see chapter 4.1). Whereas this is a discourse concept, in the case of Réiden, it can be applied quite literally: The canton is made in the sense that all social practices that are promoted by the systemic instruments can only be conducted within the canton's boundaries. The new canton is made by the grassroots initiatives and defined by their development norms.

This finding advances the scientific debates on Luxembourgish political culture as introduced in chapter 2. Whereas most studies assume a two-tiered government system, in which actors wearing several hats would blend levels and scales in governance practice, Réiden shows an

emergence of a new meso-level. The analyses suggest that the bottom-up making of this this level is in part driven by the impetus to obviate government interventions by fulfilling the subsidiarity-principle. Almost all Interviewees stated that they do not aspire regional autonomy in any sense of the word. Rather, the regionalization process is pursued by a sustainability strategy that emphasizes sufficiency and socio-economic resilience. With regards to scientific critiques on the political culture in the small state introduced in chapter 2, the case of Réiden suggests that Luxembourgish consensus-oriented governance approach may also promote the emergence of associative-democratic grassroots initiatives that are counter-hegemonic to the neo-corporatist mainstream.

8.4 THOUGHT EXPERIMENT- BLOCKCHAIN TECHNOLOGY AND RURAL DEVELOPMENT IN THE 21ST CENTURY

This section is a thought experiment on future developments in Réiden. It argues that potentials, or capabilities for grassroots initiatives have increased in the canton, in part because of the emergence of new technology and media. The section closes with a reflection on the possible impacts of linking blockchain technology to the regional currency Beki.

The case of Réiden suggests that supply chains⁻ such as of energy and agriculture can be regionalized to a large extend, while increasing the security of provision and creating positive effects in local economies. Interestingly, protagonists in the canton try to apply the lessons of the low-carbon transition to the agricultural sector. The analysis showed that SoLaWa strongly resembles the early stages of the low-carbon transition. It seems the protagonists are again “running in front of the train”, as a protagonist put it, by bringing forth a transition that is obviously needed, while national administration is still hesitant. Further, new systemic instruments are established to facilitate such processes, like Beki and the Gringgo platform. With CELL there now exists an independent hub for the experimentation with bioregionalism that facilitates knowledge transfer and stimulates learning processes.

The potentials and the awareness of the need for endogenous and resilience oriented rural development have arguably increased over the past twenty years. For one, cosmopolitan dialectics captured by Ulrich Beck suggest that local action is increasingly stimulated by a sense of global solidarity, but also by a sense of global risk. The attention to Local Agenda 21-type initiatives and social movements like the Transition Town and Colibri Network in current debates on the Great Transformation are manifestations of this.

Participants in the validation workshop have confirmed this assumption and stated that with the emergence of social media local initiatives would have become much more popular, because

they offer people meaningful engagement on issues that concern them. Further, the exchange of ideas and project strategies would happen much faster and more direct than they used to. Whereas in the early phases of the rural development in Réiden protagonists relied on excursions for importing policies, which they still do today, nowadays media outlets make inspiring cases much more accessible. The dissemination of examples that work has become much more effective, protagonists stated, and would encourage uptake in other places action.

New technologies not only facilitate communication and dissemination of rural development and transition practices, they also offer opportunities for the development of fundamentally new practices. A potentially ground-breaking development in Réiden in this regard is linking the regional currency Beki to distributed ledger technologies. These technologies, if used in a collaborative and democratic ways, can be extremely powerful tools for collaborative regional development and associative regional democracy.

Chapter 7.4 discussed the potential effects of regional currencies on stimulating economic activity and increasing socio-economic resilience in rural areas. The most institutionalized and renown example of this is the Swiss WIR, established in the 1930's, and the aftermath of the recent financial crisis saw a variety of initiatives growing across Western Europe. However, in order to unfold their potentials, regional currencies require an efficient and secure managing system, and ideally a bank license. Business-to-business transfers on a larger scale can hardly be managed by an NPO of two employees. Often, the member-community cannot afford the required investment to professionalize the payment system sufficiently. Therefore, many regional currencies hit a glass-ceiling that prevents them from unfolding their potential.

Interestingly, the characteristics of distributed ledger technologies, or blockchain technology are congruent with the problems of regional currencies: They offer highly secure, fast, and decentralized systems of information exchange that require very little management. Further, smart contracts can enforce rules for economic exchanges, and thus allow to program value of the community "into" the currency. For example, regionally sourced products can easily be integrated in a bonus system. Also, demurrage rates could be automated.

If Beki could be run on such a system, the economic activity in Réiden could be stimulated significantly and share of economic exchanges that confirm with the value of the community increased. Furthermore, participants could establish a lending system that could help finance experimental projects, or give favourable loans to local businesses. Beki could also facilitate the energy transition and be used as a payment system for "smart" energy transfers and the emerging Internet of Things. Having such a technology already in place at the cusp of technological developments that will very likely re-define local economies over the next years could be a valuable instrument for preserving and expanding socio-economic self-determination.

