Miglė Bareikytė

THE POST-SOCIALIST INTERNET

How Labor, Geopolitics and Critique Produce the Internet in Lithuania

[transcript] Digital Society

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Preface and Acknowledgments

A few years have passed since 2016, when I first had the idea to research Internet development in Lithuania. At the time I had recently finished my MA thesis, in which I critically and theoretically explored the instrumentalization of language and its relation to digitalization. At the same time, I also started visiting the legendary "Stammtisch" at Cafe Buchhandlung on Berlin's Tucholskystraße, where I was exposed to the critical and empirically visible world of hackers, digital activists, and artists. I began to travel to Chaos Computer Congress as well as other events that dissected what I had previously theoretically perceived as "digitalization" into phenomena of made and lived practices and processes. Thus, what had previously felt like a lofty topic consequentially acquired empirical and grounded qualities.

I began to wonder how I could use my own research practice to go beyond discourses that celebrate media technology developments in abstract terms. I decided to focus on very empirical media technology development, Internet infrastructure, and Lithuania's telecom industry. I wanted to further a research approach against the backdrop of work done by others in the field of science and technology studies (STS) and infrastructure studies that would make Internet infrastructure in particular, and infrastructures as such, more graspable.

My choice to investigate this infrastructure in Lithuania was prompted by several factors. Not only is Lithuania an interesting research case due to its well-developed Internet access, but, as I noticed through my own experience, it is also ignored in the media technology research, which is still predominantly focused on western experiences. Importantly, I wanted to look into Lithuania's Internet development, not from a national desire to present an unknown country to the world, but rather to situate and complicate the global narrative of media technology development through a rarely researched place. I thereby target media scholars, students, and the general public as potential readers of a book with a narrative that grounds Internet in a place that many are possibly unfamiliar with. I aim to stimulate their interest in its complexities as well as prod them to learn that global infrastructural and media technology developments are much more complicated and convoluted than they appear because they occur in specific and highly diverse places.

This research would not have been possible without the help of many individuals and institutions. I am especially grateful to my supervisors, Prof. Dr. Timon Beyes, Prof. Dr. Götz Bachmann, and Prof. Dr. Jörg Niewöhner, who helped me to shape this book and its predecessor, the PhD thesis, in its current form, guided me through my anxieties and helped me navigate the university's bureaucratic systems. Timon, huge thank you for everything—I have treasured your encouraging theoretical, empirical, and organizational knowledge and insights—without your ongoing constructive feedback and support this book simply would not have been possible. Götz—thank you dearly for your constant support, inspiring insights, and for pushing me go to beyond my comfort zone and become a better scholar. Jörg—thank you for your invariably sharp comments and observations, methodological help and for your precious introduction to the STS world. I would like to thank to all of the supervisors for your very much-appreciated feedback that motivated me, helped me pick myself up during moments of crisis, and eventually spurred me to write this book.

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Last but not least, this book would not have emerged without the help of my friends, colleagues, and neighbors who edited, criticized, gave feedback, and provided general support, in particular Rachel Pafe, Aidan Wall, Dora Komnenović, Miloš Janicki, Viktorija Šiaulytė, Iva Radić, Karina Papp, Jelena Duvnjak, Julija Goyd, Ingo Dachwitz, Vik-

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Lastly, I want to thank to my family—Pierre Allix, Danutė Bareikienė, Gintautas Bareikis, and Tadas Bareikis—for enduring my extreme stress during these PhD years and encouraging me to stay curious, to research and to write.

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Abbreviations and Acronyms

2G:	Second-generation cellular network
3G:	Third-generation cellular network
B2B:	Business-to-Business
B2C:	Business-to-Customers
BEREC:	Body of European Regulatories for Electronic Communications
Ca.:	Circa (Latin), signifying "approximately"
CEE:	Central-Eastern Europe
CEO:	Chief executive officers
CEPT:	The European Conference of Postal and Telecommunications Administrations
CIA:	Central Intelligence Agency
CIS:	Commonwealth of Independent States
CRA:	Communications Regulatory Authority (in Lithuanian RRT—Ryšių reguliavimo tarnyba)
DOCSIS:	Data Over Cable Service Interface Specification, an international telecommunications standard
DSL:	Digital subscriber line, DSL technology is used for Internet access
EU:	European Union
FBI:	Federal Bureau of Investigation
FDI:	Foreign direct investment
FTTx:	"Fiber to the x," telecommunications term for optical fiber-based broadband network architecture
Gb:	Gigabit
GDR:	German Democratic Republic
GEANT:	European data network for research and education
HSPDA:	High Speed Downlink Packet Access

ICT:	Information and Communications Technology
IMF:	International Monetary Fund
ID card:	Identification card
IP:	Internet Protocol
IPTV:	Internet Protocol Television
IT:	Information Technology
ITU:	International Telecommunications Union
Kauno miesto muziejus:	Kaunas City Museum
KTV:	Cable TV
LAN:	Local Area Network
LCTA:	Lithuanian Cable Television Association
LITNET:	Lithuanian Research and Education Network
LRTC:	Lithuanian Radio and Television Centre
LTE:	Long-Term Evolution standard for wireless broadband communication
LVNA:	Lithuanian State Modern Archives
MBB:	Mobile Broadband
MII:	Institute of Mathematics and Informatics of Vilnius University
NATO:	North Atlantic Treaty Organization
NGO:	Non-governmental organization
NKVD:	People's Commissariat for Internal Affairs
NORDUnet:	Collaboration between the National research and education networks in the Nordic countries
ODF:	Optical Distribution Frame
OECD:	Organization for Economic Cooperation and Development
OSF:	Open Society Foundation
OTT:	Over-the-top
RAIN:	Rural Area Information Technology Broadband Network
Sąjūdis:	Bendras demokratinio pasipriešinimo sąjūdis (United Movement of Democratic Resistance)
STS:	Science and Technology Studies
SVDSL:	Super-vectoring Digital Subscriber Line
TCP/IP:	Transmission Control Protocol/Internet Protocol
TIER 1:	Internet Protocol network that does not need to pay for transit traffic and peering

UMTS:	Universal Mobile Telecommunications Service
UPU:	Universal Postal Union
USSR:	The Union of Soviet Socialist Republics
VAS:	Value-added service
VDSL:	Very high-speed Digital Subscriber Line
WWII:	World War II
X.25:	Standard protocol suite for packet-switched data communication in wide area networks

1. Introduction

In the contemporary moment, the Internet seems to have gained a central political, social, and economic position. According to media sociologist Vincent Mosco, we are living in a time in which the Internet is the last technological and electronic sublime.[1] In this book, I want to stay away from such a glorified view of the Internet and rather explore it from the perspective of an embedded case study, specifically that of post-socialist Lithuania. It is of interest because both it and other Baltic countries are deemed highly advanced in terms of information and communication technology development. Lithuania's case is intriguing: it has enjoyed well-developed Internet services since the fall of the Soviet Union, although there is a paucity of research on the case of its Internet development. In this book, I want to both contribute to this research and complicate general and affirmative stories of the advanced sublime Internet in Lithuania by making it graspable. In order to do so, I situate the Internet through multi-sited fieldwork.[2] From a fieldwork perspective, I focus on places and key stakeholders that developed and continue to maintain physical Internet infrastructure. I explore it through a focus on what is commonly understood as infrastructure providers—telecom industry—but within a context in which the meaning of infrastructure is not given and thus emerges from theoretically informed empirical work. In this book I thus situate the Internet as infrastructure through everyday labor practices, or infrastructuring; geopolitical imaginaries, or often occurring fieldwork-based stories, beliefs, and perceptions about geographically distinct telecom industry actors and their roles in Lithuanian Internet development; and critical negotiations, or particular justifications and future visions, which emerge during crucial events of industry change. These three lenses for analyzing the Internet as infrastructure were formed and honed during my 2017–2018 fieldwork in

1 Vincent Mosco, *The Digital Sublime* (Cambridge, MA: The MIT Press, 2004), p. 24. This can be debated in the context of AI imaginaries, although these are too based upon data exchange and networking technologies.

2 With the perspective and practice of multi-sited fieldwork, I lean on George E. Marcus (George E. Marcus, "Ethnography in/of the World System: The Emergence of Multi-Sited Ethnography," *Annual Review of Anthropology* 24, no. 1 (1995): pp. 95–117) and describe multi-sited fieldwork in the sense that its objects emerge over the course of time, in a field differentiated between multiple local sites.

Lithuania. This infrastructural analysis of the Internet leans on infrastructure studies with perspectives from science and technology studies (STS), organizational theory, ethnographically-inspired digital media research, and Eastern European studies in order to explore post-socialist Lithuania's Internet as a situated media technology and thereby provide a fieldwork-based theorization of the Internet as infrastructure in particular, and infrastructures in general. I use fieldwork as my main research method because its embedded, observational, and open-ended nature is able to emerge over time and thus provide new insights into infrastructure-focused study. It thus allows me to go beyond a totalizing affirmation of the Internet infrastructure as universal as well as beyond its development as a national achievement. This book comprises a place-based, bottom-up focused fieldwork exploration of a complex of actors, who work alongside things, places, practices, imaginaries, and negotiations to develop and maintain the Internet as infrastructure in Lithuania.

I ask: how does the Internet as infrastructure take place in post-socialist Lithuania? Also, how can we use the case of Lithuania's Internet to understand and theorize infrastructures as situated?

I want to produce a different exploration and critique of the Internet than the one that writer Ingrid Burrington describes in her book on New York's Internet infrastructure: a "poorly rendered collages of computers and a globe floating in some ethereal mist that could be data traveling across the network—or could be fairies, no one really knows."[3] In this book, I first aim to shift focus from Internet infrastructure as a stable, universal, ungraspable media technology toward its exploration as a situated process of grounded development and maintenance. I also aim to do so in a place that has not yet aroused interest in infrastructure studies, organizational theory, nor ethnographically-inspired digital media research. Additionally, through this particular exploration of Lithuania's Internet infrastructure, I aim to further the theorization of infrastructures through embedded empirical research.

I use my research to make theoretical and empirical arguments. First, I argue for the simultaneous inclusion of the three conceptual lenses that emerged from my fieldwork—everyday infrastructuring, geopolitical imaginaries, and critical negotiations—in researching the Internet as infrastructure through fieldwork.[4] Secondly, I illustrate how the Internet as infrastructure in Lithuania is specific when examined through these three lenses. I show how the Internet as infrastructure in Lithuania comprises complex everyday labor practices and their situated contingencies, strange geopolitical imaginaries and diverse critical negotiations.[5] I aim for this research to contribute to infrastructure studies by combining perspectives from STS (with the perspective of infrastructuring practices); organizational theory (by exploring how

3 Ingrid Burrington, *Networks of New York: An Illustrated Field Guide to Urban Internet Infrastructure* (Brooklyn, NY: Melville House, 2016), p. 11.

4 I outline these perspectives briefly in empirical chapter description below and in depth in chapter "Internet as Infrastructure: Conceptual Openings."

5 Relying on Zygmunt Bauman, strange geopolitics here connotes ambiguous, indeterminate, and not fitting into a strict realist geopolitical narrative (Zygmunt Bauman, "Modernity and Ambivalence," *Theory, Culture & Society* 7, no. 2–3 (1990), pp. 143–69).

the Internet as infrastructure is developed from "more than representational,"[6] "subverting-and-remaking the method,"[7] and other perspectives that are critical toward idea of objective representation); ethnographically-inspired digital media research (by situating the Internet as infrastructure through fieldwork); and Eastern European studies (with a focus on post-socialist Lithuania and its telecom industry).

I begin this book with a brief narrative from an interview with Lithuanian cybernetician Laimutis Telksnys regarding the first Internet connection in Lithuania. It is important to start with his story because it outlines why it makes sense to explore the infrastructural perspective of the Internet as a complex result of labor practices, geopolitical imaginaries, and critical negotiations, but also because his story is widely represented in Lithuanian media and belongs to the mainstream local imagination regarding the Internet's emergence. I then move on to two chapters that outline this books' conceptual and methodological perspectives, "Internet as Infrastructure: Conceptual Openings" and "Internet as Infrastructure: Methodological Openings." The subsequent chapter, "Internet in Lithuania: The Dominant Narrative," explores how telecommunications and Internet development is represented in the most comprehensive current scholarly history, *Lietuvos ryšiai 1918–2018* (Lithuanian Communications 1918–2018),[8] and aims to present readers with the dominant and thus contextual narrative regarding telecommunications development in Lithuania. This is followed by three fieldwork-based chapters, "Everyday Infrastructuring," "Geopolitical Imaginaries," and "Critical Negotiations," which each explore different aspects of Internet development as infrastructure, before ending with the concluding chapter, "Implications for Situating the Internet as Infrastructure," that discusses merits of situated media research.

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6 Following Nigel Thrift, I perceive both research and the observed issues as immanent, processual, complex, interwoven, and creative, instead of objective, in its research results and representations (Nigel Thrift, *Non-Representational Theory: Space, Politics, Affect* (Abingdon: Routledge, 2008), pp. 5–7, 12; Emma Waterton, "More-Than-Representational Landscapes," in *The Routledge Companion to Landscape Studies*, ed. Peter Howard, et al. (New York: Routledge, 2019), pp. 92–95).

7 By relying on this perspective, I here mean John Law's attempt to question, subvert and remake rigid methods that is outlined in his book "After Method: Mess in Social Science Research" (John Law, *After Method: Mess in Social Science Research* (Milton Park: Routledge, 2004), p. 9).

8 The book—Arvydas Pakštalis and Brigita Tranavičiūtė, *Lietuvos ryšiai, 1918–2018* (Kaunas: A. Pakštalis, 2018)—consists of eight main chapters that discuss Lithuanian telecommunications from 1918 to 1940 (post, telegraph, telephone, and radio communications); 1940 to 1944 (Lithuania's telecommunications during first Soviet occupation and during the German occupation); 1944 to 1990 (Lithuania's communications after the Second World war); 1990 to 2018 (with the special focus upon Ministry of Communications and Informatics and telecommunications companies after 1990); and Telecommunications construction, manufacturing, education system during the last 100 years. Its last chapter explores the telecommunications sector's future in the year 2068 and is written by prominent Lithuanian scientist Prof. Laimutis Telksnys.

1.1 Fieldwork-based Chapter Summary

1.1.1 Chapter "Everyday Infrastructuring"

In this chapter, I illustrate how the Internet is maintained at Lithuania's leading telecom provider, Telia Lietuva,[9] by focusing on diverse labor practices that develop and maintain the Internet on a daily basis. I spent two full months observing labor practices at the company, which is reflected in the chapter's structuring of short vignettes from this time. These vignettes resulted from coded and analyzed field notes that I wrote during participatory observation at Telia Lietuva as well as relevant published research on technology maintenance, especially from the fields of STS and infrastructure studies, which focuses on technology development as a result of ongoing producers' practices that link different manual and communicative labor to maintain Internet services. At the company, I observed labor practices and focused on tasks that maintain the Internet on a daily basis as well as observational information that I could not gather from material such as interviews, archives, or published literature. In this chapter, I thus explore how Internet infrastructuring,[10] or Internet maintenance through planned and contingent everyday practices, is diverse and corresponds to distinct company labor practices. In particular, Internet infrastructuring comprises manual work, such as digging, installing, and repair as well as communicative work, such as product and service development, popularizing, and wholesaling. Additionally, Internet labor practices consist not only of these concrete doings, but also situated contingencies such as remembrances, ironic remarks, and diverse customers, which emerge in an unplanned manner and can thus shape everyday infrastructuring in unforeseen ways. Moreover, each distinct labor practice produces a different understanding on the ground of what the Internet actually is: for some, it is an earthly labor practice, for others it is a communicated product. The act of analyzing the Internet as infrastructure through fieldwork thus means that one must first attend to the diversity and specificity of labor practices, to Internet infrastructuring that maintains the Internet in particular places every day and is not only planned and observable, but also contingent and elusive.

1.1.2 Chapter "Geopolitical Imaginaries"

In this chapter, I explore geopolitical imaginaries of the Internet as infrastructure in Lithuania. These imaginaries, i.e., collective beliefs about particular roles played by foreign or local telecom stakeholders in developing the Internet in Lithuania, are geopolitical because they consist of geographically distinct roles that local telecom industry stakeholders attributed to both foreign and local telecom stakeholders in forming post-

9 Also known as "Telia" in Lithuania.

10 I borrow this term from participatory design and anthropology disciplines, especially the work of Pelle Ehn, Helena Karasti, and Jeanette Blomberg, see: Pelle Ehn, "Participation in Design Things" (Paper presented at the Proceedings of the Tenth Anniversary Conference on Participatory Design 2008, Bloomington, 2008), p. 8; Helena Karasti and Jeanette Blomberg, "Studying Infrastructuring Ethnographically," *Computer Supported Cooperative Work (CSCW)* 27, no. 2 (2018), pp. 233–265, 236.

socialist Lithuania's telecom industry, which I mapped during my fieldwork through interviews and participatory observation.[11] In realist geopolitical scholarly literature, Lithuania, the Baltics, and Eastern Europe are often described as both cultural and physical borders between "the West" and Russia that took a straight socio-political path to Europe after the 1990s. In scholarly literature its predominantly foreign-owned telecom industry is perceived as a physical infrastructure that sustains its modern European identity due to its high-level development and integration into global Internet networks, or, in rarer occasions, as a geopolitical threat due to its foreign ownership.[12]

In contrast to such realist geopolitical theories that provide one particular geopolitical narrative of one place, I mapped the Lithuanian telecom industry's complex and ambiguous geopolitical imaginaries of the Internet's development as they emerged on the ground. In this chapter I draw on material from the field in order to situate geopolitical imaginaries amongst telecom industry stakeholders and illustrate that the Internet as infrastructure in Lithuania is framed by binary modernist and transnational cosmopolitan imaginaries, which co-exist and encompass strange geopolitical imaginaries. I call such everyday geopolitical imaginaries "strange," as defined by Zygmunt Bauman,[13] who describes the stranger as both a person and a notion of ambiguity, indecisiveness, and indeterminacy in a modern state, which itself designs, assimilates, and aims to destroy differences.[14] In my exploration of geopolitical imaginaries as strange via Bauman, I want to illustrate how key telecom industry stakeholders, producers of the Internet, not only allow the Internet to emerge through infrastructuring practices, but also frame it as geopolitical through often-occurring stories of a geopolitical nature. These stories narrate complex and different stakeholder roles and imply stakeholder dependencies and tensions. I also use my research on geopolitical imaginaries to illustrate that multiple incommensurable geopolitical imaginaries can exist in one state. I thus use this focus on geopolitical imaginaries on the ground to expand perspective on the Internet as infrastructure from an emphasis on practices of infrastructuring to those of the geopolitical imaginaries that frame these practices. The resulting empirically grounded strange geopolitical imaginaries contribute to the delineation of statist and nationalist realist geopolitical narratives as such, and of telecom industry in

11 Inspiring for this perspective was David Shim's article, in which he conceptualizes the mundane as geopolitical, and addresses geopolitical imaginations of home (David Shim, "Between the International and the Everyday: Geopolitics and Imaginaries of Home," *International Studies Review* 18, no. 4 (2016), pp. 597–613), as well as John O'Loughlin' et al.'s perspective toward geopolitical imaginaries that make geopolitical discourses geographically specific (John O'Loughlin, Gerard Toal, and Vladimir Kolosov, "The Rise and Fall of 'Novorossiya'": Examining Support for a Separatist Geopolitical Imaginary in Southeast Ukraine," *Post-Soviet Affairs* 33, no. 2 (2017), pp. 124–44.

