5. Implications for Situating the Internet as Infrastructure: Conclusions and Further Discussion

At the beginning of this book, I ask a twofold research question: how does the Internet as infrastructure take place in post-socialist Lithuania and how can we use the case of Lithuania's Internet to understand and theorize infrastructures as situated? To explore this question, I carried out multi-sited fieldwork research that took place in Lithuania from 2017 to 2018.

This approach guided me in exploring the first part of my research question: how can we understand the Internet as infrastructure in Lithuania? I use three theoretical lenses—everyday infrastructuring, geopolitical imaginaries, and critical negotiations—in combination with the prior research of others in my fieldwork and its evaluation.

First, I situate the Internet as infrastructure by exploring it as everyday infrastructuring, i.e., by focusing on contractual employment-based labor practices at Telia Lietuva that take place in specific places and keep the Internet intact.[1] Internet infrastructuring in this book comprises manual and communicative labor practices of digging, mediating, planning, documenting, connecting, transmitting, processing, producing, wholesaling, and popularizing. Through vignettes, I illustrate how infrastructuring practices consist of particular tasks, which are carried out by people in relation to things in specific places, as well as situated contingencies, which emerge during everyday situations and cannot be planned in advance, but are constitutive to the field of practice. Through labor practices such as digging, mediating, planning, documenting, and connecting, the Internet thus emerges as a physical media technology. Consider the case of digging practice, which comprises site-specific work that is difficult to plan and predict and physical earth interventions to lay cables, which is carried out by key

1 Particularly valuable for the perspective upon infrastructure as a result of ongoing practices, of infrastructuring, were the following works: Star, "The Ethnography of Infrastructure"; Ehn, "Participation in Design Things"; Karasti and Blomberg, "Studying Infrastructuring Ethnographically"; and Niewöhner, "Infrastructures of Society, Anthropology Of."

worker groups: outsourced contractors, who build the physical network with the help of pipes, cables, tractors, shovels, cars, phones, and soil; observers, who control the construction practice; and documenters, who update contractors with information on real-time Telia Lietuva network conditions in order to avoid construction failures. Additionally, digging comprises situated contingencies, such as the soil constitution in a digging site, which cannot be foreseen and may cause failures due to too deep or shallow ditches. Through labor practices such as transmitting, processing, producing, wholesaling, and popularizing the Internet emerges not only as a physical media technology, but also as a product of predominantly communicative labor and as a market service that is sold to customers. For example, popularizing practices attempt to make Internet services appealing to customers in a fragmented telecom market of multiple Internet service providers by developing ways to communicate the Internet to the customers through metaphors that stress its simplicity. Although the Internet is currently widely used, even today popularizing practices develop new ways to convince clients to buy particular telecom services against the backdrop of unforeseeable circumstances, such as tactics of other industry competitors and changing client needs. Practices of Internet infrastructuring are thus diverse: they consist of different types of labor tasks (sometimes more manual, other times more communicative and thus language-based), situated contingencies, places, people, and things that are linked together and depend on one another. For example, without digging practices, no popularizing practices would endure. Workers, who maintain the Internet against the backdrop of these practices, perceive the Internet in different ways: some see it as a conceptual product, others as a result of manual work that interconnects cables and pipes and yet others understand it as a particular service purchased by customers in the company's retail shop. Notwithstanding these conceptual differences, everyone who develops and maintains the Internet brings their own focus to it due to their particular ongoing labor practices. The increasing abstraction and invisibility of complex infrastructuring practices—from physical networks of cables and other equipment parts to the developed and communicated product—also illustrate that the telecom industry needs to provide connections to—but also simultaneously abstract and hide—this diverse labor practice background in order for the Internet to be sold to customers as a service that is simple, easy, and accessible, as presented in advertisements of the Internet as "free"[2] or "the home Internet."[3]

Thus, in order to understand how the Internet as infrastructure is not a monolithic and abstract phenomenon, but rather a constantly developed and maintained through labor practices, it makes sense to research it through the lenses of infrastructuring, which allows us to understand how the Internet is ongoingly situated by connecting and communicatively abstracting physical networks.