On a more abstract note, applying distributing ledger systems, or blockchain technology to regional currencies is paradoxical. The technology was developed in 2008 as a response to the economic crisis. Notably, the core idea is to allow save transactions between economic parties without intermediaries (banks, clearing agencies etc.), which in the eyes of the programmers have proven in the crises that they are not to be trusted. In a regional currency system, however, this technology could allow economic exchanges between regional stakeholders that engage in grassroots initiatives because they seek trust and transparency. In this sense, the technology that was developed because of mistrust in parts of the financial system could in this way be used to nurture and stimulate exchanges that are based on and reproduce trust in the carbon world.

9. CONCLUSION

Réiden is a paradigmatic case of neo-endogenous and sustainable rural development. Even though each of the initiatives analysed in this thesis is common practice in many places across Europe, the density and diversity of sustainability experiments, as well as their longevity, is remarkable. 40 years after the first experiments with participatory governance in Beckerich, the transformative spirit has not lost its dynamism: The lessons of the low-carbon transition are today applied in the agricultural sector and regional institutions are continuously built to promote and connect a plethora of initiatives. Pursuing strategies of bioregionalism, socio-economic resilience and sufficiency, the collaborative grassroots initiatives re-interpret traditional rural functions. Réiden is an insightful case to examine successful strategies and challenges for sustainable rural development pathways.

One characteristic that makes Réiden an insightful case is that it is a more natural social space compared to intentional communities that are often subject to similar research projects. Consequently, this thesis focused on the associative and collaborative character of the rural development and explored how practitioners with diverse Leitbilder and capacities engage in grassroots initiatives. To achieve this, the research project experimented with re-thinking and combining approaches to rural development and grassroots innovation from social geographic with timely debates in adjacent disciplines. The research design engaged with the long-standing challenge to social practice-based field work of analysing the relation between the mental domain and social practices in a comparative manner. Finally, this thesis attempts to advance our understanding of sustainable rural development practice by proposing outlines of a pragmatic action theory for local transitions building on the strategies and practices that have found to be working (and not working) in Réiden.

The concluding paragraphs highlight the most relevant contributions of this thesis to sustainable rural development research and practice. The first section summarizes the discussions of the research complexes and presents patterns of doing transitions in Réiden. It further discusses the emergence of a new meso-level of socio-economic governance that is unique in the Luxembourgish context. The second section indicates contributions of this thesis to conceptual and methodological debates in geographic research on sustainability transitions. The third and final section presents relevant lessons for practitioners of rural sustainability transitions.

9.1 LESSONS FROM THE CASE

Four grassroots initiatives from different policy domains and stages of the rural development were analysed in a comparative manner. The two research complexes addressed the patterning and relations of Leitbilder, or social perspectives within and among grassroots initiatives, and the prefigurative and co-constitutive relations of elements of grassroots initiatives, such as social practices and materialities. Findings suggest a functional pattern of Leitbilder among grassroots initiatives and revealed clear similarities in initiatives' emergence and institutional relations. It further identified corrosive factors inhibiting grassroots initiatives. Research indicates the bottom-up emergence of a meso-level of socio-economic governance in Réiden that is crucial for understanding the overall development. The following briefly reviews these central findings of this research project.

The functional diversity of Leitbilder in grassroots initiatives

In the outset, this research project hypothesized that the participants of grassroots initiatives would hold diverse and at times divergent Leitbilder of participation. The statistical indicators of the Q studies suggest that Leitbilder show at times very little correlations, but that they are never divergent. Within each initiative, three Leitbilder were identified that describe the needs, desires and experiences of participants. The Leitbilder show a pattern: A systemic-altruistic Leitbild links the grassroots engagement to global sustainability and social justice issues. This perspective is loaded on by participants who mostly participate as consumers or volunteers. An instrumental-utilitarian Leitbild, loaded on by representatives of national administration and businesses perceive the grassroots initiative and the managing institution as a service to support their individual sustainability efforts. This Leitbild is aware of overarching sustainability challenges, but does hold the grassroots initiative to be a relevant engagement in this context. A regional-cooperative Leitbild holds that new collaborations on the regional level can help diverse stakeholders in Réiden to achieve its sustainability ambitions, while stimulating economic activity and promoting overall well-being. This Leitbild seems to have a moderating function between the other two.

The interpretation of results concluded that is not the homogeneity, or outmost diversity of Leitbilder that stabilizes grassroots initiatives, but a functional diversity. In an initiative that aims at regionalizing a supply chain, or governing a common, various stakeholders have to perform different tasks with different motivations. Traditional roles of consumers and producers blend and conflate in grassroots engagements and these new transdisciplinary roles require guidance and harmonization. Like research on the resilience of socio-ecological systems, it seems that for an initiative to be stable, distinct functions have to be in place, and these are guided by the identified types of Leitbilder.