12 See: Jonas Daniliauskas et al., *Šiaurės šalių geostrateginė svarba Lietuvai* (Vilnius: Eugrimas, 2005); Česlovas Laurinavičius Egidijus Motieka, and Statkus Nortautas, *Baltijos valstybių geopolitikos bruožai. XX amžius* (Vilnius: Lietuvos istorijos instituto leidykla, 2005); Viktor Denisenko, "Rusijos periodinės spaudos požiūris į Baltijos šalis geopolitinių pokyčių kontekste (1991–2009)," (PhD diss., Vilnius University, 2016).

13 Bauman relates this term to Georg Simmel's essay on "The Stranger" (Georg Simmel, "The Stranger," in *On Individuality and Social Forms*, ed. Donald N. Levine (Chicago, IL: University of Chicago Press, 1971).

14 Bauman, "Modernity and Ambivalence," pp. 143–169, 145–148, 151, 157.

particular, by maintaining strange geopolitical imaginaries of concomitantly identity-based distinctions and transnational cooperation on the ground. Despite these aims, this chapter runs the risk of reproducing the stereotype of Lithuania as part of chaotic Eastern Europe, mired in discourses of modernization and collaboration. In order to check this possibility, my argument regarding strangeness is empirically grounded in the long history of critical cultural research on "Eastern Europe," especially through the research of Czeslaw Milosz and Tomas Venclova on complicated Eastern European identity and positive valuation of Eastern European societal complexity.[15]

1.1.3 Chapter "Critical Negotiations"

In the last empirical chapter, I illustrate how the Internet as infrastructure is not only accomplished through ongoing infrastructuring labor practices, nor only shaped by strange geopolitical imaginaries, but also comprises ongoing critical negotiations that consist of justifications and future visions. These critical negotiations illustrate that infrastructure development and maintenance consist of struggles for different future visions that continuously take place within the telecom industry, but intensely emerge during crucial industry changes, such as the privatization of main telecom provider Lietuvos Telekomas. While there were many different telecom industry stakeholder critical negotiations during my fieldwork, I chose to focus on archival findings regarding Lietuvos Telekomas's 1998 privatization to the Swedish-Finnish Telia and Sonera consortium, an event that radically changed the structure of the Lithuanian telecommunications industry in terms of ownership, labor relations, and physical technology. I focus on this crucial industry event through fieldwork material such as archival work and interviews in order to posit that the privatization of Lietuvos Telekomas was diversely negotiated as a positive, negative, and necessary event. I explore particular justifications of Lietuvos Telekomas's privatization expressed by trade unions, private citizens, government officials, and other organizations and additionally argue that during crucial industry changes, critical negotiations intensify, become visible, and show potential future turns of prospective infrastructural developments.

Thus, this research situates the Internet as infrastructure in post-socialist Lithuania through multi-sited fieldwork amongst telecom industry stakeholders and was undertaken in the Lithuanian capital, Vilnius, and its second largest city, Kaunas, as well the Telia Lietuva company, different archives, cafes, and offices.[16] By situating the Internet as infrastructure in Lithuania through fieldwork, I illustrate how the Internet is maintained by everyday infrastructuring practices, framed by strange geopolitical imaginaries and is an ongoing process immersed in critical negotiations and their struggles for different future visions. This situated understanding of the Internet as infrastructure not only shows how infrastructuring practices, geopolitical imaginaries, and critical negotiations maintain and shape it in Lithuania, but also provides an example of how

15 Česlovas Milošas, *Gimtoji Europa* (Vilnius: Apostrofa, 2011); Tomas Venclova, *Pertrūkis tikrovėje. Straipsniai apie literatūrą ir kultūrą* (Vilnius: Lietuvių literatūros ir tautosakos institutas, 2013).

16 In the chapter "Internet as Infrastructure: Methodological Openings" I explain my fieldwork process in depth.

the Internet as infrastructure, and infrastructure as such, could be theorized for future situated research endeavors.

1.2 The First Connection

The first Internet connection in Lithuania coincided with the reestablishment of Lithuania as an independent nation-state. Set up in 1991 on the roof of the Parliament building in the capital Vilnius, this connection established new paths for independently communicating with the world.[17] Even in the beginning of the 1990s, the only way to connect to western countries from Lithuania via phone was through Moscow, [18] and these calls were often surveilled. Joseph Kazickas, Lithuanian-American businessman and founder of Omnitel, the first private telecommunications company in Lithuania, wrote in his memoir that:

> after independence, since all calls were still routed through Moscow, I believe there was a conscious effort to hinder international communications. We could sense that someone was listening to our conversations, especially when the contact was with important politicians of the country. We'd hear strange sounds and, when the line would start breaking up, we'd joke around, saying we had to wait until the tape of the outside listener was replaced.[19]

Cybernetician Laimutis Telksnys, a professor of Computer Science famous in Lithuania for helping establish this first Internet connection, told me his oft-repeated story of how the Internet was initiated in Lithuania with the help from Norway.[20] He stated that:

> On 28 June 1991, it was decided that we are pushing this channel to Lithuania and on 10 October this channel started to work. . . . this computer was delivered by the Norwegians. I had to go to Tallinn to meet them, meaning that I had weaponized myself with all the different permissions from the Lithuanian government, because in those days the Soviet Russians were still controlling the borders. I went there, presented myself to the colonel . . . told [him] that we are being given a charitable donation . . . in computers . . . everything went fine, [the computers] arrived from Helsinki to Tallinn by ferry, from which a small van rolled out. . . . this colonel and I went outside and I told [him], '. . . these computers were given to us as a present, as it says in the official document.

17 Algirdas Pakštas and Sonata Pakštienė, "Networking in Baltic Countries: Current Developments" (Paper presented at the Proceedings of Phoenix Conference on Computers and Communications, Tempe, AZ, 1993), p. 462.

18 Angelė Lekavičienė, "Untitled," 2002, *Dokumentų rinkinys. Pirmajai Lietuvos telefono linijai — 120 metų, šventė Rietave 2002 09 27*, DT-25, 1/2151, Registracijos aktas Nr. 46 2002 12 17, p. 4, Kauno miesto muziejaus archyvai.

19 Joseph Kazickas, *Odyssey of Hope* (Scotts Valley, California: CreateSpace Independent Publishing Platform, 2013), pp. 346–347.

20 I am grateful to Daniela Wentz for suggesting that I use this story as an introduction that discloses the complexity of the topic. She shared this advice with me during the Lüneburg Summer School for Digital Cultures in September 2018.

> Everything is sealed.' They told us, 'Remove the seal.' I said to them, 'Wait a minute . . . if it is sealed, it means that everything has already been checked.' They told us, 'We know you, maybe you are delivering stingers.' Well, I tried to convince them again. The Norwegians were so afraid that they asked us, 'Should we just not head back?' I told them, 'Just wait.' They were not used to it, and the military personnel [was] screaming horribly. Later we opened the van, and there were the displays mounted from the top to the bottom. . . . They got furious, you know, how they get furious, and told us, 'Go.' . . . we knew about computer networks not only in theory since 1980s . . . 'Akademset' already existed.[21] Moreover, our public was constantly working with Soviet machines which were breaking all the time . . . it was needed to know how to repair [them], so the people were highly qualified. So, what happened? They brought this [Norskdata] computer, turned it on, everything was fine. . . . But suddenly the computer broke. The Norwegian, who delivered this computer, called Oslo. Since the surveillance was normal, and they [the Soviet government] probably had no listeners who knew Norwegian, who could listen. As soon as he tried speaking on the phone, the connection was interrupted. He calls—it is interrupted, tries again—it is interrupted again. He tried for maybe seven times before starting to complain, 'What is up with you here?' Then I attempted to explain to him that it is not us [interrupting], but we are being surveilled. Later, our public asked, 'Maybe you have some documentations, we will have a look at it?' Our men repaired everything in half an hour. It left an astonishing impression on [the Norwegian], because after he arrived, we did not even have a keyboard . . . They were laughing about what a terrible village it is. After the computer was repaired in half an hour, he [the Norwegian] looked at us with respect.[22]

Telksnys's story illustrates how the first Internet connection was carried out through practices encapsulated in both imaginaries of a geopolitical nature and the critical negotiations of everyone involved. The story discloses the need to analyze the Internet as a result of multiple everyday practices, geopolitical imaginaries, and critical negotiations. In this context, when one thinks of materials such as wool, cotton, plastic, gum, or silk, there are great differences in their respective texture. Some of these materials, such as plastic, survive for hundreds of years, while others are delicate and wear down, leaving remnants of fragmented threads. Similarly, perceiving the Internet as infrastructure in this work means envisioning it as a textile composed of decaying layers that have been sewn, that co-exist, collapse, and re-emerge together. Thinking about the Internet as complex infrastructure means exploring and digging deeper into its different layers. Analyzing the Internet as infrastructure means, for example, exploring these layers as comprising the labor practices, geopolitical imaginaries, and critical negotiations in specific places. The Internet as infrastructure is about challenging a media format as an a-priori concept: it consists of the situated critical, geopolitical, and labor-based complexity of a media technology that must be maintained, imagined, and criticized.

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21 Packet-switched network of the USSR Academy of Sciences (National Research Council, *Global Trends in Computer Technology and Their Impact on Export Control* (Washington, DC: The National Academies Press, 1988).

22 Laimutis Telksnys, Interview by Miglė Bareikytė, 14 March 2017.

Telksnys's story additionally depicts the first Internet connection in Lithuania as possible due to active cooperation between Lithuanian and Norwegian academics, engineers and politicians who physically brought the equipment from Norway to Lithuania through a Soviet-controlled border in Tallinn, Estonia, and installed it in Vilnius, Lithuania. The Internet as infrastructure thus comprises contemporary labor practices that not only keep the Internet intact and maintain it in a particular place against the backdrop of unexpected failures, but also ones that draw strength from their past legacies of knowledge, technologies, and institutions that were developed during Soviet times and earlier. These legacy-based practices of maintenance and repair enabled the first Internet connection in Lithuania.

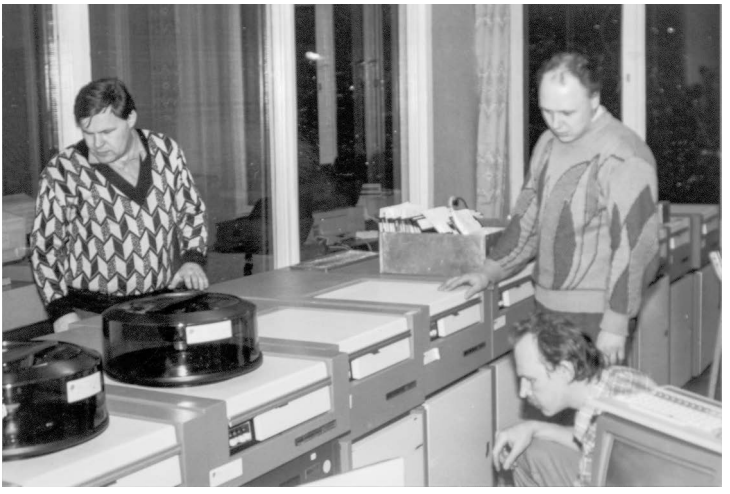
Figure 1. 1991: Lithuanian academics from the Institute of Mathematics and Informatics of Vilnius University greeting Norwegians in Tallinn with kompotas, a sweet fruit drink.

Source: private archive of Vidar Bjerkeland (Vidar Bjerkeland, "Private Photography Archive of Travels to Lithuania in the 1990s," 1991, private archive).

Figure 2. October, 1991: On the way to Lithuania from Norway to set up Internet equipment.

Source: private archive of Vidar Bjerkeland.

Figure 3. 1991: At the Institute of Mathematics and Informatics, adjusting Norskdata computers.



Source: private archive of Vidar Bjerkeland.

Figure 4. 10 October 1991: On the rooftop of the Parliament in Vilnius after the establishment of an Internet antenna (visible in the background).

Source: private archive of Vidar Bjerkeland.

A second major point in Telksnys's story is that it touches upon the geopolitical tensions and imaginaries between the Cold War territories of "the West" and "the East." They are expressed not only by an image of friction at the border control post, the last physical bastion separating the Soviet world from the non-Soviet world, but also by beliefs from within Lithuania. We can read these imaginaries in the context of local belief in the centralized Soviet surveillance of academia in Lithuania, but also in the local expectations of recognition by allegedly superior partners from Norway. In Telksnys's story, the Norwegian partners cooperate and help, but also take on a role of those who "laugh" and the Lithuanian telecom realm is demoted to a "village" that later gains respect through Norwegian praise.

Lastly, while Telksnys's narrative expresses implicit critique of Soviet and Norwegian actors, who "were screaming," "were afraid," and "were laughing," and required various negotiations to let equipment enter and be connected in Lithuania, this critique also hints at the implicit hope to be accepted and respected by western neighbors. This is emphasized by Telksnys's statement that "After the computer was repaired in half an hour, he [the Norwegian] looked at us with respect."[23]

This seemingly straightforward story shows how the first Internet connection in Lithuania emerged through complex practices of maintenance framed by unexpected contingencies, geopolitical imaginaries, and critical negotiations, which required interactions between people and things in specific places. It also illustrates the stakes of

23 Telksnys, Interview by Bareikytė, 14 March 2017.

the symbolic hope imbued in the emergence of the Internet in Lithuania. Its initiation story represents tensions between "the West" and "the East," with the Soviet Union fearing missile defense imports from "the West," but allowing foreign aid to cross the border anyway, thereby enabling the first Internet connection in Lithuania. In 1990, Lithuania was still dependent on Moscow. Soviet troops only left the country in 1993, i.e., three years after Lithuania's official declaration of independence and two years after the first Internet connection was established. The Soviet border control officers could have decided not to let the Norwegians cross the border with their equipment, which they perceived as "stingers," portable defense missiles that might help destroy the Soviet Union. In Telksnys's story, these stingers function as a metaphor for a planned military attack (with the help of US, stinger missiles were used to target the Soviet Union in the Afghanistan war).[24] Although for some reason—perhaps for no reason at all—the military let in the equipment necessary for the first Internet connection, but it could have easily turned out differently. Finally, while this remembrance regarding the emergence of the Internet is layered, it presents a dominant, widely communicated perspective in Lithuania concerning the establishment of the first Internet connection in the country. It stresses collaborative, if somewhat tense, interactions between Lithuania and Norway and criticizes the role of the Soviet Union. In contrast, according to the story that the Lithuanian SSR Communications Minister, Vytautas Jonas Kuzma, presents in his memoir, the disentanglement from the Soviet Union with this first connection was actually less autonomous than widely imagined. Kuzma posits that this connection was still dependent on the Soviet Union because it happened only with the help of the Soviet Union. He states that:

> The paradox is that our attempt to distance ourselves from the USSR's international communications system had to take place with the help of the USSR. The first non-public international connection was established thanks to the Norwegian communications administration, but the establishment of this connection had to be authorized by the USSR Ministry of Communications. . . . The said permit was signed as a border communication organization.[25]

The development of the first and subsequent Internet connections was entangled in practices, imaginaries, critique, which will be explored in the following book with the analysis of contemporaneous and historical examples. Yet before diving into stories from the field, I want to introduce the main concepts and methodological approach that have guided this research.

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24 I am grateful to Thomas Haigh for the discussion of stingers as a metaphor for geopolitical fears of Cold War during the Lüneburg Summer School for Digital Cultures in September 2018.

25 Vytautas Jonas Kuzma, "Untitled," in *Jie kūrė Lietuvos ryšius: biografinės apybraižos*, Alfredas Antanas Basevičius, Vytautas Jonas Kuzma, and Gintautas Žintelis, eds. (Vilnius: Petro ofsetas, 2008), pp. 123–124.

1.3 Internet as Infrastructure: Conceptual Openings

The aforementioned Internet initiation story thus presents us with one popular narrative. I aimed for my fieldwork to provide a means to situate this narrative in the present and thus complicate it. I wanted to experience and describe the Internet by focusing on the telecom industry because it both maintains socially valuable physical telecommunications networks and is traditionally perceived as the main physical Internet access infrastructure provider. Starting with this subject of focus—Internet infrastructure providers—I aimed to research and complicate Internet development and maintenance on the ground. Thus, I focus on Internet infrastructure, i.e., telecom industry providers 'as infrastructure'. Additionally, I do not take Internet infrastructure for granted, but study it on the ground and thereby theorize Internet as infrastructure with conceptualizations that are informed by fieldwork and the theoretical work of others.

Before delving into fieldwork material, in the following section I examine the main concepts that have guided this research during and after my fieldwork. In particular, I examine the concepts of infrastructure, infrastructuring, practice, strange geopolitical imaginaries and critical negotiations, which helped me situate the Internet as infrastructure through fieldwork. Situating in this book comprises place-based, bottom-up focused, fieldwork-based exploration of a complex of labor practices, geopolitical imaginaries and critical negotiations of actors in combination with things, places and events that comprise the Internet as infrastructure in Lithuania. I illustrate how I was inspired by and used these concepts in my fieldwork with the aim to contribute to infrastructure studies with perspectives from science and technology studies (STS), organizational theory, ethnographically-inspired digital media research and Eastern European studies.