Secondly, I situate the Internet as infrastructure through geopolitical imaginaries, i.e., often-occurring fieldwork-based stories from local telecom industry stakeholders

2 "Su laisvu internetu gyvenimas tęsiasi," *Tele2*, accessed 3 April 2020, https://tele2.lt/privatiems/laisvas-internetas.

3 "Laisvai įdiegiamas visuose namuose: neribotas namų internetas," *Bitė*, accessed April 3, 2020, https://www.bite.lt/internetas/namams.

on geographically distinct roles and the different actors involved in Lithuania's telecom industry who help develop the Internet. Thus, the Internet as infrastructure comprises labor practices that maintain it and geopolitical imaginaries that frame and explain its development in geopolitical terms. I was especially surprised to discover the complex nature of geopolitical imaginaries in the field. From a realist geopolitical stance, post-socialist Lithuania is often presented through one geopolitical narrative: it is a pro-European and pro-US country that concomitantly stands on the cusp of Europe, with the Russian Federation looming at its side. Notwithstanding this narrative, I found it really interesting to experience the complexity of geopolitical imaginaries through fieldwork, which expressed various geopolitically charged roles of multiple actors in developing the Internet, and thus implied dependencies and tensions that did not result in one geopolitical narrative for one nation state. Geopolitical imaginaries that I map on the ground through telecom stakeholders' stories could be discerned as belonging to two imaginary strands: identity-based and transnational. To explore this identity-based imaginary, I map often-occurring stories that distinguished local and foreign actors involved in Lithuania's telecom industry by establishing a binary of "the Others" and "the Self." This corresponds to distinct geopolitical imaginaries produced by the local telecom industry regarding foreign actors involved in Lithuania's telecom industry as well as themselves. In such imaginaries, "The Others"—business companies, governments, and non-governmental organizations—were described by locals as more advanced, profit seeking, and exploitive of the locals, but also as forces that helped develop the local telecom industry. Local telecom industry stakeholders described themselves, "the Self," as competitive European capitalists, constantly changing and adapting to dynamic political and economic conditions in post-socialist Lithuania, but also as irrelevant to the global telecom industry due to Lithuania's small size and lack of a legacy of innovation. In contrast to the identity-based imaginaries of "the Self" and "the Others," the transnational telecommunications industry comprised another geopolitical imaginary on the ground. This imaginary presented no binaries, no "Self" nor "the Others," because telecom market participants have always depended on each other and thus have always cooperated. Transnational geopolitical imaginaries also dissolved binary borders and stood as a contrast to identity-based geopolitical imaginaries. Through this imaginary, local actors and their counterparts, foreign industry stakeholders, turned into a seamless network of global cooperation in which binary identities were exchanged for transnational interactions. In summation, geopolitical imaginaries on the ground were contradictory. It was not clear if foreign telecom industry participants were perceived as friends or foes, whether the local telecom industry saw itself as irrelevant and weak or globally important and strong, if this division between foreigners and locals was actually false because the telecom industry has always been international and required cooperation with various companies and governments to secure its data flow. In order to make sense of these complex grounded geopolitical imaginaries, I introduce the notion of strangeness, which sociologist Zygmunt Bauman uses to question clear oppositions and classifications in a reductive modern state.[4] In this book, strange geopolitical imaginaries challenge the clear opposition between "the Self" and "the Others" by

4 Bauman, "Modernity and Ambivalence," pp. 143–69, 148.

creating a third category, "Cooperating," in the debate regarding the role of telecommunications stakeholders in developing the industry and the Internet on the ground. In this context, even if the binary categories of "the Self" and "the Others" would be considered in isolation, they would still be filled with internal contradictions in which "the Self" and "the Others" are simultaneously praised and criticized. Strange geopolitical imaginaries thus complicate the Lithuanian telecom industry's geopolitical narrative, which circulates around geopolitical debates that contend that Lithuania is either a pro-Western European Union periphery or a buffer state between the West and Russia, while its telecom industry is then logically a result of either western imperialism or a Sisyphean national achievement. When observed from the perspective of fieldwork, geopolitical imaginaries produced by local telecom industry imaginaries include more actors than typically surmised: not only the Lithuanian state or Google and Facebook develop telecommunications and the Internet in Lithuania, but also different foreign states, various actors, and the contradictory and tense evaluations of their roles and involvement as friends, foes, and equal partners.

