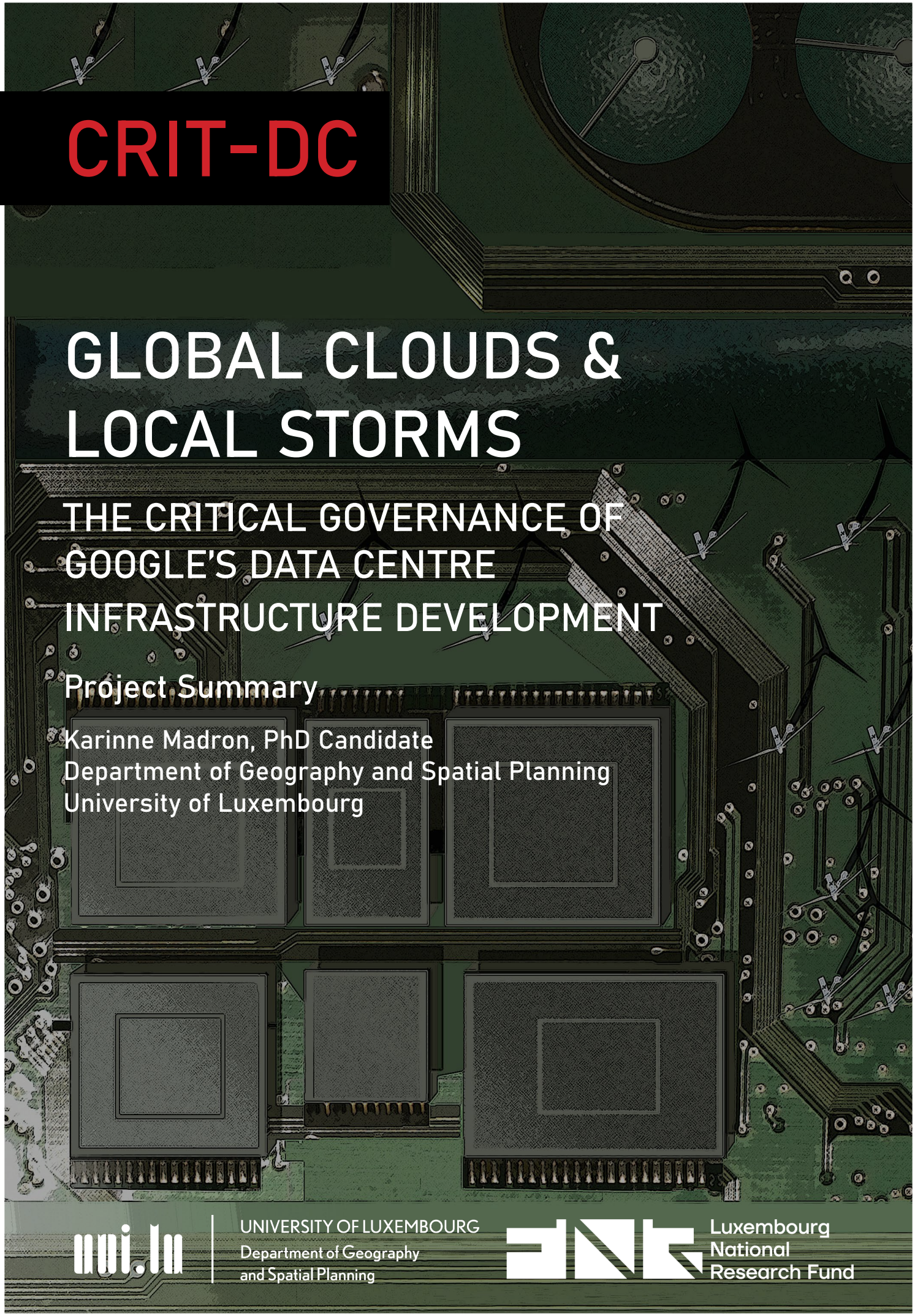

CRIT-DC

GLOBAL CLOUDS & LOCAL STORMS

THE CRITICAL GOVERNANCE OF GOOGLE'S DATA CENTRE INFRASTRUCTURE DEVELOPMENT

Project Summary

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Google data centre, Eemshaven (Photo by author, 2022)