I focus my attention on the telecom industry as an entity that develops and maintains a global physical network of networks comprised of cables, data exchange points, servers, and is commonly described as 'Internet infrastructure'. In fact, in many scholarly studies Internet infrastructure is described as a global physical network comprised of and maintained by cables, data centers, exchange points and institutional forms.[26] According to media studies scholars Gabrielle Schabacher and Liam Cole Young, the concept of 'infrastructure' was first used in 1875 in the context of the organization of French railways. It was first mentioned in English in 1927, and became popular in the 1960s in global military, logistic, commercial and political circles such as NATO and the European community.[27] Schabacher writes that contemporary systems considered

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26 Martin Cave and Robin Mason, "The Economics of the Internet: Infrastructure and Regulation," *Oxford Review of Economic Policy* 17, no. 2 (2001), p. 199; Milton L. Mueller, *Networks and States: The Global Politics of Internet Governance* (Cambridge, MA: MIT Press, 2010), p. 15; Nicole Starosielski, "Fixed Flow: Undersea Cables as Media Infrastructure," in *Signal Traffic: Critical Studies of Media Infrastructures*, Lisa Parks and Nicole Starosielski, eds. (Champaign, IL: University of Illinois Press, 2015), p. 54; Hernán Galperín, "Localizing Internet Infrastructure: Cooperative Peering in Latin America," *Telematics and Informatics* 33, no. 2 (2016), p. 631; Dwayne Winseck, "The Geopolitical Economy of the Global Internet Infrastructure," *Journal of Information Policy* 7 (2017), p. 228.

27 Gabriele Schabacher, "Medium Infrastruktur. Trajektorien soziotechnischer Netzwerke in der ANT," *Zeitschrift für Medien-und Kulturforschung*, no. 2 (2013), pp. 133–134; Liam Cole Young, "Innis's Infra-

indispensable to society and the economy—such as schools, hospitals, communication systems, the Internet, telephone networks and others—have historically been described as 'critical infrastructures'.[28] Currently in academic and public discourses infrastructures are also often perceived as foundational and durable big stable physical systems or networks that support operations of society, such as the Internet, electricity, or railroads.[29] In the context of crucial critical infrastructures, telecommunications infrastructures have often been described as improving competition, trade and economy operations, as well as enabling contemporary societal progress.[30] However, despite these widespread conceptions, infrastructure need not be perceived as an overarching, stable system.

Accordingly, I aimed to research the development and maintenance of the Internet as infrastructure from a bottom-up perspective; I did so through fieldwork that was multi-sited in the sense that its object emerged over the course of time, in a field differentiated between multiple sites,[31] and eventually distanced from an abstract view of Internet infrastructure as a stable generalized system or network of networks. I wanted to experience how Internet infrastructure is actually developed and maintained in the field of telecom industry stakeholders. I base this research on the approaches of STS and organizational theory, which are interested in diverse ways an entity or a phenomenon emerges through social activities,[32] and which have inspired me to explore the complexities of the Internet via fieldwork.

According to Penny Harvey et al., "Once we approach infrastructures as dynamic and emergent forms, it is clear that we cannot specify their contours in advance. The question 'what is infrastructure' must therefore be addressed, and experimented with, in registers at once conceptual and empirical."[33] For anthropologist Brian Larkin, current studies of infrastructures are diverse; they destabilize and complicate the meaning and

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structure: Dirt, Beavers, and Documents in Material Media Theory," *Cultural Politics* 13, no. 2 (2017), p. 231.

28 Schabacher, "Medium Infrastruktur," p. 133.

29 Arghya Ghosh and Kieron Meagher, "Political Economy of Infrastructure Investment: A Spatial Approach" (Paper presented at the North American Econometric Society Summer Meetings at Brown University, Providence, 2004), pp. 2–3; Annalisa Meyboom, "Infrastructure as Practice," *Journal of Architectural Education* 62, no. 4 (2009), p. 72; Paul N. Edwards, Geoffrey C. Bowker, Steven J Jackson, and Robin Williams, "Introduction: An Agenda for Infrastructure Studies," *Journal of the Association for Information Systems* 10, no. 5 (2009), p. 365; Shane Greenstein, "Six Infrastructure Trends," *IEEE Micro* 39, no. 1 (2019), p. 70.

30 Paul N. Edwards, "Infrastructure and Modernity: Force, Time, and Social Organization in the History of Sociotechnical Systems," in *Modernity and Technology*, Thomas J. Misa, Philip Brey, and Andrew Feenberg, eds. (Cambridge, MA: MIT Press, 2003), pp. 185, 191; Ghosh and Meagher, "Political Economy of Infrastructure Investment," pp. 2–3; Jörg Niewöhner, "Infrastructures of Society, Anthropology Of," in *International Encyclopedia of the Social & Behavioral Sciences. 2nd edition*, ed. James D. Wright (Oxford: Elsevier, 2015), p. 119.

31 Marcus, "Ethnography in/of the World System," p. 97.

32 Sergio Sismondo, *An Introduction to Science and Technology Studies* (Malden: Blackwell Publishing, 2010), pp. 10–11.

33 Penelope Harvey, Casper Bruun Jensen, and Atsuro Morita, "Introduction," in *Infrastructures and Social Complexity: A Companion*, Penelope Harvey, Casper Bruun Jensen, and Atsuro Morita, eds. (Milton Park: Taylor & Francis, 2016), p. 6.

object of infrastructure-focused research.[34] Similarly, through multi-sited fieldwork I trace "a complex cultural phenomenon given an initial, baseline conceptual identity that turns out to be contingent and malleable as one traces it."[35] This fieldwork-based tracing resulted in three empirical chapters, each of which is indebted to the particular conceptual approaches outlined below.

Also, this perspective in researching infrastructure as complex is inspired by "more-than-representational" or "non-representational," "subverting-and-remaking the method," "mangled," "looking elsewhere" approaches. "More than representational" theory—which was originally termed "non-representational theory" by human geographers Nigel Thrift and J.D. Dewsbury,[36] and later termed "more than representational" by scholars such as Hayden Lorimer[37]—perceives living and thinking in processual terms. Accordingly, "more than representational" theories are interested in experimental descriptions of life as a complex, messy, and resulting from immanently linked research acts that link together humans, things, meaning-making, and pre-cognitive affects.[38] These "more than representational" representations thus aim to "add to the world rather than extract stable representations from it,"[39] i.e., to contribute to the world with their descriptions rather than claim to perfectly mirror it. This is why "more-than-representation" or "non-representational" approaches distance themselves from allegedly objective representation and use comparative words "more" or "non" in their titles; they aspire to present different practices and meanings that can be messy and do not represent a true and one-dimensional picture of the world, but rather enact it in their own way. Sociologists John Law and Andrew Pickering provide similar arguments that inquire into emerging differences produced in the world, which cannot be represented as natural facts due to the problem of reductivity and limits of representation.[40] For Pickering, the world is "a mangle," an immanent ongoing, historical mess of life, from which indefinite cultural multiplicity emerges. Pickering argues, "On my analysis, no substantive variable fills the gap between the world and our knowledge—there is only history and the mangle."[41] This also resonates with sociologist John Law's perspective; the world is too unpredictable and complex to be

34 Brian Larkin, "The Politics and Poetics of Infrastructure," *Annual Review of Anthropology* 42 (2013), p. 339.

35 Marcus, "Ethnography in/of the World System," p. 106.

36 Thrift, *Non-Representational Theory: Space, Politics, Affect*; John-David Dewsbury, "Language and the Event: The Unthought of Appearing Worlds," in *Taking-Place: Non-Representational Theories and Geography*, Ben Anderson and Paul Harrison, eds. (Milton Park: Routledge, 2016).

37 Hayden Lorimer, "Cultural Geography: The Busyness of Being 'More-Than-Representational'," *Progress in Human Geography* 29, no. 1 (2005).

38 Thrift, *Non-Representational Theory: Space, Politics, Affect*, pp. 5–7, 12; Louisa Cadman, "Non-Representational Theory/Non-Representational Geographies," in *International Encyclopedia of Human Geography*, Nigel Thrift and Rob Kitchin, eds. (London: Elsevier Science, 2009), pp. 56–61; Waterton, "More-Than-Representational Landscapes," pp. 92–95.

39 Cadman, "Non-Representational Theory/Non-Representational Geographies," p. 56.

40 Miglė Bareikytė, "Migration as Becoming: The Experience of Immaterial Laborers from Lithuania in Berlin," (M.A. thesis, Vytautas Magnus University, 2012), pp. 16–17.

41 Andrew Pickering, *The Mangle of Practice: Time, Agency, and Science* (Chicago, IL: University of Chicago Press, 2010), pp. 211, 216.

squeeze into stable and universally applicable descriptions. Law characterized "the world as an unformed but generative flux of forces and relations that work to produce particular realities. . . . in this way of thinking the world is not a structure . . . We might think of it, instead, as a maelstrom or a tide-rip."[42] It requires new concepts, methods, ways of thinking and research methods "if we want to think about the messes of reality at all then we're going to have to teach ourselves to think, to practice, to relate, and to know in new ways."[43] Thus Law, akin to sociologist Howard Becker's approach of "looking elsewhere,"[44] argues for embodied engagement with and interest for under-researched places and issues. This perspective also argues for subverting and remaking methods that aim for general applicability, thereby relaxing the desire for certainty and providing peculiar conceptual and empirical examples on researched issues.

In summation, the aforementioned approaches are interested in processual, engaged, reflexive research-based representations through a focus on complexities and ambiguities; they explore different topics by focusing on complexities,[45] messiness,[46] and mangles of observed issues.[47] My fieldwork-based tracing of the Internet as infrastructure is inspired by these approaches that helped open up and situate discussions about Internet as infrastructure development. This fieldwork is indebted not only to empirical experiences but also to theoretical perspectives that helped me perceive empirical material as a result of not only planned, but also messy, contingent forms of labor practices, strange geopolitical imaginaries and diverse critical negotiations.

1.3.1 Everyday Infrastructuring

In the first empirical chapter, "Everyday Infrastructuring," I relate my fieldwork experiences with practice-focused perspective of infrastructure. In late 1980s, with the help of social anthropology, feminist critique, STS, and other disciplines, infrastructure began to be researched as a result of situated practices. In this context, the meaning of infrastructure transformed from a stable system, an object, or a network toward a dynamic result of emergent, ongoing practices.[48] The work of sociologists and STS scholars Susan Leigh Star, Karin Ruhleder, and Geofrey Bowker was instrumental in this shift; they argue that infrastructure should be seen as a constitutive part of social and technical organization, and that a resulting special focus needed to be devoted to backstage elements of infrastructure, such as the practices that allow an infrastructure to emerge.[49]

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42 Law, *After Method*, p. 7.

43 Law, *After Method*, p. 2.

44 Howard Becker, "Connaissances générales et universalité du travail sociologique," *Socio* 1, 2013, (2013), pp. 109–119; Jason Hughes, "Looking Elsewhere: Howard S. Becker as Unwilling Organisational Theorist," *Organization* 22, no. 6 (2015), pp. 782–784.

45 *Complexities: Social Studies of Knowledge Practices*, John Law and Annemarie Mol, eds., (Durham, NC: Duke University Press, 2002).

46 Law, *After Method*, pp. 45, 56.

47 Pickering, *The Mangle of Practice*.

48 Niewöhner, "Infrastructures of Society, Anthropology Of," p. 119.

49 Susan Leigh Star and Karen Ruhleder, "Steps toward an Ecology of Infrastructure: Design and Access for Large Information Spaces," *Information Systems Research* 7, no. 1 (1996), p. 112; Susan Leigh

According to Leigh Star, infrastructure is not only dynamic, but also a relational category. For a cook, the water system is an essential cooking infrastructure, yet for a technical engineer, infrastructure is a variable in a complex process of city planning.[50] This relational approach argues for studying different practices that allow an infrastructure to emerge, disappear, break, become stable, or remain fluid, depend on legacies and other aspects,[51] such as invisibility, modularity, or standardization.[52] Infrastructures according to such a perspective are thus often invisible or visible upon breakdown.[53] In this perspective, infrastructures are perceived as constantly developing and emerging in practice,[54] as well as in need of complex building, maintenance and repair work,[55] which enacts order against a backdrop of a constantly decaying world.[56] According to science and technology historian Etienne Benson, the ignorance of labor practices involved in the emergence and maintenance of infrastructures is fostered by privileged optics of infrastructural reliability[57]; simply put, rich industrialized societies can afford to disregard the ongoing work required to maintain such infrastructures.

Star, "The Ethnography of Infrastructure," *American Behavioral Scientist* 43, no. 3 (1999), p. 383; Niewöhner, "Infrastructures of Society, Anthropology Of," p. 120.

50 Star, "The Ethnography of Infrastructure," p. 380.

51 Ehn, "Participation in Design Things"; Christian Sandvig, "The Internet as Infrastructure," in *The Oxford Handbook of Internet Studies*, ed. William H. Dutton (Oxford: Oxford University Press, 2013), p. 96; Karasti and Blomberg, "Studying Infrastructuring Ethnographically," pp. 235, 237.

52 Star and Ruhleder, "Steps toward an Ecology of Infrastructure," pp. 112–113; Star, "The Ethnography of Infrastructure," p. 377.

53 Star and Ruhleder, "Steps toward an Ecology of Infrastructure," p. 112; Geoffrey C. Bowker and Susan Leigh Star, *Sorting Things Out: Classification and Its Consequences* (Cambridge, MA: MIT Press, 2000), p. 33; Edwards, "Infrastructure and Modernity," p. 191; Paul N. Edwards, Geoffrey C Bowker, Steven J Jackson, and Robin Williams, "Introduction: An Agenda for Infrastructure Studies," *Journal of the Association for Information Systems* 10, no. 5 (2009), p. 365; Etienne Benson, "Generating Infrastructural Invisibility: Insulation, Interconnection, and Avian Excrement in the Southern California Power Grid," *Environmental Humanities* 6, no. 1 (2015), p. 125; Niewöhner, "Infrastructures of Society, Anthropology Of," p. 120; Karasti and Blomberg, "Studying Infrastructuring Ethnographically," p. 237.

54 Star and Ruhleder, "Steps toward an Ecology of Infrastructure," p. 114; Niewöhner, "Infrastructures of Society, Anthropology Of," p. 123; Lisa Parks and Starosielski Nicole, "Introduction," in *Signal Traffic: Critical Studies of Media Infrastructures*, Lisa Parks and Nicole Starosielski, eds. (Champaign, IL: University of Illinois Press, 2015), p. 9; Katie Shilton, "Engaging Values Despite Neutrality: Challenges and Approaches to Values Reflection During the Design of Internet Infrastructure," *Science, Technology, & Human Values* 43, no. 2 (2018), p. 2; Karasti and Blomberg, "Studying Infrastructuring Ethnographically," p. 236.

55 Bowker and Star, *Sorting Things Out: Classification and Its Consequences*, p. 10; Jon W. Anderson, "Producers and Middle East Internet Technology: Getting Beyond 'Impacts'," *The Middle East Journal* 54, no. 3 (2000), p. 422; Stephen Graham and Nigel Thrift, "Out of Order: Understanding Repair and Maintenance," *Theory, Culture & Society* 24, no. 3 (2007), p. 10; Jérôme Denis, Alessandro Mongili, and David Pontille, "Maintenance & Repair in Science and Technology Studies," *TECNOSCIENZA: Italian Journal of Science & Technology Studies* 6, no. 2 (2016), p. 10; Young, "Innis's Infrastructure," p. 231.

56 Graham and Thrift, "Out of Order: Understanding Repair and Maintenance," p. 1; Denis, Mongili, and Pontille, "Maintenance & Repair in Science and Technology Studies," p. 10.

57 Benson, "Generating Infrastructural Invisibility," p. 125.

In this book I use "infrastructuring," a term that was developed upon conceptualization of infrastructure as a result of ongoing and often invisible practices. "Infrastructuring" as a term stems from participatory design and anthropology disciplines and stresses open-ended practices of infrastructure maintenance through which an object emerges.[58] In this research, I use infrastructuring as a collective term that comprises multiple situated labor practices that allow the Internet to emerge as an infrastructure. This is underlined by my explorative fieldwork, which I detail in the first empirical chapter "Everyday Infrastructuring."[59] The chapter's use of the term specifically explores the labor practices of the Lithuania's main telecom provider, Telia Lietuva, as a means to research the ongoing maintenance of the Internet as infrastructure through infrastructuring practices.[60]

In the following paragraphs, I briefly elaborate upon the concepts of labor and practice used in the "Everyday Infrastructuring" chapter. Practice-focused research is often

58 Ehn, "Participation in Design Things," p. 8; Christopher A Le Dantec and Carl DiSalvo, "Infrastructuring and the Formation of Publics in Participatory Design," *Social Studies of Science* 43, no. 2 (2013), p. 247; Erling Björgvinsson, Pelle Ehn, and Per-Anders Hillgren, "Participatory Design and 'Democratizing Innovation'," (Paper presented at the Proceedings of the 11th Biennial Participatory Design Conference, New York, 2010), p. 43; Niewöhner, "Infrastructures of Society, Anthropology Of," p. 123; Gertraud Koch, "Ethnography of Digital Infrastructures," in *Digitisation: Theories and Concepts for Empirical Cultural Research*, ed. Getraud Koch (Milton Park: Taylor & Francis, 2017), pp. 83–84; Karasti and Blomberg, "Studying Infrastructuring Ethnographically," p. 236.

59 The focus on the situated usage and development of the Internet is practiced by digital media ethnographers. While in this book I lay the focus on the telecom industry that maintains the Internet as infrastructure in particular, digital media ethnography constitutes a broad field of research approaches that situate digital media usage, production, effects, and operations through field research, e.g. Gabriella E. Coleman, "Ethnographic Approaches to Digital Media," *Annual Review of Anthropology* 39 (2010), p. 488; Sarah Pink, "Digital Ethnography," in *Innovative Methods in Media and Communication Research*, Sebastian Kubitschko and Anne Kaun, eds. (London: Palgrave Macmillan, Cham, 2016). Focus on situated telecom industries and their work in maintaining and developing physical Internet infrastructure through fieldwork: going to particular places, speaking with workers, observing their labor practices, and embracing the unknown, has been emerging, but is not yet widespread. For example, in 1999, Jane Abbate has written an excellent conference paper on the emergence and usage of the Internet in Estonia (Janet Abbate, "New Technology for a New Nation: Building an Internet Culture in Estonia" (Paper presented at Society for the History of Technology Annual Meeting, Detroit, 1999). Sarah Harris has explored cybercafé Internet services providers in Turkey as comprising digital media infrastructure (Sarah Harris, "Service Providers as Digital Media Infrastructure: Turkey's Cybercafe Operators," in *Signal Traffic: Critical Studies of Media Infrastructures*, Lisa Parks and Nicole Starosielski, eds. (Champaign, IL: University of Illinois Press, 2015)). Lisa Parks researched rural Zambia's Internet development and usage with the focus on infrastructure orderings and usage in real time (Lisa Parks, "Water, Energy, Access: Materialising the Internet in Rural Zambia," in *Signal Traffic: Critical Studies of Media Infrastructures*, Lisa Parks and Nicole Starosielski, eds. (Champaign, IL: University of Illinois Press, 2015)). Asta Vonderau explored the implementation of a Facebook data center in the Swedish city of Lule using the concept of infrastructuring (Asta Vonderau, "Scaling the Cloud: Making State and Infrastructure in Sweden," Ethnos 84, no. 4 (2019)). Fieldwork was also used by Nicole Starosielski to research global undersea cable networks that maintain physical Internet networks (Nicole Starosielski, *The Undersea Network* (Durham, NC: Duke University Press, 2015)).