While in Lithuania, modernist and cosmopolitan logics mix and comprise strange everyday geopolitical imaginaries on the ground, the perspective of geopolitical imaginaries in exploring Internet as infrastructure allows me to question the supposedly apolitical development of infrastructuring; these imaginaries illustrate how infrastructure development is not neutral, but strangely geopolitical, i.e., dependent on many factors, but also tense, contradictory, and incommensurable. Strange geopolitical imaginaries are similar to political analyst Marius Laurinavičius's argument that Lithuania as a state finds itself in a zone of ambivalence due to its geographic and historical legacies.[5] It also questions any stable realist statist geopolitical imaginary: imaginaries on the ground are messier than any one narrative could convey.

Thirdly, I situate the Internet as infrastructure through critical negotiations, which in this book comprise particular justifications that not only judge infrastructure developments, but also concomitantly strive for particular implied future visions. These critical negotiations of many different stakeholders do not radically question privatization, but instead provide different negative, positive, and neutral justifications and future visions on how privatization could unfold. I was inspired to explore critical negotiations because during my fieldwork they were widely practiced by telecom industry stakeholders on various issues. In fact, I was struck by how critical many Internet maintainers were toward this media technology. It was difficult to comprehend the contemporary common positive advertisements of the Internet, telecom, and IT industry development and the negatively critical judgments of the people who actually develop it. I additionally noticed that critique took on an especially powerful and concentrated form during crucial industry events. During these times, critical negotiations intensified and became increasingly visible. Simultaneously, I was inspired by Luc Boltanski and Laurent Thévenot's conceptualization of critique as mundane negotiations comprised of justifications that defend their causes with specific generalizations.[6] I use these inspirations alongside predominantly archival material, memoirs and fieldwork

5 Laurinavičius, Motieka, and Statkus, *Baltijos valstybių geopolitikos bruožai. XX amžius*, pp. 24–25.

6 Boltanski and Thévenot, "The Sociology of Critical Capacity," pp. 359–377, 360.

interviews to focus on one significant event in the telecom industry, the 1998 privatization of Lietuvos Telekomas, which shaped the industry in terms of ownership, labor relations, and equipment modernization, and was also intensely criticized by multiple telecom industry stakeholders. I wanted to explore the content of critical negotiations of key stakeholders of Lietuvos Telekomas's privatization, but also understand how different stakeholders diverge in their judgments and their respective visions of the future. Critical justifications of Lietuvos Telekomas produced by citizens, trade unions, politicians, academics, and other telecom companies judged this event from different stances: negative, positive, and neutral, but none of them refused privatization as such. There were many negative justifications, which often criticized privatization as detrimental to Lietuvos Telekomas employees, telecom industry remembrance culture, and infrastructure sharing practices among industry participants, as well as increased service prices and future foreign ownership. Negative justifications not only judged but also envisioned particular futures for infrastructure development, which could use privatization for the better. Accordingly, privatization could lead to social well being by remembering past employees' contributions, securing industry employee working conditions, strengthening regulatory systems, reasonably raising customer service tariffs, enhancing local decision-making agency regarding national control, and enhancing new owners' interest in societal conditions. Positive privatization justifications described privatization through the lenses of industry-implicit and unavoidable changes that would bring modernization and progress, a schema in which stakeholders have less agency because they need to adapt to the change. Lastly, critical justifications to privatization also described it as a necessity and obligatory act for Lithuania to enter the European Union and thereby become European. In this sense, the privatized and liberalized telecom industry is a normalized condition. These three motifs of thinking through privatization that I encountered during my fieldwork thus formed a kaleidoscope of critical justifications that emerged during a crucial industry event and not only judged privatization, but all hint toward possible futures that these critiques envisioned and struggled to attain. These critiques further emphasized that infrastructure development as a result of privatization could be more progressive in terms of fair labor relations, had the capacity to adapt to new circumstances and could be national and European at the same time.

Also, I use critique of Lietuvos Telekomas's privatization in order to illustrate that the Internet as infrastructure is embedded in complex critical negotiations that become intensified and visible during significant industry events and furthermore envision and strive for diverse future visions. To develop and maintain the Internet as infrastructure in post-socialist Lithuania thus means to also practice ongoing critical negotiations that strive for different future visions through their struggles and incommensurable disagreements, which in case of Lietuvos Telekomas's privatization did not radically dismiss privatization, but articulated its alternative futures in terms of local adaptation to new conditions, endurance of change and resistance to specific privatization terms.

