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Towards a Theory of Decentral Digital Process Ecosystems - Evidence from the Case of Digital Identities

by

Jannik Lockl, Alexander Rieger, Gilbert Fridgen,
Maximilian Röglinger, Nils Urbach

to be presented at: Workshop Blockchain Research - Beyond the
Horizon, Portsmouth, UK, June 2018

University of Augsburg, D-86135 Augsburg
Visitors: Universitätsstr. 12, 86159 Augsburg
Phone: +49 821 598-4801 (Fax: -4899)

University of Bayreuth, D-95440 Bayreuth
Visitors: Wittelsbacherring 10, 95444 Bayreuth
Phone: +49 921 55-4710 (Fax: -844710)

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TOWARDS A THEORY OF DECENTRAL DIGITAL PROCESS ECOSYSTEMS – EVIDENCE FROM THE CASE OF DIGITAL IDENTITIES

Research in Progress

Lockl, Jannik, University of Bayreuth, Germany, jannik.lockl@fim-rc.de

Rieger, Alexander, University of Bayreuth, Germany, alexander.rieger@fim-rc.de

Fridgen, Gilbert, University of Bayreuth, Germany, gilbert.fridgen@fim-rc.de

Röglinger, Maximilian, University of Bayreuth, Germany, maximilian.roeglinder@fim-rc.de

Urbach, Nils, University of Bayreuth, Germany, nils.urbach@fim-rc.de

Abstract

Blockchain could transform process management and usher in decentral digital process ecosystems. Such ecosystems present a paradigm shift from central control towards decentral coordination and we increasingly see them appear in various places. Here, we provide our idea of a theory of the emergence of these ecosystems and their theoretical constructs. Our theory builds on a single-case study in the area of digital identities for refugees in Europe.

Keywords: Action Research, Blockchain, Process Management, Digital Ecosystem.

1 Introduction

Digitalization emphasizes not only digitizing analogue to digital data but new value that capitalization on digital technologies offers for organizations (Legner et al., 2017). As digital technologies do not serve a purpose without being implemented, we argue that in organizations especially processes allow for the contextualization of digital technologies (Denner et al., 2017). To be more precise, digital technologies shape processes and process management. Such an approach is organization- and process-centric. Then again, we currently observe another phenomenon from a joint project with the German Federal Office for Migration and Refugees: the emergence of decentral digital process ecosystems (DDPEs). This emergence builds on the emergence of a suitable underlying technology: blockchain (Avital et al., 2016; Risius and Spohrer, 2017).

Blockchain technology –invented as backbone of the cryptocurrency bitcoin– is a distributed ledger that can make intermediaries obsolete (Beck et al., 2018; Risius and Spohrer, 2017). 2nd generation blockchains enhance this value propositions by offering potential for process automation (Egelund-Müller et al., 2017; Fridgen et al., 2018) via full-fledged programs (i.e., smart contracts) (Buterin, 2014). These core characteristics of blockchain finally appear to shake established definitions like economic-driven theories about agency (Ross, 1973; Eisenhardt, 1989a) to their very foundations.

In particular, blockchain allows to establish DDPEs without central parties (i.e., intermediaries) (Mendling et al., 2018). In such ecosystems, former organization and process centric theories may no longer hold or require a paradigm shift. In DDPEs, processes are no longer part of organizations or of centralized planning. The ecosystems emerge with a pure approach of offer and request. They are agnostic of centralism, whereby central process managing parties disappear. The proposed paradigm shift could thus renounce centralism as a key element in theories about the integration of actors (e.g., users, organizations), processes (e.g., services), and digital technology (e.g., blockchain). Put differently, former studies about activity theory (Engeström, 1999), agency (Ross, 1973), and ecosystems (Boley and Chang, 2007; Costanza et al., 1997; Weill and Woerner, 2015) originate from research that could not benefit from but equally did not consider decentral digital technologies such as blockchain. Consequently, we observe a lack of knowledge about the nature of DDPEs, and propose to build a theory about the emergence DDPEs, and an analysis of its core concepts. With our research, we aim to address this gap and answer the subsequent questions:

What is the nature of decentral digital process ecosystems? How do they evolve? Which core concepts do they involve?