60 For a more detailed methodological description, please see section "Internet as Infrastructuring: Methodological Openings."

traced to what Theodor Schatzki proclaimed as the "practice turn" in social theory at the end of the twentieth century. As with many such turns, this turn also implies a new ontology, which in this case brings dynamic practices, rather than stable structures, to the fore.[61] Schatzki states that "By 'practices' I mean spatially-temporally dispersed, open sets of doings and sayings organized by common understandings, teleologies (ends and tasks), and rules."[62] While Schatzki agrees that diverse research approaches can tackle the problem of practice, he also outlines the main attributes of the practice turn—activities organized by common rules, goals, or understandings—thereby explaining the importance of turning to practice in the first place. Schatzki asserts that within practice-ontology, practices grounded in practical understandings are the primary basis for the social.[63] During my research, I was fascinated by the concept of practice, because it allowed me to reflexively relate my approach of open-ended fieldwork and an interest in media technology development with theoretical-ontological underpinnings that the term "practice" carries in the arena of "practice turn." In short, this theoretical perspective inspired me to theoretically reflect upon what I was doing in the field instead of categorizing my fieldwork-based research as either subjective or objectively representative of empirical reality. This focus on practice fits well with a research practice such as mine, which is based on open-ended fieldwork that aimed to describe and conceptualize the Internet as infrastructure. I undertook this research by observing practices at a telecom company that maintained the Internet *in practice*—i.e., through fieldwork observations of everyday company's life—and *as practice*—i.e., through its conceptualization as infrastructuring.

Importantly, the radical nature of practice theories differs based on the extent to which they organize research material into strict categories of practice. I found it difficult to organize my fieldwork experiences into the habitual patterns required by some practice theorists due to the multiple situated contingencies I encountered throughout my research. One example of such patterns is prominent in practice theorist sociologist Andreas Reckwitz's notion of practices as temporal, routinized actions in which body, mind, things, tacit knowledge, concrete skills, emotions, and desires are interconnected. The configurations of these routinized activities can change when their orders are transgressed and new practices are carried out.[64] Within this schema, an activity is a practice when it becomes routinized and regularly followed. In this line of thought, sociologist Barry Barnes describes practice as a social activity characterized by shared customs, which cannot be exhausted by a list of allegedly definite activities. Thus, two vegetarians practice vegetarianism because they follow shared practical guidelines by

61 Theodore R. Schatzki, "Introduction: Practice Theory," in *The Practice Turn in Contemporary Theory*, Karin Knorr Cetina, Theodore R. Schatzki, and Eike von Savigny, eds. (London: Routledge, 2005), pp. 11–13; Theodore R. Schatzki, *Social Practices* (Cambridge: Cambridge University Press, 1996).

62 Ted Schatzki, "Where the Action Is (On Large Social Phenomena Such as Sociotechnical Regimes)" (Working paper 1, Sustainable Practices Research group, 2011), p. 4.

63 Schatzki, "Introduction: Practice Theory," p. 13.

64 Andreas Reckwitz, "Toward a Theory of Social Practices: A Development in Culturalist Theorizing," *European Journal of Social Theory* 5, no. 2 (2002), pp. 249, 255–256.

avoiding meat consumption, but they do not necessarily eat the same food.[65] According to Barnes's description, practitioners thus use a shared understanding of practice, yet they do not necessarily act in the same way. Schatzki also stresses the commonality, similarity and rules that organize practices.[66] If practice is a primary field of action that results in a shared, routinized doings that can be carried out in manifold of ways and are in this way open-ended, the practices that I observed during my fieldwork not only consisted of repetitive doings, but also of multiple contingencies that could not be foreseen as constitutive parts of a practice, and which furthermore avoided routinization.[67]

Accordingly, while I was originally inspired by the practice theory turn and its focus on everyday doings, throughout the course of my research I began to lean toward other approaches that follow complexity and indeterminacy focused approaches to practices that I outline above as "more-than-representational" and "subverting-and-remaking the method." Thus, such approaches argue that practices are based on open-ended, messy, ongoing interactions among humans and things, and are therefore characterized not only by routines, but also and especially by unpredictable outcomes, mistakes, and ruination.[68] In this line of thought, practices are "continually bringing forth new hybrids."[69] Scholars who engage with such approaches are thus interested in experimental, dynamic descriptions of life as embodied in everyday practices that are not only orderly, but also contingent. As sociologist John Law argues, "Realities are not secure but instead they have to be practiced. And the world is not passive, waiting to be seen by people."[70] Instead of stable, allegedly objectively accessible, and habitually organized practices of the outside world that can be truthfully explained and mirrored through text, their messiness and complexity comes to the fore.[71] The infrastructuring detailed in this book's first empirical chapter relies on this perspective that Internet infrastructuring comprises open-ended practices that are not only repetitive, but also messy and contingent.

Finally, infrastructuring practices in this book not only involve complex messy acts, but also labor practices that I observed at private Lithuanian telecommunications company Telia Lietuva. Since the eighteenth century, industrial capitalism has intensified not only with the help of developing technologies, but also due to workers' labor power,

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65 Barry Barnes, "Practice as Collective Action," in *The Practice Turn in Contemporary Theory*, Karin Knorr Cetina, Theodore R Schatzki, and Eike von Savigny, eds. (London: Routledge, 2005), p. 26.

66 Schatzki, "Where the Action Is," p. 4; Raymond Caldwell, "Reclaiming Agency, Recovering Change? An Exploration of the Practice Theory of Theodore Schatzki," *Journal for the Theory of Social Behaviour* 42, no. 3 (2012), p. 289.

67 Importantly, Schatzki also acknowledges contingency as constitutive to practices (Schatzki, "Where the Action Is," p. 23).

68 Thrift, *Non-Representational Theory: Space, Politics, Affect*, pp. 8–9; Cadman, "Non-Representational Theory/Non-Representational Geographies," p. 59; Timon Beyes and Chris Steyaert, "Spacing Organization: Non-Representational Theory and Performing Organizational Space," *Organization* 19, no. 1 (2012), pp. 46–48.

69 Thrift, *Non-Representational Theory: Space, Politics, Affect*, p. 8.

70 Law, *After Method*, p. 15.

71 Beyes and Steyaert, "Spacing Organization," pp. 51–52.

which Karl Marx famously analyzes and describes as the "mental and physical capabilities existing in a human being, which he exercises whenever he produces a use-value of any description."[72] As political economist Harry Braverman contends, worker's labor power is a capacity to produce commodities that are sold in the market; under capitalism, this labor is hired, exploited, and eventually deskilled.[73] According to social theorist Ian Hunt, because contemporary capitalism "sets the social standard of employment, it is reasonable to say that contract labor is in fact capitalist employment of labor-power, especially where supposed contract workers are employed for set hours, and work with means of production owned by the employer."[74] Notwithstanding gig, invisible, or illegal labor, much of contemporary labor in the European Union is based on employment contracts and paid employment. Thus, labor power, i.e., a person's inherent capacity to work, is often contractually agreed upon and used for everyday maintenance and development practices of the Internet and its infrastructuring, although there is a multiplicity of activities that sustain paid labor practices but are not remunerated, such as unpaid housework[75] or free digital labor.[76] In this book I use the term "labor" to situate infrastructuring as a concept that is based on practices framed by contractual employment occurring in particular places. I use this concept as it here refers to contract-based, skilled, and instrumental capacities that are enacted in places by humans and things during complex practices that function on a daily basis to maintain and form the Internet. The observation and description of Internet infrastructuring practices I carried out during my fieldwork at Telia Lietuva thus illustrates how these labor practices are deployed within a private company. Accordingly, these activities are not neutral, but rather are focused labor practices that are sold on the market, contractually agreed upon, and remunerated accordingly.

In order to explore how the Internet is maintained through everyday labor practices, it is important to focus not only on labor as an abstraction or theoretical conceptualization, but to also to use practice-based fieldwork to analyze it as a situated practice. I derive this observational perspective from STS and organizational studies by relying on the research of Vicki Smith, Götz Bachmann, and Julian E. Orr,[77] all of whom have contributed toward the situated research of work. I particularly ground my focus on Internet maintenance labor practices in Lucy Suchman's idea of "situated action," which posits that the organization of action is always emerging and built on interaction between mangled, emergent socio-material conditions, and actors that shape them

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72 Karl Marx, *Capital* (Ware: Wordsworth Editions Limited, 2013), p. 225.

73 Harry Braverman, *Labor and Monopoly Capital: The Degradation of Work in the Twentieth Century* (New York: Monthly Review Press, 1998), pp. 34–37; Vicki Smith, "Ethnographies of Work and the Work of Ethnographers," in *Handbook of Ethnography*, Paul Atkinson, et al., eds. (Thousand Oaks, California: Sage Publications, 2001), pp. 221–222.

74 Ian Hunt, "Labour and Labour-Power," *Radical Philosophy* 52 (1989), p. 26.

75 Silvia Federici, *Wages against Housework* (Bristol: Falling Wall Press, 1975).

76 Tiziana Terranova, "Free Labor: Producing Culture for the Digital Economy," *Social Text* 18, no. 2 (2000).

77 Smith, "Ethnographies of Work and the Work of Ethnographers"; Götz Bachmann, *Kollegialität: Eine Ethnografie Der Belegschaftskultur Im Kaufhaus* (Frankfurt: Campus Verlag, 2014); Julian E. Orr, *Talking About Machines: An Ethnography of a Modern Job* (Ithaca, NY: Cornell University Press, 2016).

daily,[78] and Donna Harraway's concept of "situated knowledge," which argues that each way of knowing is situated, i.e., partial, locatable, and embodied.[79] I was also inspired to perceive technology as emerging from the situated labor of different groups of workers by scholarship that explores multidirectional, as alternative to linear, social construction of technology,[80] and takes non-human actors, things, as constitutive of the field of practice.[81] Based on these influences, I carried out a situated—i.e., place-based, bottom-up focused, fieldwork-based—exploration of the Internet infrastructuring.

In the context of the telecom industry, I also build upon ethnographer Julian E. Orr's book *Talking About Machines* and its foreword by organizational theorist Stephen R. Barley that argues how current organizations are complex in character; workers do not share the same knowledge and experience as their colleagues, because they often change jobs and industries.[82] Barley critically questions the routinely defined types of labor within these organizations:

> What meaning can the "service economy", the "information economy", the "knowledge economy", and similar terms have unless they denote substantive changes either in what people do for a living or how they do it? The obvious answer is, very little. Yet journalists, futurists, and even sociologists routinely employ such epithets without explaining precisely what kinds of work they have in mind.[83]

These reflections encouraged me to observe diverse Internet maintenance labor practices in order to grasp their lived specificities in a company rather than speaking of infrastructuring as an abstraction. Place-based engagement with labor practices thus is a means of making this often-hidden labor visible.[84] In the first empirical chapter I thus rely on more than representational approaches toward practice as habitual and concomitantly contingent, messy doings that in a telecom company are based on contractual employment as labor practices. In the "Everyday Infrastructuring" chapter, I

78 Lucy Suchman, *Human-Machine Reconfigurations: Plans and Situated Actions* (Cambridge: Cambridge University Press, 2007), pp. 70, 177.

79 Donna Haraway, "Situated Knowledges: The Science Question in Feminism and the Privilege of Partial Perspective," *Feminist studies* 14, no. 3 (1988), p. 584.

80 Trevor J. Pinch and Wiebe E. Bijker, "The Social Construction of Facts and Artifacts: Or How the Sociology of Science and the Sociology of Technology Might Benefit Each Other," in *The Social Construction of Technological Systems*, Wiebe E. Bijker, Thomas Parke Hughes, and Trevor Pinch, eds. (Cambridge, MA: MIT Press, 1989), pp. 28–34.

81 Bruno Latour, *Reassembling the Social* (Oxford: Oxford University Press, 2005), p. 72; Bruno Latour, *We Have Never Been Modern* (Cambridge, MA: Harvard University Press, 1993).

82 Orr, *Talking About Machines*; Stephen R. Barley, "Foreword," in *Talking About Machines*, Julian E. Orr (Ithaca, NY: Cornell University Press, 2016), pp. ix, xi.

83 Barley, "Foreword," p. xi.

84 Orr, *Talking About Machines*, pp. 10–11; Barley, "Foreword," p. xiii.

particularly focus on manual,[85] and communicative labor practices,[86] carried out by middle and lower managers, as well as manual workers I observed at the company.

Accordingly, I lean on the conceptualization of the Internet infrastructuring as a result of situated, ongoing, and messy labor practices. I focus on what is traditionally perceived as a stable infrastructure—the telecommunications industry—in order to shift the understanding of infrastructure from an abstract object to a situated dynamic group of practices, to an infrastructuring, that took place at Telia Lietuva and its different sites in the Lithuanian capital of Vilnius. I specifically carried out participatory observation by looking at how various people maintain the Internet through their everyday labor practices at the telecom company, speaking with them about their daily work and participating in various related meetings. I use an infrastructuring—rather than objective representational—approach, which is applied to practice and sensitive to daily contingencies. My resulting research is likewise an open-ended inquiry. After carrying out fieldwork, I was motivated by a radical rather than representational approach to practices, i.e., the idea of practices as, to put it bluntly, an embodied mess. This allowed me to take the minutia from my fieldwork seriously, without the need to edit out parts that did not fit into the conceptualization of practice as a habit or a routine. This approach additionally resulted in a research process less fraught with pressure, because the practices I observed are assumed to be open-ended and not perfectly describable, and thus the process of research is open-ended, i.e., evolving, unsure of its final results and, following George E. Marcus, disinterested in a perfect representation of a whole.[87]

1.3.2 Geopolitical Imaginaries

Internet as infrastructure is not only maintained through ongoing labor practices of infrastructuring. Its maintenance and development are deeply framed within specific and diverse geopolitical imaginaries that coexist among key telecom industry stakeholders with respective interests at stake, such as businesspeople, academics, and politicians. I mapped geopolitical imaginaries I encountered on the ground, which resulted in an empirical chapter titled "Geopolitical Imaginaries." According to political geographer John O'Loughlin, et al.:

> A geopolitical imaginary is a geographic signifier that helps organize and anchor geopolitical discourse. Most are meta-geographical abstractions, like 'the West' and 'the East', which are put to use in multiple ways by political entrepreneurs, party

85 "Meaning of Labour in English," Cambridge Dictionary, Cambridge University Press, updated 2020, accessed 3 April 2020, https://dictionary.cambridge.org/dictionary/english/labour.

86 Rachel McKinney, "Communication, Labor, and Communicative Labor" (PhD diss., City University of New York, 2015), pp. 58, 153. Immaterial labor is a term often used to describe a form of labor that does not result in a material product and is rather used to create relations with consumers through, for instance, affective relations, and thereby convince them to consume (See: Maurizio Lazzarato, "Immaterial Labour," *Generation-Online*, accessed 3 April 2019, http://www.generation-online.org/c/fcimmateriallabour3.htm). Communicative labor in this book is a particular form of immaterial labor that instrumentalizes language to realize a work goal.

87 George E. Marcus, "Imagining the Whole: Ethnography's Contemporary Efforts To Situate Itself," *Critique of Anthropology* 9, no. 7 (1989), pp. 7–9.

> organizations, and state elites. Some are mobilizational images, symbols, and slogans for political movements.[88]

In this book I relate geopolitical imaginaries with infrastructure research and access them through stories and remembrances of events that emerged in the field of telecom industry stakeholders during interviews and participatory observation. Also, I borrow the term "imaginary" from STS scholar Sheila Jasanoff and political theorist Charles Taylor. For Jasanoff, who builds on the research of anthropologist Arjun Appadurai, imaginaries refer "to collective beliefs about how society functions,"[89] and, as argued by Appadurai, are made multiple in a globalized world.[90] Taylor uses the concept of the imaginary to explore how different people imagine their social surroundings, which is often not expressed in theoretical terms, but is rather carried in images, stories, and legends.[91] For Taylor, the imaginary is an evolving perception of "how we got to where we are, how we relate to other groups, and so on. . . . It can never be adequately expressed in the form of explicit doctrines because of its unlimited and indefinite nature. That is another reason for speaking here of an imaginary and not a theory."[92]

I also build on research by anthropologist Anna Malewska-Szałygin, who explores imaginaries by additionally using Paul Ricoeur's understanding of discourse. Malewska-Szałygin argues that imaginaries are expressed predominantly during discourses, which are "utterances ('speech events') and the world-views revealed through them ('sense')."[93] Imaginaries in this book are thus different collective beliefs that are expressed through utterances and reveal how particular issues, such as the geopolitics of Internet development, emerge and are made sense of by those who carry out the utterances, such as telecom industry key stakeholders.

Traditionally, geopolitics is understood as a discipline concerned with the politics of the state or blocks of states in relation to their geography.[94] From a geopolitical position, the relative power of a region or state is measured according to its size and geographical position. Traditional geopolitical approaches are interested in questions such as: how can state power be maintained through strategic regional collaboration? Which countries hold the most resources? What alliances could support better access to resources? How could resources such as technology shape state power? Investigations that attempt to answer such and similar questions are titled "realist," as they are based

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88 O'Loughlin, Toal, and Kolosov, "The Rise and Fall of 'Novorossiya'," p. 125.

89 Sheila Jasanoff, "Future Imperfect: Science, Technology, and the Imaginations of Modernity," in *Dreamscapes of Modernity: Sociotechnical Imaginaries and the Fabrication of Power*, Sheila Jasanoff and Sang-Hyun Kim, eds. (Chicago, IL: University of Chicago Press, 2015), p. 5.

90 Arjun Appadurai, "Disjuncture and Difference in the Global Cultural Economy," in *Media and Cultural Studies: Keyworks*, Meenakshi Gigi Durham and Douglas M. Kellner, eds. (Malden, MA: Blackwell Publishing, 2006), p. 587.

91 Charles Taylor, *Modern Social Imaginaries* (Durham, NC: Duke University Press, 2004), p. 23.

92 Taylor, *Modern Social Imaginaries*, p. 25.

93 Anna Malewska-Szałygin, *Social Imaginaries of the State and Central Authority in Polish Highland Villages, 1999–2005* (Newcastle: Cambridge Scholars Publishing, 2018), p. 10.