ABSTRACT

Google is one of the largest investors in data centre infrastructure worldwide along with Amazon and Microsoft (Synergy Research Group, 2022). As Google expands its data centre footprint, it leverages its symbolic and financial power while engaging with public authorities whose capabilities it often far outweighs. The aim of this project is to understand Google's mode of operation when it comes to its data centre development and how it challenges pre-existing modes of governance and planning. The project brings together three orbits of literature. The first one is critical data centre studies–a growing literature which critically discusses the environmental, social and political dimensions of data centres (Edwards et al., 2024). Particularly relevant to the project is also a body of works analysing the involvement of large digital corporations in urban governance with a focus on the Sidewalk Labs project in Toronto (Carr and Hesse, 2020; Flynn and Valverde, 2019). The project is also informed by debates within infrastructure studies on how various modes of infrastructural (in)visibility are mobilised to achieve different goals (Furlong, 2021; Larkin, 2018). Qualitative methods are used to examine two cases: the village of Bissen in Luxembourg–where a Google data centre project has been under discussion for several years–and the Province of Groningen in the Netherlands where Google has built a large data centre and is planning two others. Preliminary observations indicate that Google uses similar agenda-steering and power-brokering tactics to those observed during the unfolding of the Sidewalk Labs project (Carr and Hesse, 2020, 2022). In the case of data centres however, those tactics are underpinned by the controlled visibility of these infrastructures.

KEYWORDS

Google
data centres
governance
infrastructure

INSTITUTIONS

CRIT-DC is a PhD project under the Doctoral School of Humanities and Social Studies (DSHSS) at the University of Luxembourg.

CRIT-DC is part of the DIGI-GOV project, led by Dr Constance Carr and seated at the Department of Geography and Spatial Planning (DGEO).

FUNDING

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INTRODUCING CRIT-DC

GLOBAL CLOUDS & LOCAL STORMS

The critical governance of Google's data centre infrastructure development

While the flashy headquarter projects of large digital corporations have captured public attention in recent years, their less glamorous data centres–the technical infrastructures that their operations rely on–are less known. Indeed, the use of the term 'cloud' to describe computing services provided over the internet contributes to obscuring the fact that these services are in fact being provided from innumerable servers packed in massive buildings (Bast et al., 2022; Furlong, 2021).

The data centres of large digital corporations have been contested by local communities in many locations mainly because of their resourse consumption (Feliba, 2023; Lehuedé, 2022). Google, in particular, deserves analytical attention regarding the development of its data centres. The company has been called out for its opaque practices when it comes to these infrastructures (Dwoskin, 2019). According to Levy (2011), the main attributes which attracted Chris Sacca to The Dalles, Oregon as he searched for a site for Google's first data centre were the existing infrastructure, cheap electricity, tax breaks and a desperation that would be in Google's advantage. Almost two decades later, as Google extends its data centre footprint across the world, engaging with public authorities whose capabilities it often far outweighs, it is important to understand Google's mode of operation when it comes to its data centre development.

> "The site was on the bank of the river, but not the pretty part–the view wasn't beautiful Mount Hood but semidesert terrain… But Sacca had retrained his eye for a different kind of beauty, and to him the adjoining power lines were as alluring as a majestic vista. As was the state of the town–sufficiently rundown and desperate to woo a massive building." (Levy, 2011, p.192).

Research Objectives

CRIT-DC is a PhD research project that aims
(i) to analyse the strategies mobilised by Google when developing data centres
(ii) to understand how Google's strategies challenge pre-existing modes of governance
(iii) to understand the spatial planning implications of the involvement of Google.