Patterns in grassroots initiatives' journeys in Réiden

The four analysed grassroots initiatives have clear commonalities regarding their historic developments, spatial extension, as well as their formal organisation and relations to systemic instruments in Réiden. However, this research project has not identified patterns in the routines of initiatives' internal organization until there are professionalized. Factors inhibiting and destabilizing grassroots initiatives were identified as well. The following briefly summarizes the most important findings.

Each grassroots initiative can be linked to a catalytic event that required collective action. Events like the flood experience, the planned high-voltage grid, and the decline of small-scale family-owned farms cannot be addressed by individual practitioners, but require creative experimentation with collective actions. The event provides a window of opportunity for diverse stakeholders from the private and public sector, as well as civil society to come together and develop new social practices associatively.

Often, the first ideation stage of a grassroots initiative occurs in the KomEcoRura in Beckerich, a consultative commission to the municipal council that has been ongoing for over 30 years. It is an arena of associative democracy, as here local citizens with diverse professional backgrounds and affiliations discuss the local development agenda together. The two-year pilot phase of an initiative is often financed and managed as a LEADER project. The LAG in Réiden has decades of experience in bringing forth initiative and transferring project ideas into business-models, and interviewees states that over the years sustainability values have become latent here. LEADER financing allows experimentation with projects without having them compete with regular budget positions of communes, for example kinder gardens. During this pilot stage, an initiative is professionalized in the sense that a formal managing institution is established, often in the legal form of an NGO or a cooperative, the business plan developed, and employees recruited.

After two years, the initiative has developed a self-sustaining business model. In its professionalized form, it is financed by its members (businesses, civil organisations, and private citizens), the inter-communal syndicate, and in some cases government funds. The professionalized grassroots initiative is managed by a formal institution of a few employees and wide network of diverse stakeholders in a given policy domain within the territory of the member communes of the syndicate, being the canton. Specifically, it stimulates synergies between its diverse stakeholders, for example by creating new relations among business and consumers, and by encouraging business to develop new products and services together. The employees further engage in capacity-building, for example by organizing work~~s~~shops and events.

Unlike assumed in the outset of this research project, there do not seem to be routines or social practices of organizing initiatives internally before they become professionalized. Even

initiatives are in the early stages brought forward by a similar group of protagonists, it appears that good practices within one initiative are not necessarily transferred to others. Further, a clear vision would only emerge during the pilot phase in practical experimentation. Protagonists have described their approach as the "chaos principle" guided by "swarm intelligence".

Two main inhibiting factors for grassroots initiatives were discovered that indicate the importance of two strategic of an initiative's dynamic stabilization: The regular renewal of an initiative's vision and objectives in collaboration with the member-base, and the harmonic development of an initiative's material, or infrastructural commitments its organisational capacity. The first point became particularly clear at the case of Contrat Rivière Atert. Once the initial project agenda had been accomplished, participants ceased to cooperate, and the managing institution focused on capacity building. This is a common phenomenon in eco-system governance programs, and research suggests that regular updates of a program's project catalogue could prevent a network falling dormant. The example of SoLaWa shows that too dynamic development in the early stages can be corrosive for an initiative. In this case, the initiative appears to be very popular among the citizenry and the core group cannot keep up with managing infrastructure and project ideas that are brought to them. This situation of stress can also contribute to monopolization of actionable knowledge as protagonists feel they lack the time for capacity building.

The emergence of a meso-level in Réiden

Once professionalized, the grassroots initiatives occur within a clearly defined territory, which is nearly congruent with the canton's borders. This scale, or spatial extension of the rural development is determined by the systemic instruments: If an initiative's managing institution is co-financed by the syndicate, it can only offer its services within the territory of the member-communes. Further, since the current LEADER program period, the boundaries of the LAG are nearly congruent with those of the syndicate. Given the impact of grassroots initiatives on the rural development in Réiden, it can be concluded that a new meso-level of socio-economic governance is emerging here bottom-up. This meso-level allows protagonists in the canton to pursue sustainability strategies of resilience and sufficiency, and to promote bioregionalism. It therefore interprets the principle of subsidiarity in a political and economic sense. The development paradigm of this meso-level can be described as neo-endogenous, since protagonists are deeply aware of global-local relations. They import ideas from other places and utilize external budgets to set in value social and natural resources in the canton.

9.2 CONTRIBUTIONS TO SCIENTIFIC DEBATES

This section presents empiric, conceptual, and methodological contributions of this thesis to geographic debates on sustainability transitions. It blends findings about the case with the theoretical backdrop of this thesis that have been discussed in-depth in the previous chapter 8.