94 Stasys Vaitekūnas, *Lietuvos geopolitika* (Vilnius: Mintis, 1991), p. 5; Laurinavičius, Motieka, and Statkus, *Baltijos valstybių geopolitikos bruožai. XX amžius*, pp. 11–12.

on a rationalist paradigm of positivist epistemology and materialist ontology.[95] Until the end of the Cold War, the doctrine of realism has dominated international relations and geopolitical perspectives.[96] For realists, a state is the main rational actor that functions in an anarchic international arena in order to maintain interests such as increased power and security.[97] Thus, realist investigations assume that an existing external reality could be measured, utilized to obtain power, and ultimately controlled. According to realists, state strategies should be developed for the maintenance and expansion of state resources (territory, population, etc.) on the basis of the state's respective geographic position and regional alliances.[98] In short, the realist geopolitical approach is interested in exploring how a political unit could transform its power in space by actively increasing its resources. Around the 1970, the role of statist geography in geopolitical scholarship was replaced by emerging pluralist geopolitical views. These views posit that not only a territory but also diverse actors such as smaller states, corporations, and NGOs contribute to the formation of state geopolitics.[99] In summation, the pluralist perspective injected fatalist realist geopolitics of geography-bounded states with quantitative (more actors) and thus qualitative (different agencies) pluralism. Thus, the realist understanding of a world comprised of centers and losers expanded to include multiple actors and a distribution of power in space. Similarly, another, critical geopolitical, perspective maintained that power distribution is not limited to the state apparatus or its geographic position but is also distributed among multiple actors and their respective attitudes. This perspective posited geopolitics as embedded in and resulting from everyday discourses, rather than solely resulting from specific territories or institutions and their finite resources.[100] This is in line with geographer Merje Kuus' assertion that critical geopolitics invites one "to more closely consider the daily production of geopolitical knowledge—the mundane repetition of claims not just in official speeches, but also around the coffee machine."[101] The critical reflective approach thus opposes realist epistemology by proclaiming that reality is inseparable from the observer, and thus subjectively produced.[102] Eventually also realists acknowledged that cultural factors, such as attitudes and behaviors in a state, could shape state strategies and interests.[103] Thus,

95 Nortautas Statkus and Kęstutis Paulauskas, *Tarp geopolitikos ir postmoderno: kur link sukti Lietuvos užsienio politikai* (Vilnius: Generolo Jono Žemaičio Lietuvos karo akademija, 2008), pp. 7–8.

96 Statkus and Paulauskas, *Tarp geopolitikos ir postmoderno*, pp. 7–8.

97 Statkus and Paulauskas, *Tarp geopolitikos ir postmoderno*, p. 10.

98 Joe Painter, "Geographies of Space and Power," in *The Sage Handbook of Political Geography*, Kevin R. Cox, Murray Low, and Jennifer Robinson, eds. (London: Sage, 2008), p. 60; Saul Bernard Cohen, *Geopolitics: The Geography of International Relations* (Lanham, MD: Rowman & Littlefield, 2014), p. 1.

99 Česlovas Laurinavičius, Egidijus Motieka, and Nortautas Statkus, *Geopolitikos Įvadas: Tarptautinės Politikos Kurso Metodinė Priemonė* (Vilnius: Eugrimas, 2002), pp. 7–12.

100 Gearóid Ó Tuathail,"Introduction: Thinking Critically about Geopolitics," in *The Geopolitics Reader*, Gearóid Ó Tuathail, Simon Dalby, and Paul Routledge, eds. (London: Routledge, 1998), p. 11; Painter, "Geographies of Space and Power," p. 65.

101 Merje Kuus, "Critical Geopolitics," in *Oxford Research Encyclopedia of International Studies*, ed. Nukhet Sandal (Oxford: Oxford University Press, 2010), p. 14.

102 Statkus and Paulauskas, *Tarp geopolitikos ir postmoderno*, pp. 8–9.

103 Statkus and Paulauskas, *Tarp geopolitikos ir postmoderno*, pp. 11, 13–14.

while the pluralist realist geopolitical approach expanded the narrow scope of state realist geopolitics by multiplying the number of actors that contribute to the geopolitical distribution of power, critical geopolitics introduced a reflective analytical focus on the everyday as a site where geopolitics is also practiced and shaped. What unites all of these perspectives is their geopolitical nature, namely, the interest to imagine, exercise, and shape state power in a world bound by geography.

I link the concepts of geopolitics and imaginaries because a focus on situated utterances of a geopolitical nature allowed me to explore ubiquitous field utterances from key telecom industry stakeholders within the context of geographically distinct and nationally situated actors and the resulting tensions that were implied in stakeholder utterances. I map different and contradictory geopolitical imaginaries that I encountered in my fieldwork research with telecom industry providers, which led me to designate these geopolitical imaginaries as "strange." I situate these concepts within Zygmunt Bauman's notions of "stranger" and "strange"—which was also explored by sociologist Georg Simmel[104]—to connote both specific people and designate a part of the logic of modernity as ambiguous, indeterminate, and ultimately evading a strict binary imaginary of orderly societies. Bauman asserts that "No binary classification deployed in the construction of order can fully overlap with essentially non-discrete, continuous experience of reality. The opposition, born of the horror of ambiguity, becomes the main source of ambivalence."[105] He describes this experienced quality of modernity as strange, because it avoids the clear binary distinctions upon which modern states are constructed, such as good and bad, and friend and enemy. For Bauman, the stranger "calls the bluff of the opposition between friends and enemies as the complete mappa mundi, as the difference which consumes all differences and hence leaves nothing outside itself."[106] I use this concept of the stranger as a means to employ an ambiguous and indeterminate logic in conceptualizing geopolitical imaginaries. This is essential to my specific research because field-based geopolitical imaginaries do not result in one national geopolitical imaginary of Lithuanian state. Instead, the geopolitical imaginaries that I mapped in the field and present in this chapter disturb the possibility of one national imaginary and one story by presenting contradictory, strange geopolitical imaginaries on the ground. Thus, strange geopolitical imaginaries that emerge in the field of telecom industry stakeholders also correspond to a messy geopolitical perspective, because they produce contradictory and indeterminate geopolitical imaginaries on the ground.

Situated geopolitical imaginaries in this book often occur through fieldwork-based stories, beliefs and perceptions about geographically distinct telecom industry actors and their roles in Lithuanian Internet development. This chapter maps and describes place-based geopolitical imaginaries from the bottom up and conceptualizes them as framing the Internet as infrastructure. I do not focus on if, and how, these imaginaries were used for specific political purposes. I also do not subsume imaginaries into the

104 Simmel, "The Stranger."

105 Bauman, "Modernity and Ambivalence," p. 151.

106 Bauman, "Modernity and Ambivalence," p. 145.

field of infrastructuring practice. Rather, I contend that ambiguous, strange, geopolitical imaginaries coexist in and frame the broader field of the Internet as infrastructure comprised of various stakeholders.

1.3.3 Critical Negotiations

In the third empirical chapter, I focus on the privatization of Lithuania's Internet by its main telecom operator, Lietuvos Telekomas, as an event that drastically changed Lithuania's telecom industry in terms of ownership, labor relations, and technical conditions. Within this, I explore critical negotiations undertaken by key telecom stakeholders, such as trade unions, private citizens, politicians, academics, and industry employees, which I researched through archival material, memoirs, and interviews. By focusing on critical negotiations concerning Lietuvos Telekomas privatization, I illustrate how the field of Internet as infrastructure consists not only of infrastructuring practices and geopolitical imaginaries, but also comprises ongoing critical negotiations in which particular justifications and future visions of multiple industry stakeholders are discernable in intensified and visible manifestations during crucial events such as privatization.

In this context, it is helpful to first briefly explore the meaning and usage of the term "critique" in social sciences in order to understand how and why I use the term "critical negotiations" in my final empirical chapter, which is inspired by the diversification of critique within the turn to everyday critique.

Critique is associated with Greek verb *krino* and adjective *kritikos*, which both describe a capacity to distinguish and judge in realms such as the judicial and political, while the substantive *kritikos* corresponds to the analysis of textual practices.[107] The meaning of "critique" eventually expanded from these particular scenes, and its characteristic functions—analysis and judgment making—became increasingly self-reflective,[108] namely applicable to any societal practice. Sociologist Georg Vobruba posits that the concept of critique moved away from textual interpretation involved in an intellectual praxis of distancing to a critique of societal conditions in the eighteenth-century Enlightenment era.[109] Likewise, sociologist Gerard Delanty asserts that disciplines such as sociology also emerged as theoretically grounded critique of society in the same century. Sociology's early history consists of influences from the German philosophical tradition (i.e., Immanuel Kant, Friedrich Hegel, and Karl Marx),[110] and, according to Delanty, comprises four main forms: critique as practiced by Enlightenment intellectuals, critique as positive science of society influenced by Immanuel Kant, immanently reflective Hegelian-Marxist critique, and critique as ongoing obtainment of knowledge (Bildung).[111] Delanty outlines five main types of critique prevalent in cur-

107 Georg Vobruba, "Soziologie und Kritik," *Soziologie* 42, no. 2 (2013), p. 149.

108 Sverre Raffnsøe, "What is Critique? The Critical State of Critique in the Age of Criticism" (Working paper no 1—2015, Copenhagen Business School, Copenhagen, 2015), pp. 1–8, 11–12.

109 Vobruba, "Soziologie und Kritik," pp. 151–152.

110 Gerard Delanty, "Varieties of Critique in Sociological Theory and Their Methodological Implications for Social Research," *Irish Journal of Sociology* 19, no. 1 (2011), p. 69.

111 Delanty, "Varieties of Critique in Sociological Theory and Their Methodological Implications for Social Research," pp. 69–70.

rent social sciences: normative-diagnostic critique stemming from the tradition of the Frankfurt school; critical realism; Pierre Bourdieu's critical sociology; Michel Foucault's genealogical critique; and the turn to critical practices that, he argues, resulted from the cultural turn that diversified the meaning of critique.[112]

The turn to critical practices was famously explored through a specific form of critical sociology, the sociology of critique, which was furthered through disciples such as sociologists Luc Boltanski and Laurent Thévenot, whose approach to critical practices is arguably one of the most currently prolific in the social sciences.[113] While Delanty describes their focus on critique within society as "a loss for sociology,"[114] due to its micro-focused nature and absence of critique that condemns structural inequalities and fosters collective struggles,[115] Vobruba aptly claims that such focus also understands society—and I would add, its media technologies, such as the Internet as infrastructure—as also made by people.[116] Thus, it seems that scholarly focus on critique throughout the course of history has descended from the top of the academic mountain to the valley of diverse people with agency for critique. In this context, Boltanski and Thévenot explore critique as mundane and expressed during everyday critical practices. For them, critique comprises ongoing societal justifications that are based on plural worlds and their different life forms, which constantly denounce one another. For Boltanski and Thévenot, not every social situation comprises critique, but critique is an everyday praxis. They state that "human capacity for criticism becomes visible in the daily occurrence of disputes over criteria for justification."[117] According to Delanty, Boltanski and Thévenot perceive critique as a highly diversified capacity of ordinary people that is practiced in everyday contexts in order to "justify the views, beliefs and attitudes they have about specific issues with reference to some notion of a common good or a principle of a shared interest."[118] Thus, Boltanski and Thévenot link justification, critique and the notion of generality. They assert that "To criticize or to justify, the persons have to extract themselves from the immediate situation and rise to a level of generality."[119] In this context, to criticize means to exercise claims that are oriented toward a particular horizon of justice. In the absence of a transcendental aspiration of justice—and there is a diverse array of spheres of justice that people strive for when

112 Delanty, "Varieties of Critique in Sociological Theory and Their Methodological Implications for Social Research," p. 71.

113 Delanty, "Varieties of Critique in Sociological Theory and Their Methodological Implications for Social Research," p. 84; Stephan Lessenich, "Soziologie–Krise–Kritik: Zu Einer Kritischen Soziologie Der Kritik," *Soziologie-Forum der Deutschen Gesellschaft für Soziologie* 43, no. 1 (2014), p. 18.

114 Delanty, "Varieties of Critique in Sociological Theory and Their Methodological Implications for Social Research," p. 71.

115 Delanty, "Varieties of Critique in Sociological Theory and Their Methodological Implications for Social Research," p. 86.

116 Vobruba, "Soziologie und Kritik," p. 165.

117 Luc Boltanski and Laurent Thévenot, "The Sociology of Critical Capacity," *European Journal of Social Theory* 2, no. 3 (1999), p. 359.

118 Delanty, "Varieties of Critique in Sociological Theory and Their Methodological Implications for Social Research," pp. 85–86.

119 Luc Boltanski and Laurent Thévenot, "The Reality of Moral Expectations: A Sociology of Situated Judgement," *Philosophical explorations* 3, no. 3 (2000), p. 213.

they criticize—critique could become "an egoistic confirmation . . . or an ad hominem insult . . ."[120]

In the third empirical chapter, "Critical Negotiations," I am inspired by Boltanski and Thévenot's turn to mundane critical practices and their conceptualization of critique as justifications that not only judge, but also strive for a more just horizon. By arguing that critical negotiations intensify during crucial events of change, and exploring the crucial event—Lietuvos Telekomas's act of privatization, which shaped the telecom industry into its current form—and the resulting critical negotiations, justifications and future visions implied in it, I illustrate how key stakeholders (telecom industry workers, managers, politicians and academics) in this privatization process criticized it on the ground. I explore these diverse critical negotiations through primary archival sources, memoirs, and fieldwork interviews. In this chapter, I argue that the Internet as infrastructure development is always embedded in critical negotiations, which become intensified and visible during crucial moments of change, such as privatization, and thereby disclose the various future visions at stake in developing infrastructure. Thus, the path of infrastructure development is not an unproblematic undertaking, but rather a convoluted process of societal struggle embedded in different visions of the future.

In this book, I thus situate the Internet through the lenses of infrastructure with a focus on the telecom industry in Lithuania. I do so by exploring the Internet as developed and maintained by people with the help of things in particular places and as a result of infrastructuring practices, geopolitical imaginaries, and critical negotiations. This situated understanding thus demonstrates how the Internet as infrastructure is maintained and shaped in Lithuania. I situate the Internet as infrastructure in Lithuania through fieldwork in order to illustrate how it happens in particular places and is comprised of multiple bottom-up labor practices, geopolitical imaginaries, and critical negotiations; and how it is not only a national, but also corporate, academic, and societal undertaking. Within this, field research provides novel, unpublished, and culturally attentive material about important digital media technology development and maintenance—the Internet—in post-socialist Lithuania by seriously considering fieldwork.

Lastly, one may ask: if I carried out fieldwork-based research, why did I engage in the theoretical analysis of terms such as "infrastructuring," "practice," "geopolitical imaginaries," and "critical negotiations"? Do these conceptual reflections serve to further remove us from actual experiences in the field? If I chose to omit these conceptual reflections, I would need to claim that there is no mediating screen between the material that I gathered in the field and my descriptions and analysis, which is false. I did not conduct fieldwork in order to grasp objective reality but rather to creatively situate the Internet as infrastructure. The following text is a result of fieldwork that was carried out by accessing different sites, negotiating with fieldwork participants, observing various objects, using multiple methods, and evaluating the material against the backdrop of theoretical and empirical knowledge from infrastructure studies, STS, organizational theory, ethnographically-inspired digital media research, and Eastern European studies. Exploring the Internet as infrastructure through a situated fieldwork perspective

120 Boltanski and Thévenot, "The Reality of Moral Expectations," p. 214.

allows me investigate and empirically analyze actors, places, and temporalities without claiming to extract laws that form the Internet as infrastructure. Analysis of the Internet as infrastructure therefore results from a research practice that collects fieldwork material, organizes it, and links it with concepts.[121] The results, relying on the claim made by anthropologist Stefan Beck et al., are contingent, particular, and have an argumentative character.[122] My research has resulted in three main motifs of Internet as infrastructure study—labor practices, geopolitical imaginaries, and critical negotiations—which emerged after fieldwork, coding processes, and ongoing theoretical and methodological interventions. Following this, I enact my research by connecting different aspects of Internet as infrastructure (infrastructuring practices, geopolitical imaginaries, critical negotiations), material types (interviews, fieldwork reports, archival documents), and fieldwork sites from a situated stance outlined above. My focus on infrastructure research is foremost a means to abandon methodological formalism via the compelling stories of others, but also a chance to reflect upon the concepts and methods I use to frame the research. In short, it means allowing oneself to inhabit the research context and experience the unexpected by following an open-ended, situated fieldwork, but to also remain aware of one's personal involvement with research participants and theoretical conceptualizations: in the end it is a subjective formation of research results. This means carrying out fieldwork and using concepts, but also explaining methodology and methods.

1.4 Internet as Infrastructure: Methodological Openings

I began my fieldwork in March 2017 by traveling from Berlin to a hacker space in Vilnius. I have lived in Germany since my mid-twenties, but I was born and grew up in Vilnius, which helped me to plan, prepare, and execute my research mostly in my mother tongue, Lithuanian. In the hacker space, which has already moved to another location since the time of my fieldwork, people were kind enough to share contacts of those involved in the telecom industry. With these contacts in hand, my research developed, and I started reaching out to people for expert interviews and learning about potential new interviewees from previous ones. After one such interview, and due to my persistent contact, I managed to enter telecom corporation Telia Lietuva and observe labor practices that maintain the Internet by spending two months at different company departments from June to July 2017 and February to March 2018. In addition to the interviews and fieldwork at Telia Lietuva, I also carried out archival research. This archival research, which constitutes one type of fieldwork material and will be outlined in depth later, often occurred as a surprise. Not all of the archives I visited were easily accessible,

121 Similarly to Kalthoff's et al. attempt to work with and solve the tension between "empirical" and "theoretical" research (Herbert Kalthoff, Stefan Hirschauer, and Gesa Lindemann, *Theoretische Empirie: Zur Relevanz Qualitativer Forschung* (Berlin: Suhrkamp, 2008).

122 Stefan Beck, Jörg Niewöhner, and Estrid Sörensen, "Einleitung," in *Science and Technology Studies: Eine Sozialanthropologische Einführung*, Stefan Beck, Jörg Niewöhner, and Estrid Sörensen, eds. (Bielefeld: transcript Verlag, 2014), pp. 12–16, 24.

and one of the archives had even migrated to various different institutions throughout the course of my fieldwork. Accordingly, both my initial access and the overall fieldwork could not be repeated again in the same form as my 2017–2018 research. In one of my evening fieldwork diaries, I attempted to tame my anxiety about this constantly shifting ground. I wrote that "It is a kind of multi-sited, unplanned, half-planned research. All of the plans are shifting throughout the week, and it is fine."[123]

My overall multi-sited fieldwork began in March 2017 and continued until October 2018 and comprised five visits from Germany to Lithuania. I started with explorative interviews in March 2017, continued with participatory observation at Telia Lietuva and short-term archival work from June to July 2017, and followed this up with interviews in November 2017. From February to March 2018 I carried out the second part of my participatory observation at the company, which was followed by interviews and archival work. In October 2018, I carried out the last part of my fieldwork: local and relevant literature research at the Martynas Mažvydas National Library of Lithuania, Vilnius. My fieldwork material consists of field reports, diaries, memos, interview transcripts, archival documents, audio and photo recordings in Lithuanian and English through which I explored what people do, how they do it, what this tells about their actions, and how they criticize and geopoliticize actions related to the Internet as infrastructure development, production, and maintenance. Especially interviews concerning key contributing actors to the telecommunications sector development in post-socialist Lithuania proved a more difficult task. Unlike flashy articles in the news media about speedy network development or the occasional celebration of heroic individuals who developed technological innovations, the majority of network maintainers work silently and allow their accomplishments to support the relatively few people celebrated by the media.