DIGI-GOV

CRIT-DC was conceived as part of the project titled "Digital urban development - How large digital corporations shape the field of urban governance (DIGI-GOV)", led by Dr Constance Carr and seated at the Department of Geography and Spatial Planning (DGEO) at the University of Luxembourg. The goal of DIGI-GOV is to examine how large digital corporations such as Amazon, Microsoft, or Google influence urban development (Carr, 2021). DIGI-GOV builds on "Digital Urbanism and the Challenge of Urban Governance (DIG_URBGOV)", led by Dr Constance Carr and Prof. Markus Hesse, which studied planning processes surrounding the Sidewalk Labs project in Toronto. CRIT-DC builds on these projects by shedding light on the hidden face of digital urban development.

Google data centre, Eemshaven (Photo by author, 2022)

Critical analyses of data centres

This project contributes to a growing literature broadly categorized as critical data centre studies (Edwards et al., 2024). In urban geography, the study of data centres is based on important works on the spatialities of cyberspace and internet infrastructure (Dodge and Kitchin, 2001; Malecki, 2002; Zook, 2006) as well as analyses of a 'digital turn' (Ash et al., 2016). As data centres strive to avoid downtime, they require large amounts of electricity to power the servers that they contain which in turn have to be cooled, typically using water. Bast et al. (2022) and Carr et al. (2022) illustrated how the largest data centres, hyperscale data centres, are often built next to rivers and consume as much electricity as whole towns. Other interdisciplinary works have discussed the societal implications of the entanglements of data centres and the environment (Brodie, 2023; Hogan, 2015; Velkova, 2021). Several scholars have also undertaken ethnographic work at the sites of data centres, examining how the imaginaries associated with their implantation influenced their acceptance by communities in peripheral regions (Burrell, 2020; Johnson, 2019; Mayer, 2020; Vonderau, 2017). This project builds on Brodie (2020) and Rone (2023) who addressed the governance of data centres. Brodie (2020) discussed the entanglements of the Irish State, large corporations and environmental actors as the data centre industry is pursued as a means of recovery from economic downturn. Rone (2023) examined the contestation of Microsoft's data centre in the Netherlands and argued for democratic decision-making regarding digital infrastructures.

Urban governance under Google

Even though the Sidewalk Labs project in Toronto was eventually abandoned, it is particularly relevant to this research project because it revealed various aspects of the influence of Alphabet–Google's parent company–on governance and planning. Carr and Hesse (2020) examined the post-political modes of urban governance observed in Toronto, including the top-down nature of the process which involved high-level negotiations and limited space for contestation. These observations were supported by Hodson and McMeekin (2021) who linked the depoliticization of urban transformation in the case of Sidewalk Toronto to urban socio-technical imaginaries. Chantry's (2023) analysis of citizen participation in the Sidewalk Labs project confirmed the little agency that citizens were afforded in the project. Carr and Hesse (2022) also described Alphabet and Amazon as power-brokers that leverage their financial power and networks to steer agendas to their advantage. Other scholars have examined the irregularities in the procurement process and called out the lack of transparency over key aspects of the project (Flynn and Valverde, 2019; Goodman and Powles, 2019).

> "At every stage, ambiguity, secrecy, and slipperiness have dogged the Sidewalk Toronto project." (Goodman and Powles, 2019, p.466)

(In)visibility engineered by Google

While the Sidewalk Labs project was a spectacular project whose image was carefully crafted in pursuit of a specific agenda (Hodson and McMeekin, 2021), the (in)visibility of Google's data centres is addressed differently by the company but it is arguably equally calculated. Debates in infrastructure studies addressing infrastructural (in)visibility are helpful in understanding this aspect of Google's data centres. Infrastructure is understood as the substrate that supports other systems or the structures which run underneath other structures, and as such they tend to fade into the background (Star and Bowker, 2006). Star and Ruhleder (1996) proposed that a salient feature of infrastructure is 'transparency' meaning that it invisibly supports tasks. Larkin (2013) refuted the assertion that invisibility is an inherent condition of infrastructures and argued the need to study "how (in)visibility is mobilised and why" (p336). Discussing digital infrastructures, Furlong (2021) explained how they comprise

> "Visibility and invisibility are not ontological properties of infrastructures; instead, visibility or invisibility are made to happen as part of technical, political, and representational processes. This is why the distinction between spectacular infrastructures and mundane ones should not be figured as an opposition but as representing different styles of visibility." (Larkin, 2018, p186)