Empiric contributions to research on grassroots initiatives and rural development

The case of Réiden offers to address the impact of grassroots initiatives in a unique way, which makes it particularly relevant to debates on the “Great Transformation” towards sustainability: Instead of examining how one sustainability experiment affects a regime or social field in its policy domain, this thesis analysed how it affects the capability for sustainability experiments in other policy domains in the same place. Consequently, it attempted to overcome the first-modern premise of functional differentiation and thinking in disciplinary, or sectorial silos still inherent in much sustainability-related research. This thesis did not ask how an initiative affects wider society, but how it promotes or inhibits further sustainability transitions in the same community. A grassroots initiative has therefore not been conceptualized as one formal institution or organisation, but as a bundle of social practices that re-assemble supply chains, or governance systems within a defined territory. These practices are stimulated and coordinated by formal managing institutions. Research suggests several effects and relations among grassroots initiatives in Réiden. First, successful initiatives create self-efficacy among local protagonists, and trust of the “silent majority” in these leading figures. This encourages transferring lessons from one policy domain to another, for example from the low-carbon transition to agriculture. Second, such engagements stimulate social learning process on how to bring forth grassroots initiatives. Even though this research project did not identify routines of internal coordination, the formal development of grassroots initiatives in Réiden follows a clear pattern. Third, a central element of the rural development is continuous institution-building. The establishment of systemic instruments prefigures the emergence of grassroots initiatives in this case. Today, new intuitions such as Beki and the Grinngo-platform for regional products are becoming integral parts to several initiatives.

Finally, central success-factor of the developments in Réiden is not their paradigmatic orthodoxy, or the congruence of sustainability visions of their participants, but the pragmatic alignment of diverse Leitbilder. This research project suggests that there exists a functional diversity of Leitbilder that inform practices, which are co-depended and co-constitutive. This may be of relevance to research based on critical theory, and praxelogical approaches. Grassroots initiatives can create substantial sustainability and social justice improvements without necessarily adhering to (post-capitalist, or de-growth) logics. Rather, as this research project has shown,

they can stimulate social learning processes that may expand the capability for more progressive experiments in the future.

Research has also shown the limits of these developments. Besides the internal inhibiting factors discussed in the previous section, the validation workshop revealed a more fundamental problem to bringing forth grassroots initiatives in an inclusive and associative democratic manner. Regardless of the positive impact and public acclaim of many initiatives, public opposition has emerged against these policies. Interviewees suggested that this would be based on a sentiment of envy of individuals' political success, as well as a general fear of cultural change. Particularly local politicians would have ceased to support sustainability-related projects in the syndicate as a matter of principle, because they felt that too many policies implemented that they had not initiated. Lending a term from feminist theory, this sentiment can perhaps be best described as a sense of political subjectification.

Conceptual contributions to debates on grassroots initiatives and social change

The previous section indicated that thesis conceptualized of grassroots initiatives' transformative impacts as the expansion or obstruction of the community capability to bring forth further sustainability experiments. Social change has been conceptualized in two manners in this thesis: First, drawing on development theory, the community capability approach explained participants' involvement in grassroots initiatives with the production of conversion factors that they could realize according to their individual preference in order to pursue desired life-forms. Second, with theories of transformative and social learning action in uncertainty, such as the collective problem engagements that are the grassroots initiatives, requires the creative design of new social practices. This produces new actionable knowledge, but may also affect deeper, more latent mental facilities, such as norms and values. This, in turn may expand the cultural and personal conversion factors for sustainability experiments.

The first conceptual contribution is an attempt to operationalize qualitative, or social freedom theory for research on grassroots initiatives and rural development. The basic assertion here is that freedom is an individual's real opportunity to achieve certain beings or doings in a given site according to his or her preference. The capability approach acknowledges that the means to achieve these doings and beings, referred to as conversion factors, are socially produced. A grassroots initiative is a voluntary associative engagement that produces various conversion factors that the participants can take up at will.

As discussed at length above, a grassroots initiative originates from a collective crisis experience, referred to as catalytic event. This renders general understandings, e.g. shared views on the overarching problem that has become manifest in people's life-worlds and that can only be addressed through new collaborative action. This general understanding allows assembling

diverse particular problem-framings, aspirations and needs, which influence the design of an initiative so that it also produces the desired conversion factors. The concept of life-forms links the capability approach to social practice theory: Life-forms are inert bundles of social practices, for example rural bioregionalism, or a nuclear farming family. Catalytic events are those that inhibit the pursuit of many of these life-forms in a given site and thus stimulate collective action. Grassroots initiatives produce conversion factors that allow pursuing these life-forms. With these theories, this thesis explained participation in grassroots initiatives as the protection and expansion of individual freedom through voluntary collective engagement.

The second perspective on social change in this thesis addressed the explanation of how collective action is designed in uncertainty, and how it triggers learning processes. This perspective thus "zooms in" from the perspective of the overall development to the level of social practices. For this, pragmatist action theory was linked to theories of social and transformative learning, mainly from social psychology and the educational sciences.