Thus, I—a post-local, an emigrant—carried out this research in an open-ended and bottom-up manner. This research is not representative, because it is based on dynamic fieldwork material that emerged and was evaluated over time. Consequently, the fieldwork material I collected was neither raw nor objective, because its emergence was always guided by research problems, my own academic and cultural background, the willingness of others to participate and luck, which I definitely needed in order to get into Telia Lietuva for participatory observation or carry out multiple interviews outside the company.[124]

This research is thus based on a combination of multiple research methods that I used in different times and places in Lithuania. I used expert interviews to enter the field and gather diverse views about Internet development in post-socialist Lithuania throughout my fieldwork. I also carried out participatory observation at Telia Lietuva in order to observe how the Internet is maintained on a daily basis at a leading telecom corporation. Additionally, I carried out research in multiple archives in two Lithuanian cities—the capital, Vilnius, and the second-largest city, Kaunas—in order to find relevant material that would help me ground findings from interviews and participatory observation field notes in the past. Eventually I combined these sources in my three

123 Evening Diary, Miglė Bareikytė, 14 February 2018.

124 Jochen Gläser and Grit Laudel, *Experteninterviews und qualitative Inhaltsanalyse als Instrumente rekonstruierender Untersuchungen* (Wiesbaden: VS Verlag für Sozialwissenschaften, 2006), pp. 21–22.

empirical chapters, although each chapter is framed by its respective leading source material. "Everyday Infrastructuring" is based chiefly on participatory observation at Telia Lietuva, "Geopolitical imaginaries" is centered primarily on a combination of expert interviews and participatory observation, and "Critical Negotiations" is based predominantly on archival research.

It is usually not disciplines, methods, or theories that play a crucial role in an ethnographic approach, but rather the attention given to a particular field. In other words, an ethnographer has to explore the field according to its dynamics and adapt their methods to fit the field.[125] According to anthropologist Michael Angrosino, "good ethnography is the result of triangulation—the use of multiple data collection techniques to reinforce conclusions."[126] While I used different methods to explore the field of telecom industry stakeholders, I approached the notion of the field of ethnography with caution, because I believe there is no field that can be accessed by a neutral observer.[127] Thus, in this ethnographically inspired research, I never addressed a mystical "field," but, akin to anthropologists Jeanette Blomberg and Helena Karasti's argument that fields emerge during fieldwork process and can take unexpected forms,[128] I combined fieldwork experiences with different methods and theories, the process of evaluation, coding, literature research, and writing in order to form a field and situate my research inquiry via writing. In the following book, I present this evaluated and analyzed material to develop a particular depiction of the Internet as infrastructure. I show an illustration of Internet labor practices, geopolitical imaginaries, and critical negotiations that are based on particular fieldwork experiences and material collected in Lithuania from 2017 to 2018. This picture develops a presentation of Internet as infrastructure in Lithuania that is not an objective representation but is rather purposefully focused on complexities that emerge when the Internet as infrastructure is analyzed by zooming in on its situated issues through ethnographically-inspired fieldwork.[129]

1.4.1 Expert Interviews

At the beginning of my research, my knowledge of the telecommunications industry field was mostly research and media-informed. For this reason, I used in-depth interviews as an initial method to get into the field. I aimed to meet experienced telecom industry veterans—the academics, politicians and business people who support and develop the Lithuanian telecom industry—in order to get a better overview of the field. I thus began my interview process in March 2017 with explorative expert interviews,

125 Gläser and Laudel, *Experteninterviews und qualitative Inhaltsanalyse als Instrumente rekonstruierender Untersuchungen*, pp. 77–78.

126 Michael Angrosino, *Doing Ethnographic and Observational Research* (Thousand Oaks, California: SAGE Publications, 2007), p. 51.

127 Jane Elliott, *Using Narrative in Social Research: Qualitative and Quantitative Approaches* (London: SAGE Publications, 2005), pp. 18–20; Karasti and Blomberg, "Studying Infrastructuring Ethnographically," p. 234.

128 Karasti and Blomberg, "Studying Infrastructuring Ethnographically," pp. 241–242.

129 Uwe Flick, *Managing Quality in Qualitative Research* (London: SAGE Publications, 2007), pp. 45–46.

which were then followed by more organized, semi-structured interviews throughout my fieldwork visits. I conducted expert interviews with people from Lithuania's telecommunications industry who have been directly involved in Internet development and maintenance processes in post-socialist Lithuania's two biggest cities, Vilnius and Kaunas. During my research, I conducted 33 interviews, 22 of which were in-depth interviews with various industry stakeholders from the fields of academia, politics, and business and 11 of which were interviews carried out at Telia Lietuva. I used snowball sampling to recruit interviewees, each of whom were previously informed about my research purpose and had to agree to the use of their interview in my research. The interviews were long, open, and in-depth and thus allowed me to collect the firsthand stories and critical judgments of those who actually contributed to and experienced the development of the Internet in Lithuania. During each interview I aimed to collect, confront, and clarify interviewees' answers in order to understand their opinions beyond mere positive self-representation. I asked interviewees to describe their activity in Lithuania's telecom industry; describe and share their opinions about the main actors and events in both Soviet and post-socialist Lithuania's telecom sector; discuss decisive internal and external factors and actors in the development of Lithuania's telecom industry; and share their opinions about the differences between academic and commercial networks in Lithuania. These general questions were refined and made more specific through concrete questions.

According to social scientists Jochen Gläser and Grit Lauder, expert interviews should be carried out with people who belong to the elite strata of their respective field of analysis and, consequently, have gained substantial information about that field through their position in the field. Expertise is thus not based on a higher position in organizational hierarchy, but because of special knowledge on the researched issue gained through life practices.[130] Stefan Beck et al. question this separation between the knowledge of experts and lay people from a STS perspective; they complicate this division by asserting that knowledge emerges in a continuum of culturally situated, specific practices.[131] I use the designation of "expert interviews" to describe interviews that were used to gather information about specific events, situations, and issues in the telecommunications field from a diverse field of people with intensive experience in the industry, such as telecommunications industry advertisers, managers, politicians, academics, and others.[132] These interviews allowed me to access different narratives and judgments of the Internet as infrastructure development and maintenance than the ones found in historiographies, scholarly articles, or during participatory observation of labor practices. Their interpretation allowed me to construct a contemporary picture of the views of Lithuania's engineers, academics, and businesspeople and additionally helped me map geopolitical imaginaries of the telecom industry in Lithuania.

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130 Gläser and Laudel, *Experteninterviews und qualitative Inhaltsanalyse als Instrumente rekonstruierender Untersuchungen*, pp. 9–10.

131 Beck, Niewöhner, and Sörensen, "Einleitung," p. 14.

132 Ulrike Forschauer and Manfred Lueger, "Expert Interviews in Interpretive Organizational Research," in *Interviewing Experts*, Alexander Bogner, Littig Beate and Menz Wolfgang, eds. (London: Palgrave Macmillan UK, 2009), pp. 220–223.

Although the snowball sample method I used to find interviewees carries the warning of resulting in biases by representing only a network of well-connected people that refer to each other, I aimed to limit this bias by speaking with people from various telecom sector fields (academia, politics, business) who not only cooperate, but also compete with and criticize one another in interviews.[133] I met with people who all have worked in the Lithuanian telecom industry, but they were of varying ages, professional affiliations, and knowledge backgrounds. The sites in which these interviews were conducted were also diverse: I spoke with experts in offices, cafes, and online. Thus, in my sample, interviewees come from small and big businesses, official politics, non-governmental organizations, and academia. One obvious bias of this book that resulted from limited resources is the lack of pointed analysis of female involvement in Lithuania's Internet development. In other words, limited discussions of female participation in developing and maintaining the Internet in Lithuania should not be perceived as objective representation of the circumstances, but rather as a starting point for future research.

Although the majority of participants come from the realm of business, many interviewees who currently work in business (or in politics) previously worked in academic institutions or started their academic careers after ending their political careers. It should thus be noted that the interviewees' sectorial occupation had often changed over time. In this context, Table 1 represents a sector in which the interviewees' work was mostly related to Internet development and maintenance. As it is visible in Table 1, most (95 percent) of the interviewees were male and came from the realm of business, which hints at the existing gender gap and importance of private companies in the current telecom industry. It should also be noted that because a few interviewees requested anonymity, I decided to anonymize all interviewee names by replacing them with pseudonyms.

Table 1. Summary of Interviews.

Sector of Occupation	**Public Sector (Academia, NGO)**	**Politics**	**Business**
Number of Interviewees	5	5	12 (+11 fieldwork interviews from Telia Lietuva)
Time Employed in the Telecom Sector	>10 years	>10 years	>10 years
Male/Female	5/0	5/0	22/1

Source: Author's data.

133 Claudia S. Lopes, Laura C Rodrigues, and Rosely Sichieri, "The Lack of Selection Bias in a Snowball Sampled Case-Control Study on Drug Abuse," *International journal of epidemiology* 25, no. 6 (1996), p. 1268.

1.4.2 Participatory Observation and Interviews at Telia Lietuva

In addition to expert interviews, I also gained access to participatorily observe Lithuania's biggest telecom provider, Telia Lietuva. Telia Company currently owns 88.2 percent of Telia Lietuva.[134] Telia Company was founded in 1853 in Sweden and is currently active in seven countries: Denmark, Estonia, Finland, Latvia, Lithuania, Norway, and Sweden.[135] The largest current owner of Telia Company is the Swedish government, which as of 2021 held 39.5 percent of its shares.[136] When I did the first part of my participatory fieldwork at the company in summer 2017, 2200 people were working at Telia Lietuva. Formally, the structure of Telia Lietuva is hierarchical, with a top-down division of labor and clearly defined positions of authority. As of 2017, the company was managed by Telia Company and the CEO of Telia Lietuva, which controlled 11 departments: Finance, Human Resources, Technologies, Group Services and Operations, Corporate Affairs, Risk Management, Business Development, Client Process, Law, Private Clients, and Business Clients. The list of the departments is not definite, because the structure and the name of the company constantly changes. For example, the company changed its name from Lietuvos Telekomas to Teo in 2006 and from Teo to Telia Lietuva in 2016.[137]

Participatory observation of labor practices at Telia Lietuva was thus another method I used to collect material in order to explore the Internet as infrastructure on the ground. I wanted to conduct my participatory observation at this particular company because it is *de facto* the most influential telecom corporation in Lithuania and constantly expands its networks.[138] In other words, in order to describe how the Internet is infrastructured, I was not only interested in expert representations, but also in accessing the Internet's maintenance labor practices through participatory observation. Despite these goals, access to Telia Lietuva could not be planned in advance. Usually, such large telecom companies do not allow anyone external to enter their spaces out of a grounded fear of competition and information leaks. I got access only after I conducted an interview with one employee and asked him repeatedly if it was possible to conduct participatory observation at the company. In the very

134 Telia Company, "Lithuania," *Telia Company*, accessed 15 January 2020, https://www.teliacompany.com/en/about-the-company/markets-and-brands/lithuania/.

135 Telia Company, "About the Company," *Telia Company*, accessed 24 July 2021, https://www.teliacompany.com/en/about-the-company/.

136 Telia Company, "Shareholders," *Telia Company*, accessed 24 July 2021, https://www.teliacompany.com/en/about-the-company/corporate-governance/shareholders/.

137 "'Lietuvos Telekomas' pakeitė pavadinimą į 'Teo Lt' (papildyta)," *Lrytas.lt*, published May 5, 2006, accessed October, 10, 2019, https://verslas.lrytas.lt/-11468135401145248654-lietuvos-Telekomas-pakeit%C4%97-pavadinim%C4%85-%C4%AF-teo-lt-papildyta.htm.; "'Teo Lt' keičia pavadinimą," *Delfi.lt*, published 15 December 2016, accessed 11 October 2019, https://www.delfi.lt/verslas/verslas/teo-lt-keicia-pavadinima.d?id=73183164.

138 Lietuvos Respublikos ryšių reguliavimo tarnybos strategijos departamento ekonominės analizės skyrius, *2019 m. II ketvirtį vykdytos elektroninių ryšių veiklos ataskaita pagal elektroninių ryšių tinklų ir (arba) paslaugų teikėjų pateiktą informaciją, Nr. LD-2314* (Vilnius: Lietuvos Respublikos ryšių reguliavimo tarnyba, 2019), p. 7, https://www.rrt.lt/wp-content/uploads/2019/09/Ataskaita_2019_II_ketvirtis.pdf.

beginning, I spent one day observing infrastructure maintainers after signing a non-disclosure agreement. Two months later, I secured a two-month tripartite contract between Leuphana University, Telia Lietuva, and myself with the stipulation that I conduct participatory observation as an "intern." I signed a short-term contract and a non-disclosure agreement with the company, although I was officially employed in Germany. Prolonging this participatory observation for a third month was not possible due to Telia Lietuva's set time limits. In short, I could conduct my research at the company only after signing multiple documents, which illustrates that the field was cautious of outsiders. Nevertheless, after I got inside, people willingly conversed with me: they allowed me to join their meetings, field trips, lunches, and workshops; they commented on my field reports; and they participated in fieldwork interviews.

Most of the time, I detailed my observations in the form of field notes (reports, memos, and diaries) and handwritten notebooks. In my field reports, I wrote down my observations regarding what people did, said, how they interacted with one another, and the environment in which these interactions took place. In addition to these fieldwork reports, I also wrote fieldwork diaries and memos in my notebook. In fieldwork diaries, I described my emotional status during my time at Telia Lietuva, while I used memos to outline especially important concepts and ideas from the field. At the company, I not only observed and described worker's everyday labor practices, but also conducted on-site interviews with workers from the company, which are indicated in Table 1. In these interviews, I asked focused questions about employee's work experiences or asked them to explain actual events, concepts, and remembrances concerning the telecom industry's development. I used material and inspiration gathered at Telia Lietuva for the whole book, but predominantly for two chapters, "Everyday Infrastructuring" and "Geopolitical Imaginaries."

My internship mentor, whom I had interviewed earlier in an expert interview, originally guided my movement at the company. He helped me enter the company and establish contact with company departments by reaching out to them directly (as the company employs a few thousand workers in Lithuania, its offices were spread throughout Vilnius during my fieldwork). He also took the time to explain the company's corporate structure, find relevant departments regarding Internet maintenance—as not all departments at the company work with the Internet—and critically engaged with my observations. At first, I shadowed the practices of those who maintain the Internet on a physical level: infrastructure builders, planners, and installers. Afterwards, I observed and interviewed workers from managing departments in which the Internet is maintained as a product and service.

During my participatory observation process at Telia Lietuva, I particularly focused my attention on what I term the Physical Network and Head Office departments, where the Internet is maintained as a physical network and product. I visited the Physical Network Department and its different teams for a month from June to July 2017 and observed how workers maintain observable physical telecommunications networks that create a material basis for Internet services. I observed the laying of cables as well as installing, documenting, and connecting practices that require either direct physical work or conversations about physical work. My observations consisted of spending time with respective employees in their offices and shadowing them in their immediate work en-

vironment, such as offices, server rooms, fields, and private customer homes. I also spent time with network transmitters, who develop and distribute streaming services, a practice that serves to distance them from tangible network maintenance practices and likewise creates a basis for the emergence of the Internet as a product and service. In this context, I mostly observed computer-based work and conversed with employees. During the second part of my research at Telia Lietuva, which took place from February to March 2018, I moved from telluric physical Internet production observation to the study of Internet maintenance as a product and service by observing mostly communicative labor at the Head Office. There, I shadowed employees in various meetings, which comprised one of the main Head Office work forms, and conversed with the employees at their work places.

Thus, I termed these contexts "Physical Network Department" and "Head Office" to describe multiple departments and teams according to their primary labor practices. These titles also stress two different types of labor practices—manual and communicative, and their situated contingencies that illustrate their unexpected, messy character—that are used to maintain the Internet by these two groups of employees and types of labor that in practice comprise many of the company's departments. In the first chapter, "Everyday Infrastructuring," I illustrate how Internet infrastructuring can be explored through participatory observation at its maintenance sites by sharing vignettes of everyday manual and communicative labor practices. Vignettes are short descriptive stories that I wrote after material collection and analysis. They are based on my field experiences, field reports, and memos. I ground the vignettes in my field reports written throughout my stay at the company and analyzed thereafter. I wrote the vignette texts with participant pseudonyms in a manner that stresses the diversity of place-based practices, which are also supported and contextualized by relevant scholarly literature. Additionally, I cite relevant excerpts from my fieldwork conversations and interviews that I bring back into the vignettes. Thus, vignettes are first used to illustrate the multiplicity of practices that I observed at the company, but also to illustrate a broader argument, namely that the Internet is a situated emergent media technology that has to be maintained on a daily basis through diverse manual and communicative labor practices and their situated contingencies. Thus, Internet infrastructuring is a result of human labor: hard, sweaty, precise, lacking, and full of jokes, (geo)politics, and negotiations.

1.4.3 Archival Work

Throughout my fieldwork, I accessed different archives relevant to telecommunications development in Lithuania.[139] In Lithuania, there is no one place where all documents

139 I visited Lithuanian Central State Archive, Lithuanian State Modern Archives, Archives of Kaunas City Museum, 7th Fort of Kaunas Fortress, Online archive of Communications Regulatory Authority, and got access to the private photo archive of Vidar Berkeland. In the bibliography, I cite published primary sources, such as memoirs, the Communications Regulatory Authority (CRA) online archive of laws and reports under categories "Edited Books," "Book sections," "Government documents, Legal Rules and Regulations," and "Reports." I cite unpublished primary sources from the physical archives I visited under the category "Unpublished documents in physical archives."

related to the telecom industry development are stored, but rather, material is dispersed in various archives. In these archives, I accessed documents outlining issues including: local telecom industry development, the maintenance and repair of Lithuania's telecommunications field, academic research on Internet network development, private memories of the first establishment of Lithuania's Internet connection, and tensions among industry participants. In the archives, I photographed archival documents, which I later reviewed and analyzed. Specifically, I found documents related to the Ministry of Communications and Informatics, the public company Lietuvos Telekomas, the LITNET academic network, the opinions of various actors (academic, governmental, citizens, and trade unions), and criticism of Lietuvos Telekomas privatization, among other topics. In addition to this official archival information, I used the *Jie kūrė Lietuvos ryšius: biografinės apybraižos* (They Developed Lithuanian Communications: Biographical Descriptions, hereafter *Jie kūrė Lietuvos ryšius*) as an important historical primary source.[140] First published in 2008 by the Lithuanian Informatics Communication and Electronics Society, *Jie kūrė Lietuvos ryšius* is a memoir book that comprises over one hundred unedited remembrances of telecom industry stakeholders: producers from the realms of academia, business, and politics.[141] Ultimately, selected and coded archival findings particularly helped me explore the third chapter, "Everyday Critique," but I also used some of the material in two other empirical chapters, "Everyday Infrastructuring" and "Geopolitical Imaginaries."