> "When it comes to cloudfrastructures, invisibility goes beyond taking for granted, to diverse forms of obfuscation, creating a bubble where critical questions about the environmental and social costs of 'big data' and its infrastructures are buried layers beneath the euphemism of the cloud." (Furlong, 2021, p191)

'multiple layers of carefully produced and guarded invisibilities' (p191). Other scholars have studied cases where infrastructures are made visible to fulfil political goals (Barker, 2005). Parks (2010) on the other hand has discussed the purposeful hiding of visible infrastructures and argued that the purpose of disguising infrastructure is to nurture ignorance of their existence. Google adopts a complex approach to the visibility of data centres making them at once 'hypervisible' (Holt and Vonderau, 2015) while keeping certain aspects invisible.

Methodology

The qualitative research design comprises two components: a) reconstructing Google's data centre development trajectory as well as Google's discourse on its data centres. This is done through secondary sources such as news articles and information put out by Google, b) a comparative study of two locations where Google has built or is planning data centres, Luxembourg and the Netherlands, through interviews triangulated against publicly available documents.

Laying the pipes for the future Google data centre in Winschoten (Photo by author, 2022)

Google data centre, Eemshaven (Photo by author, 2022)

Bissen, Luxembourg

Almost eight years–as of this writing–after the Google data centre in Luxembourg was first announced, the 33 hectares site of the project in the municipality of Bissen lies empty and its future is still uncertain. The project was presumed dead when it was announced in March 2023 that it was no longer a priority for Google (RTL Today, 2023). However, following a change in government, negotiations with Google resumed early 2024 and the project could after all be concretised (Everling, 2024). As of 2022, the project had obtained the preliminary approvals required to reclassify the land, allowing the construction of a data centre on what was formerly farmland, but had not yet reached building permit stage. The unfolding of the Google data centre project in Luxembourg has been characterised by ambiguity over key aspects of the project, negotiations between public authorities and Google not publicly disclosed, contestation by local organisations, resignations at local government level, uncertainty over Google's intentions, but nonetheless unwavering governmental support despite unclear trade-offs.

Province of Groningen, The Netherlands

Google counts as of this writing two large data centres in the Netherlands. The first one, operational since 2016, is in the port area of Eemshaven in the northeastern Province of Groningen. The second one, operational since 2020, is located in Middenmeer in the Province of North Holland. In addition to these, a Google data centre is under construction in Winschoten, some 50km to the south of Eemshaven and another site has been purchased for a data centre in Westpoort near the city of Groningen, 50km to the east of Winschoten. This 'data centre triangle' in the Province of Groningen, atypical of Google's way of developing data centres, reflects a new mode of operation and a different way of navigating infrastructural (in) visibility to bypass regulations in the Netherlands as the powerful corporation deals with small municipalities in a province which has experienced decades of demographic and economic decline following the phasing out of gas extraction.

ABOUT

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Originally trained as an architect, I became interested in understanding the relationships between land-use and inequality while working on social housing projects. The spatial justice questions raised by the involvement of large digital corporations as new powerful players in urban development led me to join the DIGI-GOV team in 2021.

Thesis Supervision

Supervisor:
Dr Constance Carr. Dept. of Geography and Spatial Planning, University of Luxembourg.
Supervisory Comittee (Comité d'Encadrement de Thèse, CET):
Prof. Dr. Markus Hesse. Dept. of Geography and Spatial Planning, University of Luxembourg.
Prof. Dr. Andrew Karvonen. Dept. of Architecture and the Built Environment, Lund University.

DIGI-GOV

CRIT-DC is a PhD project conceived as part of 'Digital urban development - How large digital corporations shape the field of urban governance' (DIGI-GOV), led by Dr Constance Carr. The goal of DIGI-GOV is to examine and explain how large digital corporations such as Amazon, Microsoft, or Google influence urban development. DIGI-GOV is housed at DGEO's Urban Studies group led by Prof. Dr. Markus Hesse. More about the Urban Studies Group at Urbanization Unbound (urbanunbound.blogspot.com).