Here, a catalytic phenomenon is regarded as a situation in which traditional social practice cannot be continued and existing knowledge does not provide alternative options for actions. Collective practitioners are assumed to develop practice experiments abductively, and these new actions are not guided by overarching visions, but by "ends-in-view". Collective symbolic interaction allows the inclusion of diverse knowlegdes and views on the action problem and thus the mitigation of risk of failure. Such a newly designed alternative action produces a situation of new action opportunities that had not existed before. The development of the new (or transformative) social practice can in this regard by described as a form of reflected autopoeisis. Through these engagements, various forms of knowledge are tentatively designed and validated, or dismissed. Sometimes, learning can even address latent cognitive structures, such as values and norms, referred to as single and double-loop learning.

Methodological contributions to social practice theory and Q method

This thesis advanced scientific debates about the mental realm in social practice theory by operationalizing mental states, or Leitbilder, as operant subjectivities. In line with pragmatist epistemology, the approach allowed the comparative study of Leitbilder across diverse initiatives with Q methodology. Functional patterns of Leitbilder could be identified with very limited resources for empiric research. This opened promising new trajectories for social-practice-based field work.

A long-standing problem for researchers working with social practice theory is how to operationalize the mental domain for research. Most scientists do attribute it a certain ontological primacy, but then face the challenge of addressing something that is located within

practitioners' minds while staying true to the premise of social practice theory to overcome the agency-structure dialectic.

Q methodology creates a research situation that allows taking a still-frame of the individual practitioners' subjectivity being operant. Factor analysis creates typified views that explain the correlation among several practitioners still frames. These serve as heuristics to capture Leitbilder within grassroots initiatives. This research design built on a correlation between Schatzki's approach to social practice theory and Q method: Schatzki assumes that mental states guide social practices as objective spirits and that individual practitioners only hold versions of them. Homologous, the factors, or social perspectives produced by Q method are typified sorts that explain the correlations of various individuals' sorts.

The Leitbild-category system accommodates the conceptual elements of mental states (general understandings, actionable knowledge, teleoffective structure and action rules) and allows the development of mostly natural concourses representing the local narrative on a given grassroots initiative. Since the same category system lends structure to all four concourses on the grassroots initiatives, it allows for comparison among them. The Leitbild category system comprises of four domains: (Economic, ecological, social, cultural) Future projections, (external/ internal) factors of group (de-) synchronization, self-referential motifs, and knowledge.

A weakness of this research design is that it does not link Leitbilder to specific social practices within grassroots initiatives. The interpretation of results therefore linked Leitbilder to the roles participants within initiatives and their professional backgrounds. The identified functional diversity of Leitbilder is thus a mere heuristic that requires validation. This could be achieved by comparing them to data gathered through extensive ethnographic observation of social practices as performances.

9.3 CONCLUDING THOUGHTS ON RURAL DEVELOPMENT AND TRANSITION PRACTICE

This research project was conducted between 2015 and 2019. During this time two phenomena this thesis engages with finally gained traction in public debates: The socio-economic and political recession in many rural regions in the EU, and catastrophic changes in the ecosphere. This study engaged with both these problems by addressing the case through the lenses of rural development and sustainability transitions. The case suggests that a crucial point of intersection between these approaches lies in re-gaining sovereignty over the positive and negative externalities of economic sectors and governance systems by means of pragmatic associative democracy, pursued with interstitial strategies.

For practitioners, this requires pragmatic collaboration and engagement with people who may not have similar values and motivations, but whose problems becomes theirs, as they can be linked to a common solution. The biography of Camille Gira is emblematic for the outstanding dedication in learning, in practicing empathy with others, and in fighting for reflected convictions that this task requires. The case suggests certain strategies for pragmatic rural transition practitioners:

- Identify not the points of divergence in Leitbilder, but their intersections
- Harness crises and use them as windows of opportunity to create alternative collective practices
- Recognize that development visions emerge through engagement and change along the way
- Establish systemic instruments as protective social spaces for deliberation and learning that can create synergies between projects
- Forge networks with and attract policies from other places; tailor them collaboratively to local needs and capacities
- Pursue interstitial strategies that harness resources of higher-order government to set in value local capacities
- Translate collective efforts into viable business-models that create economic benefits for stakeholders of the addressed system
- Professionalize grassroots experiments and transfer them to formal managing institutions quickly
- Avoid monopolization of actionable knowledge and invest in capacity building
- Practice dynamic stabilization of initiatives by regularly reviewing and updating collective development ambitions
- Embrace the ambivalence that comes with the compromises in associative democratic engagements

A final comment concerns the role of researchers in addressing the two problems mentioned in the beginning of this section regarding scientific social responsibility and transdisciplinarity. Scientific social responsibility means a professional self-conception that aspires to balance the absolute stipulations for social development defined by the earth boundaries with the humanist and republican foundations of our communities. Scientists must not merely inform those who reproduce the corrosive status quo, but critically support those who work on Real Utopias. Any science that still assumes neoclassic development paradigms and individualistic philosophies of freedom fails its scientific social responsibility.