Fieldwork material was coded following a grounded theory approach by coding, revisiting, clustering, and developing networks between prominent codes that were organized according to their themes, which, in accordance to their content and corresponding literature, resulted in three empirical chapters. For example, geopolitical imaginaries motif emerged after I coded all of my material and noticed how often the sentences related to codes that marked different roles of geographically specific actors were expressed in the field. Afterwards, I looked into and analyzed the chosen coded material in depth, grouped the codes, and related them to relevant published research. I translated the interview excerpts, field notes, and archival material that I use in this book from their original Lithuanian; these have been lightly edited in places for clarity. I also translated citations from sources published in Lithuanian language into English that were important to be represented as accurately as possible, and that otherwise would not be accessible for international readers. While most of the interviews were conducted in Lithuanian and translated, one was conducted in English[142]; field notes were written in Lithuanian and English, and comprise observations and hand-written citations from the field. Grammar of quoted citations from the field was slightly altered for legibility. Where needed, the interview grammar has been altered slightly for legibility, marked with square brackets.

In summation, I use these three empirical chapters to situate the Internet as infrastructure in post-socialist Lithuania. I develop an argument that the Internet as

140 *Jie kūrė Lietuvos ryšius*, Basevičius, Kuzma, and Žintelis, eds.

141 In this book I cite excerpts from 13 different memoirs from *Jie kūrė Lietuvos ryšius* that were especially pertinent to my research.

142 Interview with Romas, 5 February 2018.

infrastructure in Lithuania comprises ongoing critical negotiations, strange geopolitical imaginaries, and complex infrastructuring practices. With this research, I aim to de-universalize: I focus on the situated Internet by concentrating on place-based key stakeholders often omitted in media infrastructures research focused predominantly on Western Europe and the US.

Finally, I want to address how and when I decided to complete my fieldwork. I stopped carrying out my research when I became aware that I had spoken with the key stakeholders from the field and visited all the relevant accessible archives. My participatory observation at Telia Lietuva was initially planned for one month, and although I managed to stay for a second month, it was not possible to prolong my stay further. While my fieldwork allowed me to gain access to relevant material, the telecom industry's work remains ongoing. Thus, while this book delivers empirical and conceptual contribution to Internet infrastructure studies, it is not exhaustive, because the nature of the field is that of perpetual change and transformation.

Table 2. Fieldwork Material Summary.

Fieldwork Material Summary
Ca. 800 pages (Times New Roman, font 12, line spacing 1.5) of interview transcripts: 33 interviews (22 expert and 11 fieldwork interviews at Telia Lietuva, ca. 50 hours). 12 of the interviews were transcribed by me due to sensitive data and requests for anonymity and 21 were transcribed externally, comprising overall ca. 50 hours of interview material. Almost all of the interviews were conducted in Lithuanian (with one exception). Thus, in addition to evaluating, coding and analyzing the interviews, I also translated their key parts into English.
Ca. 350 pages (Times New Roman, font 12, line spacing 1.5) of field notes: written by me during participatory observation at Telia Lietuva. I translated the selected excerpts into English.
Ca. 500 pages of archival documents: this includes valuable primary sources and archival findings on the topics of telecom privatization, foreign company involvement in Lithuania's telecom sector, and local critique of privatization. I translated the selected primary sources used in the book into English.
In Total: ca. 1650 pages of material.

Source: Author's data.

1.5 Dominant Narrative: Internet Development in Lithuania

While this book explores the Internet as infrastructure through fieldwork, one can also investigate the Internet's development in Lithuania through historical research. Accordingly, historical narratives contribute to Internet as infrastructure research with publicly available analyses of crucial past telecommunications developments. In this chapter I examine one particularly dominant narrative and I argue that it currently forms the central historical representation of Lithuania's telecommunication and Internet development. I use it as a means to ground readers in how this telecommunications development narrative is commonly told in Lithuania before moving on to empirical, fieldwork-based chapters.

Stories of the historical development of the Internet belong to the broader thematic field of telecommunications technology development. This development comprises media technologies such as the telegraph, which was first used to send a message by Samuel Morse in 1844; cables, which were first laid intercontinentally in 1866; the telephone, which was first used for conversation by Alexander Bell on 10 March 1876; the radio telegraph, which was based on electromagnetic frequency waves and patented by Guglielmo Marconi in 1896; the integrated circuit, which was invented by Jack Kilby in 1958 and served to fuel the development of computers and operating systems; the subsequent development of data transmission technologies and mobile communications[143]; and other inventions that help transmit information in space, such as televisions, pay phones, satellites, and others. Important developments for the Internet as a telecommunications technology include TCP/IP network protocol developed by Vint Cerf and Robert Kahn in the late 1970s,[144] the WWW online content network developed by Tim Berners-Lee at CERN in 1989,[145] and the emergence and globally expansion of access to the Internet through dial-up, broadband, and wireless technologies and their regulation.[146] Lithuania's Internet development is not exempt from globally relevant issues such as the evolution of telecommunications equipment and its suppliers, the globalization of markets, and international regulatory policy decisions. Notwithstanding these implications and dependencies, there is always a local story to tell.

In the following section, I explore one local story that contributes to the dominant means of presenting telecommunications history in Lithuania. In particular, I look at predominantly *Lietuvos ryšiai 1918–2018* (Lithuanian Communications 1918–2018),[147] a scholarly book about post-socialist Lithuania's telecommunications and Internet history, which, I argue, currently comprises the most comprehensive research-based history of telecommunications thus far produced in Lithuania and serves as the main source for my exploration of the dominant narrative of the country's Internet history.[148] I explore this historical dominant narrative in order to illustrate how the development of Internet in Lithuania is represented in local scholarly historical literature today: what dates, events and institutions are perceived as crucial to the development of the Internet in post-socialist Lithuania. While the following introduction to the dominant narrative presents a contextual narrative for readers who know little about Lithuania

143 Algimantas Kajackas, Artūras Medeišis, Šarūnas Paulikas, and Saulius Sidaras, *Telekomunikacijų technologijų raida* (Vilnius: Technika, 2008), pp. 13–20.

144 Janet Abbate, *Inventing the Internet* (Cambridge, MA: MIT press, 1999), p. 130.

145 "The Birth of the Web: The World Wide Web Was Invented by British Scientist Tim Berners-Lee in 1989 While Working at Cern," *CERN*, accessed 17 October 2018, https://home.cern/science/computing/birth-web.

146 Cave and Mason, "The Economics of the Internet: Infrastructure and Regulation," pp.192–195.

147 Pakštalis and Tranavičiūtė, *Lietuvos ryšiai*, *1918–2018*.

148 I also briefly rely on a few other publications (outlined in the following text and footnotes), which explore specific aspects of Lithuania's telecommunications development, such as its history before 1918, or the European Union's telecommunications sector regulation at the end of the twentieth century that Lithuania has had to follow since its EU accession in 2004. These sources elaborate more on the dominant narrative via dates and specific examples.

and its telecommunications, it also makes a theoretical point that this particular historical telecommunication narrative frames and maintains the current development of the Internet industry in Lithuania.[149]

The pagan Grand Duchy of Lithuania was established in the middle of the thirteenth century and was Christianized in the beginning of the fifteenth century. In the fifteenth and sixteenth centuries, the Duchy increased its cooperation with Poland due to the threat of the Teutonic Order and eventually established a union with Poland in the form of a dual state in 1569, the Polish-Lithuanian Commonwealth.[150] Ever since the Polish-Lithuanian Commonwealth was first partitioned in 1772, Lithuania has consistently been a—or part of a—different country, with the relatively short exception of Lithuania's interwar independence, which lasted for 22 years (1918–1940), until its finally regained independence in 11 March 1990. Following the partitions of the Polish-Lithuanian Commonwealth at the end of the eighteenth century, the Tsarist Russian Empire controlled the majority of Lithuania. Lithuania emerged as an independent country from the Tsarist Russian Empire for 22 years during the interwar period of 1918 to 1940, but it was occupied in 1940 by the Soviet Union, in 1941 by Nazi Germany, and again in 1944 by the Soviet Union. This second Soviet occupation lasted until 11 March 1990, when Lithuania formally proclaimed its independence. In 2004, Lithuania's entry into the EU and NATO officially secured its official pro-transatlantic and pro-western geopolitical orientation.

The past few hundred years of telecommunication development in the region comprised telecom network development, equipment production and professional education, all of which took place in vastly different socio-political environments.

149 There are other relevant publications that explore telecommunications development in Lithuania, for instance the collection of articles "Lietuvos ryšiams – 80: straipsnių rinkinys," e.g., *Lietuvos ryšiams – 80: Straipsnių rinkinys / Lietuvos informatikos, ryšių ir elektronikos bendrija*, Arunas Krotkus and Povilas Vitkevičius, eds. (Vilnius: Ryšių Technikos Naujienos, 1998), Povilas Vitkevičius, *Nuo žygūno - į pasaulį* (Kaunas: Aušra, 1997), and Kostas Birulis, *Laisvės kodas: netolimos praeities kronika* (Vilnius: Lietuvos informatikos, ryšių ir elektronikos b-ja, 2001), among others. However, these books are not directly concerned with the history of post-socialist Lithuania's Internet development, and Lithuania's Internet history research field is still modest. There is another book that I identified as relevant for the exploration of the Internet emergence in post-socialist Lithuania titled *Jie kūrė Lietuvos ryšius* (*Jie kūrė Lietuvos ryšius*, Basevičius, Kuzma, and Žintelis, eds.), as it presents readers with over one hundred biographical memoirs of twentieth century telecommunications workers who lived during interwar, Soviet, and post-Soviet times in Lithuania. However, these texts are non-edited memoirs of telecommunications industry workers. Instead of a comprehensive narrative, we are left with fascinating fragments from the workers' pasts, which are different in tone and stories, because they have been written as personal memoirs. Thus, although this book is important in exploring post-socialist Lithuania's telecommunications and Internet development, it does not present us with a scholarly history and can be counted as a primary source together with media articles and archival material that was produced about the topic. It leaves me to conclude that *Lietuvos ryšiai, 1918–2018* currently constitutes the most extensive academic text that explores both Lithuania's telecommunications history of the last 100 years and the Internet's development in post-socialist Lithuania. This 379-page book, with plenty of illustrations, is based on extensive literature research, publication of unpublished archival sources from state and private archives, interviews, and other primary sources and written by two historians.

150 Alfonsas Eidintas et al., *The History of Lithuania* (Vilnius: Eugrimas, 2015), pp. 21, 26.

The transnational development of telecommunications in Lithuania's territory began during Tsarist rule in the mid-nineteenth century, when the first telegraph station for the St. Petersburg–Warsaw line was built in the Lithuanian city of Marijampolė in 1854.[151] A few decades later, the first telephone communication line was laid in 1882 by Duke Oginskis and counts Tiškevičius and Zubovas between the cities of Kretinga and Plungė.[152] When post-socialist Lithuania emerged as an independent political unit from the Soviet Union in 1990, it created new telecommunications paths with the US and Western Europe, which were built upon the pre-existing physical telecommunication infrastructure developed in the Soviet Union. Therefore, one theoretical reason—beyond the fact that these issues emerged from my fieldwork material—to look into geopolitical imaginaries and critical negotiations in addition to current infrastructuring practices is that telecommunications in Lithuania (and elsewhere) has gradually developed against the backdrop of the physical infrastructure development of different political regimes.

In 2018, Lithuania, Latvia, and Estonia organized a vast number of commemoratory events to celebrate gaining independence in 1918; the co-authored history on Lithuania's telecommunications sector, *Lietuvos ryšiai, 1918–2018,*[153] is one of the cultural goods produced in the context of these state commemoration activities. It is written by historians Dr. Brigita Tranavičiūtė and Arvydas Pakštalis, but the initiators of the book are Alfredas Basevičius and Gintautas Žintelis, who have vast experience in Lithuania's public and private telecommunications industry sectors. The book is heavily funded by multiple private and public organizations, whose logos are printed on the first pages of the book. Printed at the top of the page is the largest of the logos, that of Lithuania's main telecom provider, Telia Lietuva.

The book explores telecommunications development in Lithuania over the past one hundred years. It is sensitive to ongoing geopolitical shifts that shape Lithuania and the technical, political and educational legacies that formed the country's current telecommunications scene. It describes telecommunications development in interwar Lithuania, 1918–1940 (post, telegraph, telephone, and radio communications); during WWII, especially during the wartime occupation, 1940–1944 (Lithuania's telecommunications during the first Soviet and Nazi Germany occupation); during the Lithuanian Soviet Socialist Republic, 1944–1990; and post-socialist Lithuania, 1990–2018. The telecommunications history of post-socialist Lithuania is described mainly by the development of crucial events concerned with the new Ministry of Communications and Informatics (established in 1991), as well as the various telecommunications companies that formed Lithuania's new, market-oriented telecom industry. The book also explores the development of telecommunications construction, manufacturing, and education systems, and presents readers with a future prognosis for the year 2068, which is written by prominent Lithuanian engineer and cybernetician Laimutis Telksnys. The authors convey that

151 Povilas Vitkevičius, "Lietuvos telekomunikacijų 80 metų kelias," in *Lietuvos ryšiams—80*, Arūnas and Povilas, eds., p. 9.

152 Vitkevičius, "Lietuvos telekomunikacijų 80 metų kelias," p. 9; Alfredas Antanas Basevičius, "Pratarmė," in *Jie kūrė Lietuvos ryšius,* Basevičius, Kuzma, and Žintelis, eds., p. 6.

153 Pakštalis and Tranavičiūtė, *Lietuvos ryšiai, 1918–2018*.

the book aims to "disclose the processes and dynamics of Lithuanian telecommunications system development, whose inspirers and implementers were destined to be all of the specialists who worked in this system."[154] Thus, it outlines a well-researched institutional and actor-focused exploration of Lithuania's telecommunications history over the past hundred years and thereby presents us with a dominant narrative—based on scholarly research, written in a comprehensive manner that has not been repeated thus far—on the development of telecommunications in twentieth and twenty-first century Lithuania.

It is a story of ongoing institutional transformation that encompasses private and public actors, companies, educational institutions, and physical infrastructure that continuously renews and updates local telecommunications systems. The book thus focuses much attention on the actors and events that shaped the telecom industry in post-socialist Lithuania, in particular the establishment of the Ministry of Communications and Informatics (hereafter the Ministry) in 1991, its dissolution in 1998, and the emergence of then state-owned telecom provider Lietuvos Telekomas in 1992.

Although Lithuania declared its independence from the Soviet Union on 11 March 1990, its beginning as an independent country was tumultuous. In April 1990, the USSR enacted an economic blockade against Lithuania; in January 1991, the Soviet military attempted to occupy the Radio and Television Committee building and the Television tower in Vilnius, which resulted in multiple deaths. As the book outlines, the Lithuanian Ministry of Communications was established just a few months after these disturbing events (30 May 1991), only to be dissolved a few months later (3 October 1991) and reconfigured into the Ministry of Communications and Informatics.[155] The new Ministry was responsible for the organization of state programs and telecommunications works as well as the establishment and maintenance of international relations and thus overall telecommunications development in Lithuania.[156] Telecommunications development was a key state strategy: in 1991, the Supreme Council and the Government of the Republic of Lithuania claimed that Lithuania's main strategy for national market formation, as well as integration into European markets and global democracies, would be built upon unified national communication and information infrastructure.[157] In contemporary official political discourse, post-socialist telecommunication development in Lithuania has thus been linked to the idea that this networking fuels economic prosperity and development that is maintained by the telecommunications sector.[158]

The internationalization of the Lithuanian telecommunications system began against the backdrop of these institutional changes, including Lithuania's acceptance into the International Telecommunications Union (ITU) in 1991 and its 1992 entry into the Universal Postal Union (UPU), The European Conference of Postal and

154 Pakštalis and Tranavičiūtė, *Lietuvos ryšiai, 1918–2018*, p. 8.

155 Pakštalis and Tranavičiūtė, *Lietuvos ryšiai, 1918–2018*, pp. 278–280.

156 Pakštalis and Tranavičiūtė, *Lietuvos ryšiai*, pp. 298–303.

157 Pakštalis and Tranavičiūtė, *Lietuvos ryšiai*, p. 280.

158 Algirdas Butkevičius, "Įžanginis žodis," in *Jie kūrė Lietuvos ryšius*, Basevičius, Kuzma, and Žintelis, eds., p. 4.

Telecommunications Administrations (CEPT), and Eutelsat.[159] International telephone connections were secured in 1993 using the international-intercity Kvarc station in Vilnius and the Norsat B, Eutelsat and Intelsat satellite systems through Oslo and Copenhagen.[160] Another significant event in 1993 was the freeing of the "37" GDR code, which allowed ITU to provide Lithuania with the new national "+370" code. This meant that Lithuania could exchange its previous "7" Soviet code, which had routed international telephone communications through Moscow.[161] In 1994, cooperation agreements regarding the redistribution of the radio frequency spectrum were signed with neighboring Finland, Poland, and Belarus.[162]

In addition to the recommencement of international relations, the Ministry of Communications and Informatics was tasked with creating new telecommunications subjects.[163] On 1 January 1992, Lietuvos Telekomas (Lithuanian Telecom) was established as a state-owned telecom operator by separating the electronic and postal communications services. The new company—the state-owned Lietuvos Telekomas—became responsible for electrical communications as well as for the organization, development, and management of telecommunications services in the country.[164] In October 1993, Lietuvos Telekomas, together with several other organizations, became part of the government-issued list of companies that are not planned to be privatized until 2000.[165] By 1996, Lietuvos Telekomas and public broadcaster Lietuvos radijo ir televizijos centras provided data transmission, telephone, telegraph, radio, TV broadcasting, and radio network services. Cellular communications were provided by companies such as Comliet, Omnitel, and Mobiliosios telekomunikacijos (named Bitė Lietuva since 2005), while companies such as Omnitel, Taidė, and academic network LITNET provided Internet access.[166] In 1997, the main telecommunications operator, Lietuvos Telekomas, was reorganized into a joint-stock company.[167] On 8 June 1998, a new Telecommunications Law deemed Lietuvos Telekomas the main telephone operator in the country with the monopoly right for fixed telephone services until the liberalization of the telecommunications market on 31 December 2002. The company was then privatized on 3 July 1998 by TeliaSonera, a Swedish-Finnish consortium.[168] This resulted in a new phase for the Lithuanian telecommunications market, including the emergence, stabilization, and privatization of Lietuvos Telekomas; the dissolution of the Ministry of Communications and Informatics; the monopolization of fixed telephone services; and subsequent market liberalization.