Site of proposed Google data centre in Bissen (Photo by author, 2022)

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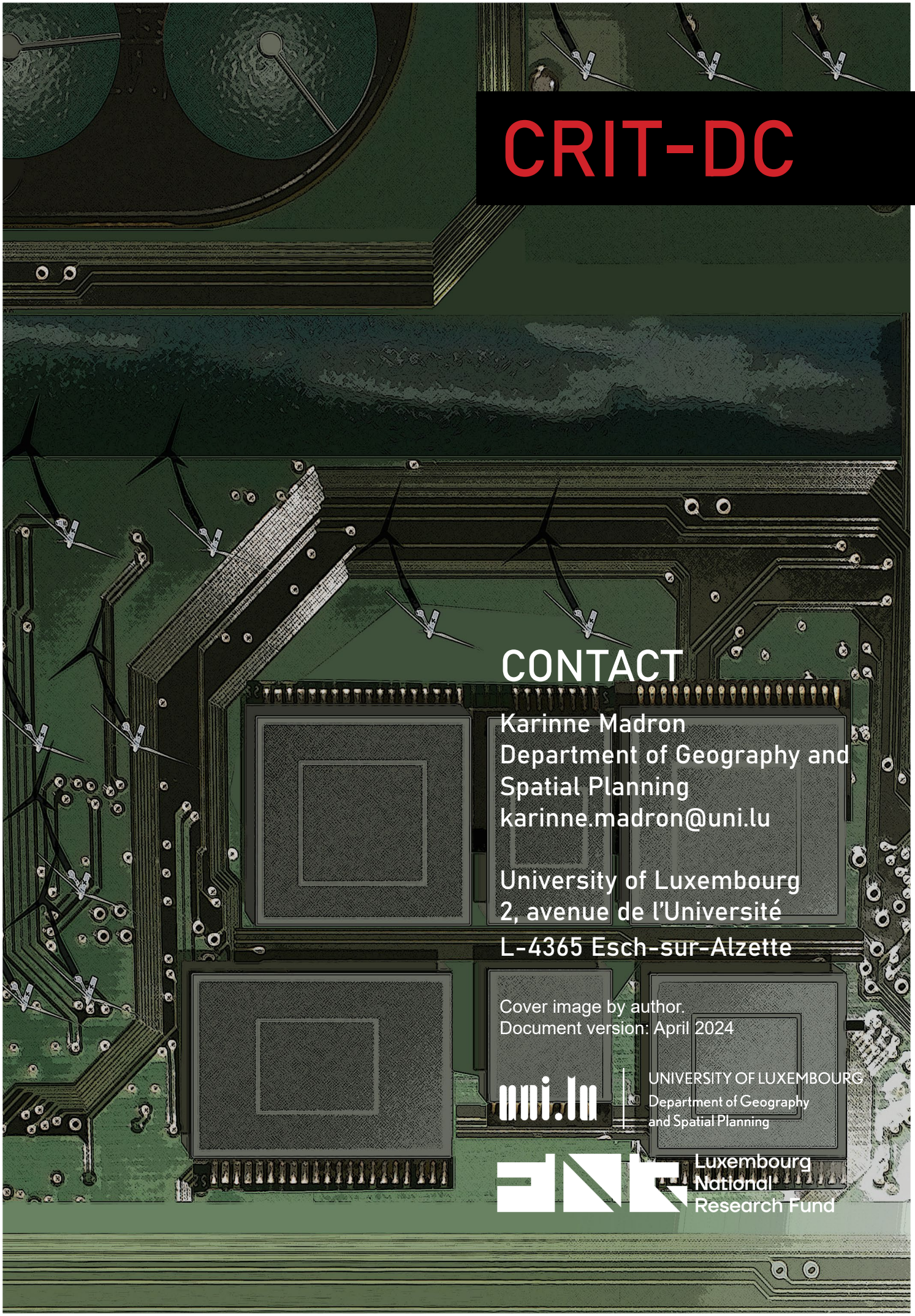

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