To answer these questions and to evolve our theory of the emergence and the concepts of DDPEs, we are using insights from the case of digital identities for refugees. In particular, we are collecting information from a project at the German Federal Office for Migration and Refugees that seeks to establish a blockchain-based ecosystem for refugees that allows different parties to consume, offer, and self-actualize processes. All these decentral processes depend on the existence of the concept of unique digital identities and a digital infrastructure that decentrally stores the digital identities.

2 Method

In order to conceptualize DDPEs and to build a theory of the emergence of DDPEs, we followed an action research approach and conducted a single-case study in the public sector. Action research emphasizes addressing current and relevant phenomena (Avison et al., 1999; Baskerville and Myers, 2004). Blockchain is a very recent technology, and industry seems to adopt it more quickly than research can investigate (Beck et al., 2018). As such, research on blockchain can draw significant insights from the field (Lee and Baskerville, 2003). One alternative to explore the field is through examination of real-world cases (Yin, 2017). Case study research is complementary to our action approach as cases enable the building of theory (Gephart, 2004; Majchrzak et al., 2000). In particular, Eisenhardt (1989b) recommends case studies to investigate phenomena unexplored by previous studies. Case study research distinguishes between multiple- and single-case studies (Yin, 2017). We chose a single-case study approach

and accepted that our theory might thus not have the same level of robustness and generalizability of a multiple-case study (Eisenhardt and Graebner, 2007). Single-case studies, however, allow for more complex theories (Eisenhardt and Graebner, 2007). Such a more complex theory might be required to fully explain the currently observable emergence of the DDPE of digital identities.

Moreover, we followed a pragmatist paradigm (Avenier and Thomas, 2015) which is appropriate for action research (Baskerville and Myers, 2004; Goldkuhl, 2012) and interacted with practitioners to build our theoretical constructs and to enhance our theoretical knowledge with unfiltered insights from practice. By doing so, we challenged the rigor of our research as researchers in the field jeopardize the objectivity of their constructs through a practitioner's bias (Avison et al., 1999; Yin, 2017). To mediate this concern, we broadened our research team with three additional researchers that did not work in the field along the study.

3 Outlook

Based on our preliminary results, we observe the emergence of DDPEs around digital identities for refugees in Europe. This emergence of DDPEs appears to result from the emergence of blockchain technology that can provide the required digital infrastructure for such an ecosystem. Our theory on this phenomenon will contribute to theoretical as well as managerial knowledge and provide implications for both areas. Theoretically, we aim to provide a new theory and its theoretical constructs. The nature of DDPEs, for instance, encompasses concepts like changed agencies and a new point of interpretation that abandons organizational centralism. We also hope to provide managerial implications especially in the sector of business model innovation. This leads back to our revelation of the nature of blockchain-based ecosystems that exemplary enables novel services and offerings (Iansiti and Lakhani, 2017). Our theory aims to support executives in establishing DDPEs of former centralist concepts like those of currencies, energy, or mobility.

Our research, however, will be limited to some degree. We currently investigate the case of the establishment of digital identities for refugees in Europe. We must not least broaden the horizon toward other digital identity concepts but to other societal concepts. The examination of those concepts will deepen our theory (Eisenhardt, 1989b) and likewise sharpen the robustness and generalizability of our theoretical constructs (Lee and Baskerville, 2003). We thus invite future research to identify similar societal core concepts like the digital identity and evaluate our theory. Explicitly, we recommend to examine the theory under cultural paradigms that we are not able to investigate due to our western background (Kim and Berry, 1993).

Based on its general nature, we believe that our theory of the emergence and concept of DDPEs holds intriguing potential to explain and describe the effects of disruptive digital technologies that are yet to come. Going forward, we thus seek to broaden our constructs, generalize the theory, and support industry in better leveraging the opportunities of continuous digital transformation.

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