This means scrutinizing the way we get involved as scientists in these debates. All theories introduced in this thesis acknowledge that the future is open. It does not pose (21st century) challenges that we need to adapt and react to, it is also actively made in the present. Theories also acknowledge that we do not know how these futures look like, how to balance the absolute sustainability requirements with our cultural foundations. Prescriptive science, such as pursued by several strands of the post-growth debate, runs danger of sacrificing the latter for the former. Therefore, we must critically examine examples that work.

The research case shows that engagements in Real Utopias leads to a blending and conflation of traditional stakeholder and practitioner-roles. A new transdisciplinarity emerges that seems to follow the Marxian ideal of citizens pursuing various civic roles during the course of a day, without adhering to either. Research cannot address this transdisciplinarity adequately while remaining within functionally differentiated disciplines. This is not an argument for universal transdisciplinarity, but it means that we must embrace such approaches if we want to exploit our opportunities for meeting our scientific social responsibility.

I hope this thesis, which has quite shamelessly incorporated approaches from neighbouring disciplines, is a contribution to this task.

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LIST OF ABBREVIATIONS

AFN	alternative food network
ANT	actor network theory
CAP	Common Agricultural Policy
CO ₂	carbon dioxide
CRA	Contrat Rivière Atert
CSA	community supported agriculture
EC	European Commission
ENRD	European Network for Rural Development
ERDF	European Regional Development Fund
EU	European Union
FDI	foreign direct investment
ICLEI	International Council for Local Environmental Initiatives
KomEcoRura	Komissioun pour la Économie Rurale
LAG	Local Action Group (LEADER program)
LEADER	Liaison entre actions de développement de l'économie rurale
MLP	multi-level perspective
NGO	non-governmental organisation
NPO	non-profit organisation
PAB	practice-arrangement bundle
RC	research complex
WP	work package

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ANNEX

I. OBSERVATION GUIDE

TEILNEHMENDE BEOBECHTUNG

INITIATIVE

ANLASS

ORT/ DATUM

NACHBEREITUNG

PROTAGONISTEN

ORGANISATION

FIRMA

VERWALTUNG

VEREIN

DISKUSSIONSPUNKT

TEILNEHMENDE

AGENDAPUNKT

FEEDBACK ZU MEINEM PROJEKT

LEITFRAGEN

- A) Wie wird die Tagesordnung eingeführt? Wird auf Statuten verwiesen? Welche?
- B) Werden AOB Punkte aufgenommen? Welche? Von wem?
- C) Werden neue Leute vorgestellt? Wie?
- D) Wird aktiv nach Feedback der Teilnehmenden gesucht? Wie?
- E) Wie ausgeglichen sind die Diskussionen? Wer bringt sich ein?
- F) Wie wird das vergangene Geschäftsjahr vorgestellt?
- G) Welche Probleme werden angesprochen? Politische Probleme?
- H) Wie werden die Ziele für das neue Jahr vorgestellt? Wer hat sie erarbeitet?
- I) Werden neue Ziele/ Projekte hinterfragt? Von wem? Warum?
- J) Gibt es im Anschluss informelles Beisammensein?

II. GUIDE FOR EXPLORATORY INTERVIEWS

Exploratives Interview

INITIATIVE PERSON ORT/ DATUM UNTERLAGEN

LEITFRAGEN

- A) Geschichte der Initiative aus eigener Sicht
- B) Welche Probleme/ Herausforderungen haben die Initiative hervorgeführt?
- C) Wie wurden die Probleme in die Gemeinschaft getragen? Von wem? In welchem Forum?
- D) Welche Routinen verbindet der Interviewee mit der Initiative
- E) Gibt es verschiedene „Akteurskreise“? Was unterscheidet diese?
- F) Mit welchen Institutionen ist die Initiative verbunden?
- G) Welche Gesetze oder Förderprogramme sind wichtig? Warum?
- J) Wie ist das Verhältnis zu staatlichen Akteuren? Welche Administrationen sind wichtig für sie?
- K) Ist die Initiative mit anderen, gleichartigen Initiativen vernetzt?
- L) Wie ist die Gruppendynamik herrscht innerhalb der Initiative?
- M) Wie regelmäßig treffen sich TeilnehmerInnen? Wo? Was wird diskutiert?
- N) Was sind die Konfliktlinien innerhalb der Gruppe? Wie werden diese behandelt?
- O) Worauf freuen sie sich besonders im nächsten Jahr?

FEEDBACK ZU MEINEM PROJEKT (VORSTELLUNG)

SONSTIGES/ NACHTRÄGE/ VEREINBARUNGEN

Einwilligungserklärung zur Erhebung und Verarbeitung personenbezogener Befragungsdaten

Die Teilnahme an den Interviews ist freiwillig. Sie haben zu jeder Zeit die Möglichkeit, ein Interview abzubrechen, weitere Interviews abzulehnen und Ihr Einverständnis in eine Aufzeichnung und Niederschrift des/der Interviews zurückzuziehen, ohne dass Ihnen dadurch irgendwelche Nachteile entstehen.