I additionally posit that situated exploration of the Internet as infrastructure needs to focus on critical negotiations because infrastructure is not only maintained by labor practices and framed by strange geopolitical imaginaries, but also emerges as a site of critical struggle that envision to change its paths of development. The focus on

critical negotiations during significant moments for the industry, during which critique becomes especially intensive and visible, illustrate how infrastructure developments should not be taken for granted. Instead, they are built upon critical struggles for possible futures against the backdrop of past legacies, which are prolific for some but destroy the futures of others, as happened with Lietuvos Telekomas's privatization. Today, the company is privatized, profitable, and has well-developed Internet access, but around 80 percent of its employees have been fired since privatization.

Thus, by focusing on motifs such as everyday infrastructuring, geopolitical imaginaries, and critical negotiations together, it is possible to study the fragments of infrastructural complexity, which are comprised of multiple planned and messy labor practices; contradictory geopolitical imaginaries that situate and demonstrate how a particular industry admires, despises, and cooperates with different media technology developers; and diverse critical negotiations that attempt to stretch these developments in different directions of their particular futures. These three motifs embedded in fieldwork material illustrate how it is possible to understand both the Internet as infrastructure in particular, and infrastructures in general, through empirical and theoretically sensitive research. My understanding of infrastructures is similar to that of media scholar Lisa Parks: "Infrastructure is both the thing and the story. It is the transparent and the spectacular. It is seamless in its operation and can be disastrous in its failure."[7] In particular, this research is rooted in empirical, ethnographically-inspired research on infrastructures by Susan Leigh Star, Lisa Parks, Nicole Starosielski, Helena Karasti, Jeanette Blomberg, Janet Abbate, Annemarie Mol, John Law, Paul N. Edwards, Julian Orr, and many others. Their research has demonstrated how it is possible to complicate perspectives of infrastructures by researching them through fieldwork in particular places with a focus on their materiality, imaginaries, and practices.

Thus, infrastructure in this book is not a stable thing: it is not even a large network that looms above or below a society, but is actually the result of its different aspects of situated labor practices, geopolitical imaginaries, and critical negotiations. As John Law argues, the realities of the world move in ongoing differentiation and their flux is vague and indefinite, that, "(social) science should also be trying to make and know realities that are vague and indefinite *because much of the world is enacted in that way.*"[8] These three conceptual tools can help place an infrastructure on the ground and allow one to explore how infrastructures are made, maintained, and contingent; how their development is not a linear, planned process that can be finished and envisaged in one way, but one that is constantly criticized, envisioned, struggled for, and geopolitically imagined. This research and understanding of infrastructures not only serve to disclose them to us, but also points to the fact that the world and its (Internet) infrastructures are still quite strange and not-yet-fully controlled, surveilled, and determined.

Furthermore, my book contributes to the broad and growing field of infrastructure studies with four arguments and thereby answers the second part of my research question: how can we use the case of Lithuania's Internet to understand and theorize infrastructures as situated?

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7 Parks, "Water, Energy, Access: Materialising the Internet in Rural Zambia," p. 115.

8 Law, *After Method*, p. 14.

First, through the study of Internet as infrastructure I argue for the importance of studying infrastructures as situated—i.e., maintained by humans in connection with things, in specific places, and through complex, contradictory, and stunning practices, imaginaries, and negotiations—because this allows one to grasp that infrastructures do not simply take place, but rather that their developments are messy, prone to failure, locally contested, geopolitically imagined, and critically negotiated in multiple ways.

With my study, I theorize the Internet as infrastructure as comprised of three motifs, which were thought together as constitutive to the Internet as infrastructure. I thus secondly argue that the combination of these three motifs allows one to grasp its different aspects: to understand complex daily labor practices of maintenance, but to also perceive them as embedded in specific geopolitical imaginaries that are comprised of complex and different stakeholder roles and their respective implied dependencies and tensions, as well as the future visions that come out of critical negotiations.