Forschungsprojekt: 30 Jahre Transformation in Redingen (AFR-Code: 918195)

Durchführende Institution: Uni Luxembourg, Institut für Geographie

Projektleitung: Jan-Tobias Doerr, MSc.

Befragte/r: _____

Interviewdatum: _____

Mündliche Erläuterung: Ja/ nein

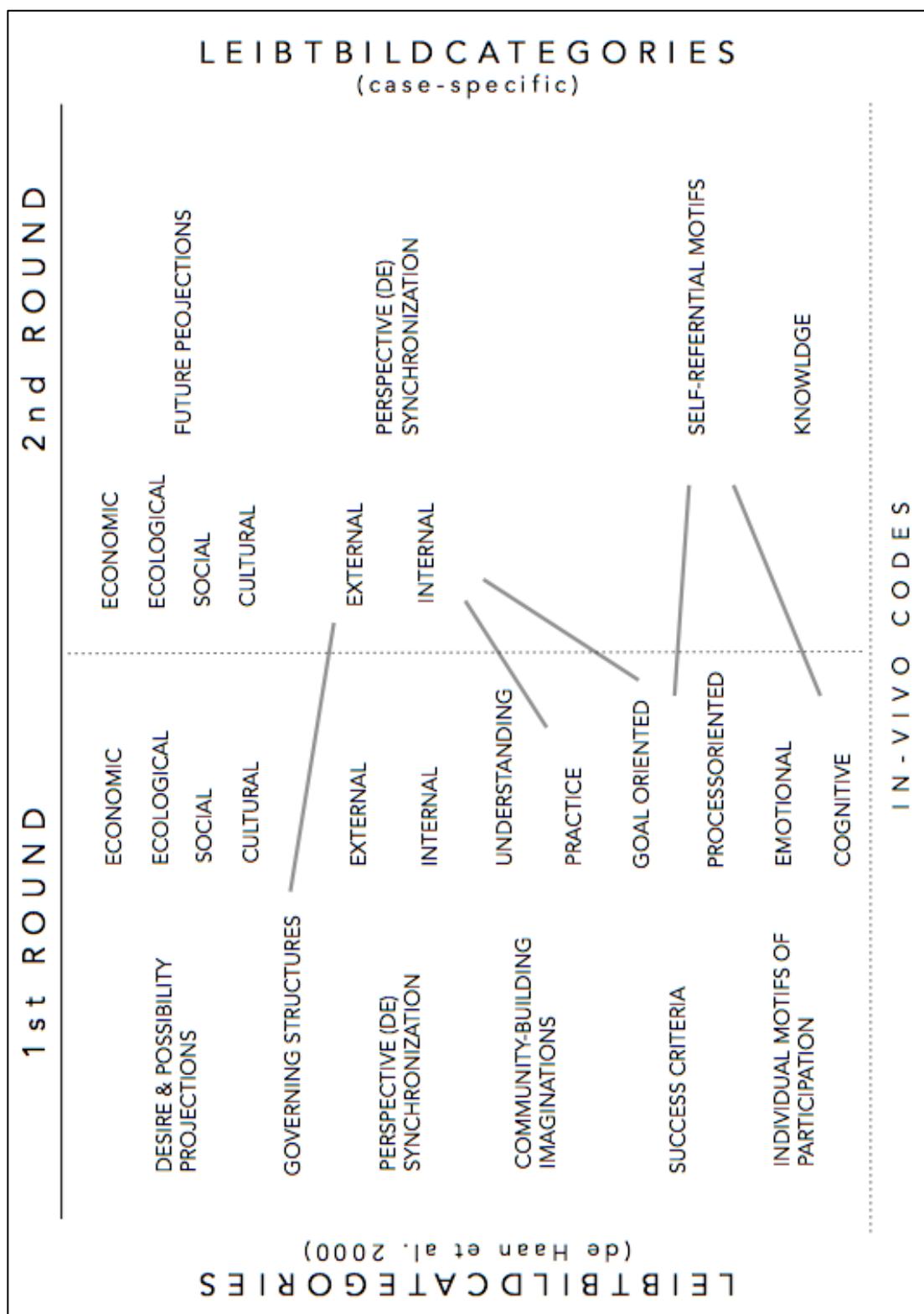
Schriftliche Erläuterung: Ja (per Email)

Die Interviews werden mit einem Aufnahmegerät aufgezeichnet und sodann von dem dem Projektleiter des Forschungsprojekts in Schriftform getragen. Für die weitere wissenschaftliche Auswertung der Interviewtexte werden alle Angaben, die zu einer Identifizierung der Person führen könnten, verändert oder aus dem Text entfernt. In wissenschaftlichen Veröffentlichungen werden Interviews nur in Ausschnitten zitiert, um gegenüber Dritten sicherzustellen, dass der entstehende Gesamtzusammenhang von Ereignissen nicht zu einer Identifizierung der Person führen kann.

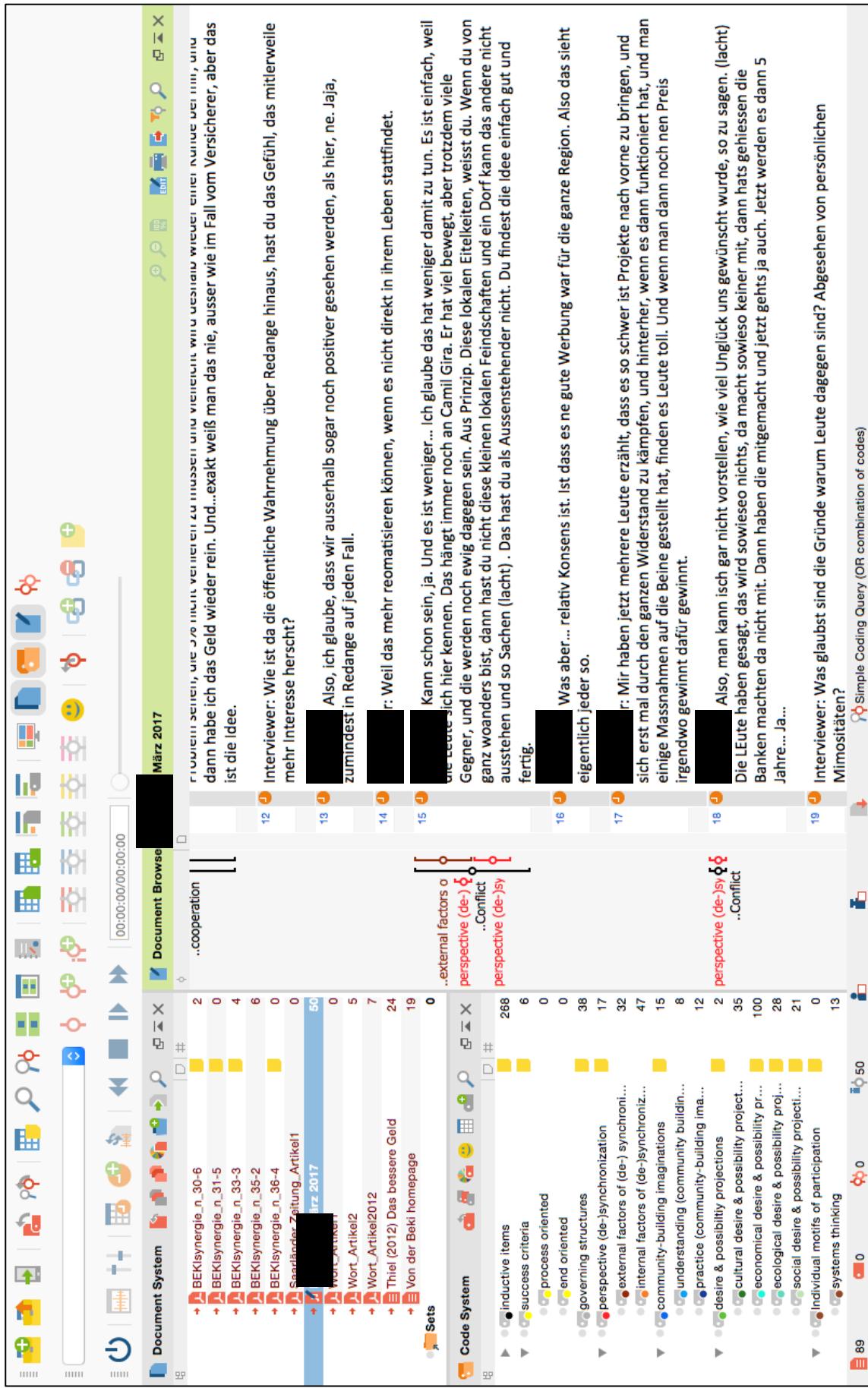
Personenbezogene Kontaktdata werden von Interviewdaten getrennt für Dritte unzugänglich gespeichert. Nach Beendigung des Forschungsprojekts werden Ihre Kontaktdata automatisch gelöscht, es sei denn, Sie stimmen einer weiteren Speicherung zur Kontaktmöglichkeit für themenverwandte Forschungsprojekte ausdrücklich zu. Selbstverständlich können Sie einer längeren Speicherung zu jedem Zeitpunkt widersprechen.

III. PARTICIPATION CONSENT FORM

IV. DEVELOPMENT OF LEITBILD-CATEGORIES (CODES)



V. CODING FOR Q STATEMENTS WITH LEITBILD-CATEGORIES



VI. CODING FOR CONVERSION FACTORS IN MAXQDA