I additionally posit that the Internet is not abstract, but rather a situated phenomenon that is developed in places beyond Silicon Valley or CERN, and by actors beyond the US government or global technology companies such as Google or Amazon. Thus I thirdly argue that infrastructure studies needs to focus on and foster curiosity for other regions, places, and actors—such as post-socialist Europe, which itself is diverse—in researching both the Internet and other infrastructural developments. I stress that research needs to go beyond the currently dominant Internet (infrastructure) studies focus on Western Europe and the US in order to outline infrastructural diversity and complexity. While I am aware that for disciplines such as cultural anthropology or STS this statement might sound trivial, and that scholars from these disciplines currently often aim to focus not only on the marginalized communities but also on the centers of power, it is still not trivial within media studies in Germany.

With this research, I not only explored Lithuania's telecom industry, but also showed how it is possible to research infrastructures as situated. While "situatedness" is an ongoing process that can be observed via research, during the observation infrastructures emerge as complex, strange, ambiguous, and contradictory. Thus, I argue for situating and complicating studies of infrastructures; for exploring infrastructures through a focus on embedded doings, but also geopolitical imaginaries and critical negotiations, their implied tensions, struggles, and future visions; as well as for looking into new places and actors that maintain and develop infrastructures.

I hope that this research can serve as inspiration for future research of infrastructures and media technology development by providing more attention to situated research and aspects such as labor practices, geopolitical imaginaries, and critical negotiations. By illustrating how infrastructure developments are diverse and contingent, I also argue that the exploration of these developments is partial. This means that my three arguments for situating infrastructure research, combining different aspects of infrastructural developments, and studying infrastructural developments in overlooked places stand for a broader argument. In my contribution to infrastructure studies, I thus fourthly and finally broadly argue for a new critique of infrastructures that comprises the study of different regions and places and does not desire to consume their differences, messiness, and complexities into one all-explanatory story. Such situated critique of infrastructures aims to acknowledge and investigate differences within the

world and thereby questions the possibility of one clear origin story of infrastructural developments. This final argument also implies that each forthcoming situated study of infrastructures might expand representations of infrastructural developments by including culturally diverse narratives and methods of representation. The conceptual motifs I developed in this book thus can be used as a springboard—not as a method to follow strictly—to search for infrastructural complexity in other places. They can also encourage (media) scholars to look critically into fieldwork and excavate its different—historical, imagined, criticized, practiced, ambiguous—layers. When we research infrastructural developments via fieldwork, we can shift the attention toward situated media production and usage and explore infrastructural diversity. This also implies that media are not only inaccessible and framing our perception, but can be critically and creatively observed.

While I argue for the importance of looking elsewhere and exploring media technology developments in peripheral places and countries such as Lithuania that are not represented in global Internet infrastructure studies, I see a need to further explore and complicate situated Internet infrastructure development, and foster researchers' attention and curiosity for complex exploration of infrastructural developments beyond the centers of power. This could be done, for instance, through focus on relations between centers and rural areas, such as tensions between urban and rural communities in developing the Internet, which I briefly describe in this book. Also, future situated exploration of infrastructure development and maintenance could profit from collaborative research that includes multiple researchers working together in different geographical contexts, because in this way they could grasp more of the complex dynamics that transpire in different geographical locations, and thereby internationalize their research focus. I hope that this research can stimulate more attention to infrastructure studies, and also serve as a way to relax these studies and make infrastructure research more interesting and interested in the situated complexities that shape and maintain infrastructures, rather than viewing them from rigid technical perspectives or single origin stories.

While to my knowledge this is the first such study on infrastructure that combines these three motifs and focuses on Lithuania, I hope that it is not the last one. It is worthwhile to develop a broader scope of research into infrastructural developments of media technologies through fieldwork, because this allows researchers and their audiences to diverge from mainstream perceptions of these infrastructures as finished products or transcendent containers that carry the ultimate power in deciding our global future. Instead, situated perspectives on infrastructures could use specific examples from the field to demonstrate how they are actually contradictory, complex, criticized, and, at times, not even sure where their developments will lead. In more practical terms, I would be thrilled to see situated fieldwork research of Internet as infrastructure expand to other countries, places, and actors, and thereby establish a more complex understanding of how it is developed not only in Lithuania, but also internationally.