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159 Pakštalis and Tranavičiūtė, *Lietuvos ryšiai*, pp. 292–293.

160 Pakštalis and Tranavičiūtė, *Lietuvos ryšiai*, p. 331.

161 Pakštalis and Tranavičiūtė, *Lietuvos ryšiai*, p. 298.

162 Pakštalis and Tranavičiūtė, *Lietuvos ryšiai*, p. 301.

163 Pakštalis and Tranavičiūtė, *Lietuvos ryšiai*, p. 283.

164 Pakštalis and Tranavičiūtė, *Lietuvos ryšiai*, pp. 283, 323.

165 Pakštalis and Tranavičiūtė, *Lietuvos ryšiai*, p. 284; Lietuvos Respublikos Seimas, *Dėl valstybinių įmonių, kurių iki 2000-ųjų metų nenumatoma nei akcionuoti, nei privatizuoti, I-744* (Vilnius: Lietuvos Respublikos Seimas, 1994), https://e-seimas.lrs.lt/portal/legalAct/lt/TAD/TAIS.15176/HXtdPWeMqZ.

166 Pakštalis and Tranavičiūtė, *Lietuvos ryšiai*, pp. 303, 339–340.

167 Pakštalis and Tranavičiūtė, *Lietuvos ryšiai*, p. 332.

168 Pakštalis and Tranavičiūtė, *Lietuvos ryšiai*, p. 335.

Another major event in 1998 was the dissolution of the Ministry of Communications and Informatics. After the Ministry's dissolution, its functions were transferred to the Ministry of Transport and Communications and the Ministry of Government Reforms and Municipal Affairs.[169] From 2000 to 2016, the Information Society Development Commission (later renamed the Information Society Development Committee) was responsible for legal acts and policies related to information society, state information technology, telecommunications development and their implementation. Despite this, the Committee's 2005 statute no longer mentioned telecommunications; instead, it stated that it is responsible for societal information development policy.[170] While the book mainly uses a neutral tone to describe these events, in a rare act of judgment it provides readers with a critique of the Ministry's dissolution in 1998 by summarizing a memoir of one of the government officials also published in the book *Jie kūrė Lietuvos ryšius*,[171] Vice Minister Henrikas Varnas:

> Although claiming that the establishment of informational society is a strategic objective and priority area of Lithuanian state, it was decided to abolish the Ministry of Communications and Informatics of the Republic of Lithuania. Thinking about the negative consequences of such a move for the development of telecommunications in Lithuania, society and professionals were trying to stop this process of eradication. The writing, which presented arguments against the dissolution of the Ministry, was submitted to the President of the Republic of Lithuania Valdas Adamkus, Speaker of the Seimas Vytautis Landsbergis and the Head of the Government Gediminas Vagnoris by the Vilnius Professors' Club with the signatures from the most famous people in Lithuania. The Lithuanian Science Council argued against the liquidation of the Ministry, but the President, the Speaker of the Seimas and the Prime Minister were silent.[172]

In addition to the rather loose governmental apparatus for governing telecommunication development in the country after the Ministry's dissolution, the current industry is also regulated by the independent Communications Regulatory Authority (CRA), whose evolution is closely linked to Lithuania's 2004 EU accession. In 2001, a few years before the accession, the State Radio Frequency Service was reorganized into the CRA under the provision of European Union directives and the Telecommunication Law of 1998 of the Republic of Lithuania.[173] Since then, the CRA has aimed to synchronize local communication regulations with the EU telecommunication regulation system,[174] and is devoted to "regulating the electronic communications, postal, rail markets under the European Union directives and the laws of the Republic of Lithuania".[175] The CRA was thus formed to adjust Lithuania's communication regulatory system with the liberalized EU telecom market in order "to ensure effective competition, investment, innovation

169 Pakštalis and Tranavičiūtė, *Lietuvos ryšiai*, p. 287.

170 Pakštalis and Tranavičiūtė, *Lietuvos ryšiai*, p. 305.

171 Henrikas Varnas, "Untitled," in *Jie kūrė Lietuvos ryšius*, Basevičius, Kuzma, and Žintelis, eds., p. 219.

172 Pakštalis and Tranavičiūtė, *Lietuvos ryšiai*, p. 286.

173 "Briefly about RRT," *RRT*, updated 29 May 2019, accessed 20 October 2019, https://www.rrt.lt/en/about-rrt/briefly-about-rrt/; Pakštalis and Tranavičiūtė, *Lietuvos ryšiai*, p. 306.

174 Pakštalis and Tranavičiūtė, *Lietuvos ryšiai*, p. 310.

175 "Briefly about RRT," https://www.rrt.lt/en/about-rrt/briefly-about-rrt/.

and a variety of consumer-friendly services in the areas of electronic communications, postal services, rail transport and trust services,"[176] while Lithuania prepared for accession into the EU. Thus, the CRA prepared the Lithuanian telecommunications market for liberalization and EU market competition against the backdrop of the telecommunications industry. Since its inception, the CRA's work has been guided by the European Union directives for national regulatory authorities.[177]

According to legal scholar Emmanuelle Mathieu, the European Union's telecommunications policy management that Lithuania adjoined only in the twenty-first century was developed in three stages, with increasing centralization. The first phase, 1988–2002, was characterized by nationally-based regulations; the second phase, 2002–2009, included the establishment of the European Regulators group, which coordinated national regulatory authorities, and the increased regulatory authority of the European Commission; and the last phase, 2009–present, began after the 2009 emergence of the Body of European Regulators for Electronic Communications (BEREC), "a hybrid body located at the crossroads between a network and an EU agency, consisting of a reinforced network assisted by the Office, a small EU agency, in charge of administrative and logistical tasks."[178] The ultimate aim of this evolving European regulatory framework and task organization for national regulatory authorities was to fully liberalize all telecommunications services and networks and introduce competition into the formerly monopolistic telecommunications sector.[179] Economist Marec Bela Steffens argues that telecommunications infrastructure development is thought to be "a key factor of success in global economic competition."[180] According to economist Paul J. J. Welfens, the drive to liberalize the telecommunications industry in Europe has been fostered by various European nation-states, the European Commission, the US, and intensive technological developments.[181] Welfens states that 1990s Eastern European telecom networks were underdeveloped in the sense that they lacked international telecommunication networks as well as local telephone lines.[182] He claims that post-Soviet Eastern Europe needed to overcome their lack of development in national and international communications, because the emerging decentralized market economy required a vast exchange of information as well as continuous communication.[183] Thus, Welfens argues that the telecom industry has played a role both in market economies,

176 "Briefly about RRT," https://www.rrt.lt/en/about-rrt/briefly-about-rrt/.

177 "Ryšių reguliavimo tarnybos 15 metų veiklos pristatymas," *Ryšių reguliavimo tarnyba*, published 12 May 2016, accessed 21 January 2020, https://youtu.be/RCEZTguhObA.

178 Emmanuelle Mathieu, *Regulatory Delegation in the European Union: Networks, Committees and Agencies* (London: Palgrave Macmillan, 2016), p. 127.

179 Mathieu, *Regulatory Delegation in the European Union*, pp. 128, 130.

180 Bela Marec Steffens, "Modernizing Telecommunications in Central and Eastern Europe: A Business Perspective," in *Telecommunications and Energy in Systemic Transformation: International Dynamics, Deregulation and Adjustment in Network Industries*, Paul J.J. Welfens and George Yarrow, eds. (Berlin: Springer, 1997), p. 197.

181 Paul J.J. Welfens, "Telecommunications in Systemic Transformation: Theoretical Issues and Policy Options," in *Telecommunications and Energy in Systemic Transformation*, Welfens and Yarrow, eds., p. 85.

182 Welfens, "Telecommunications in Systemic Transformation," p. 87.

183 Welfens, "Telecommunications in Systemic Transformation," p. 88.

but even more so in the market economies of developing countries.[184] Welfens provides data from the "Mobile Communications Newsletter," which illustrates that Lithuania had a massively low amount of mobile cellular telephone subscribers in 1993 (0.08 per 1000 people; in comparison, Latvia had 0.37 telephones per 1000 people, while Poland had 0.24, Estonia had 2.59, Slovenia had 2.00 and Russia (Moscow) had 0.24 analogue networks per 1000 people).[185] Logically it should follow that a well-developed telecommunications infrastructure could facilitate the advancement of in these terms less developed Eastern European countries transformation into market economies. Despite this, Steffens argues that Eastern European countries have not developed their telecommunications infrastructure in the same manner as Western European or Southeast Asian countries, because their communist regimes limited their access to foreign innovations, prioritized other internal infrastructural developments, and avoided equating (physical telecommunications) infrastructure with economic prosperity and growth. He states, "The necessary resources were never devoted to this aim, as the communist planners focused on large steel works and other prestige projects and, for ideological reasons, regarded all infrastructure as non-productive."[186] With the establishment of CRA in post-socialist Lithuania, privatization of its state-owned main telecom market player Lietuvos Telekomas, subsequent market liberalization and EU accession, Lithuania aligned its national telecommunications regulation both with the EU and with discourse that equates telecommunications development with economic growth. Thus, the Lithuanian government's 2004–2008 program, which declared information, knowledge society and innovative technologies development as one of its strategic goals[187], was a means to break away from its communist past and align with the official EU strategy of IT and telecommunications development as a means for economic growth and social cohesion. Although post-socialist Lithuania's telecom sector is estranged from centralized developments and its Soviet past, parts of it continue to exist in the presence, such as "the canalization," an underground telecommunications channel system that is a key part of the physical telecommunications infrastructure, which began to be built in the early twentieth century,[188] was widely expanded in Soviet times and has been developed further in post-socialist Lithuania.[189]

Lietuvos ryšiai 1918–2018's chapter on post-socialist telecommunications additionally focuses its narration of telecommunications history on Lietuvos Telekomas, the biggest telecom operator in the country, especially its state-owned period (1992–1998). Lietuvos Telekomas emerged in 1992 as a state-owned enterprise and was eventually reorganized and privatized to Amber Teleholding AS, a joint venture of the Swedish Telia and Finnish Sonera companies in 1998. According to an OECD report, 60 percent of its shares were sold to Amber Teleholding AS in 1998, 5 percent were sold to the company's employees,

184 Welfens, "Telecommunications in Systemic Transformation," p. 97.

185 Welfens, "Telecommunications in Systemic Transformation," p. 93.

186 Steffens, "Modernizing Telecommunications in Central and Eastern Europe," p. 197.

187 Pakštalis and Tranavičiūtė, *Lietuvos ryšiai*, p. 306.

188 Egidijus Žilius, "Istorijos raida," in *Lietuvos ryšiams – 80*, Arūnas and Povilas, eds., p. 81.

189 Pakštalis and Tranavičiūtė, *Lietuvos ryšiai*, pp. 187, 191, 193, 195–196.

25 percent were sold in 2000 on the stock exchange, and 10 percent are controlled by the state.[190] In 2020, Telia Company controlled 88.15 percent shares of Telia Lietuva and 11.85 percent shares were controlled by other shareholders.[191] It is a unique situation in the region: the report states that "Lithuania is the only Baltic country where a strategic investor has a controlling interest in fixed telephony."[192] In 2006, Lietuvos Telekomas changed its name to TEO LT; in 2017 it switched from TEO LT to Telia Lietuva.[193] Thus, while Lietuvos Telekomas emerged as a state-owned company in 1992, it was continuously reorganized and eventually privatized in 1998, with the right to fixed telephone monopoly services until 2003 and subsequent telecom market liberalization. In addition to the presence of Lietuvos Telekomas, the 1990s telecommunications market in Lithuania was also shaped by the emergence of mobile operators such as NMT-450-based operator Comliet (partially owned by state-owned Lietuvos Telekomas, Danish Telecom, and Millicom), GSM-based Omnitel, and Bitė GSM.[194] While mobile operator Tele2 has been present in Lithuania since 1999, it was not cited in the aforementioned book. While I cannot verify the connection, Tele2 was not part of the long list of book patrons presented in the book's first pages. Although this is a surprise given that Tele2 is currently one of the biggest mobile operators in the country, it is important to stress that Tele2 (established in 1993, started serving mobile (GSM-900) telephone communication in 1999),[195] Bitė GSM (established in 1995),[196] and Omnitel (established in 1991 as Litcom, renamed Omnitel since 1994),[197] comprised Lithuania's main mobile service operators until 2017, when the main telecommunications provider TEO (known until 2006 as Lietuvos Telekomas,[198] and from 2017 as Telia Lietuva) merged with Omnitel and Baltic Data Center into the Telia Lietuva company.[199] The book's chapter on telecommunications ends rather abruptly with the name of the last Telia Lietuva CEO, Dan Strömberg, who started leading Telia Lietuva in 2018. It thus provides no further information about how the Lietuvos Telekomas privatization process took place, how the main telecommunications provider in the country developed during and after its privatization, and avoids elaborating upon some important telecom industry actors, such as Tele2.[200]

Beyond the exploration of governing and regulating institutions and the telecom industry development in post-socialist Lithuania, *Lietuvos ryšiai 1918–2018* has a short

190 OECD, *Promoting Trade in Services: Experience of the Baltic States* (Paris: OECD Publishing, 2004), p. 92, https://doi.org/10.1787/9789264106161-en.

191 Telia, "Shares and Shareholders," *Telia.lt*, accessed April 14, 2020. https://www.telia.lt/eng/investors/shares-and-shareholders

192 OECD, *Promoting Trade in Services: Experience of the Baltic States*, p. 92.

193 Pakštalis and Tranavičiūtė, *Lietuvos ryšiai, 1918–2018*, p. 340.

194 Pakštalis and Tranavičiūtė, *Lietuvos ryšiai, 1918–2018*, pp. 331–332, 337.

195 Alfredas Antanas Basevičius, Vytautas Jonas Kuzma, and Gintautas Žintelis, "Svarbiausios Lietuvos ryšių istorijos datos," in *Jie kūrė Lietuvos ryšius*, Basevičius, Kuzma, and Žintelis, eds., p. 11.

196 Basevičius, Kuzma, and Žintelis, "Svarbiausios Lietuvos ryšių istorijos datos," p. 10.

197 Pakštalis and Tranavičiūtė, *Lietuvos ryšiai, p.* 338.

198 Basevičius, Kuzma, and Žintelis, "Svarbiausios Lietuvos ryšių istorijos datos," p. 11.

199 Pakštalis and Tranavičiūtė, *Lietuvos ryšiai*, p. 340.

200 Pakštalis and Tranavičiūtė, *Lietuvos ryšiai*, p. 340.

chapter that especially explores Lithuania's Internet development. It states that the first Internet connection in Lithuania was set up on October 1991 by establishing a communications satellite connection Lietuva-Internetas, made possible by help from the Norwegian government, Norskdata computers, and the Intelsat satellite connection. This was developed further by the Norwegian and Danish governments as well as the NORDUnet Scandinavian academic computer network in cooperation with Lithuania's LITNET academic network; these parties further developed data transmission networks based on X.25 protocol and, from 1993, on TCP/IP protocol.[201] LITNET is a computer network established in 1991 that connects different Lithuanian Research and Education institutions[202]; it is differentiated from other telecom operators by its non-profit status.[203] In 1993, the first Lithuanian web address, www.mii.lt, was registered to a LITNET member, the Institute for Mathematics and Informatics. By that time, 17 research institutions and over 60 governmental and non-governmental institutions had been using e-Mail, which leads the book authors to claim that "LITNET laid the foundations of the current Lithuanian Internet."[204] In the early days, the most-used service was e-Mail.[205] Thus, as early as the 1990s, users from research and governmental institutions could connect to the Internet through UNINET/NORDUnet networks. Importantly, in 1990s Open Society Foundation also provided free Internet services to citizens.[206] Currently, LITNET's development is managed and supported by an agreement between the Ministry of Education and Science and Sport, and LITNET centers, which comprises six of Lithuania's main universities.[207]

The first private telecommunications company in Lithuania, Litcom (founded in 1991, later re-named Omnitel), established direct satellite-based communication with the US in 1992. In 1994, it started transmitting data through the X.25 protocol-based Sprintnet network, and in 1995 it offered its first commercial retail Internet services, primarily used by academic institutions.[208] The non-profit organization Plačiajuostis Internetas (Broadband Internet) and its publicly funded RAIN project additionally played an important role in the telecom market. The RAIN project had two phases, 2005–2008 and 2015, respectively, during which it developed a non-profit wholesales physical telecommunications infrastructure in rural areas. This was made possible by the help of the Skaidula company, among others, which was the first company to build

201 Pakštalis and Tranavičiūtė, *Lietuvos ryšiai*, p. 352–353.

202 "About Litnet," *LITNET*, updated 3 March 2020, accessed 15 March 2020, https://www.litnet.lt/en/about-litnet.

203 Interview with Linas, 17 March 2017.

204 Pakštalis and Tranavičiūtė, *Lietuvos ryšiai*, p. 353.

205 "LITNET, Lietuvos Mokslo ir Studijų Kompjuterių Tinklas," 1993, Lietuvos Respublikos ryšių ir informatikos ministerija (LVNA), 17, Valstybinių programų skyriaus veiklos dokumentai: 4, F 17, AP 4, B 104, p. 21, Lietuvos valstybės naujasis archyvas (LVNA).

206 The Open Society Foundation's contribution is mentioned briefly in Pakštalis and Tranavičiūtė, *Lietuvos ryšiai*, p. 353; In 1995–1997 the OSF provided the possibility for individual users to connect to the Internet from home before for-profit companies started broadly selling Internet access (Sigitas, e-mail message to author, 18 January 2019).

207 "Apie mus," *LITNET*, updated 19 July 2010, accessed 10 May 2019, https://www.litnet.lt/lt/apie-litnet.

208 Interview with Donata, during which she shared informal Omnitel documents, where these dates were outlined, 27 March 2018.

an underground fiber network infrastructure (2003–2004) in Lithuania that did not belong to Lietuvos Telekomas.[209]

By the end of the 1990s, Internet access and usage in Lithuania rose. Lietuvos Telekomas entered the emerging Internet market and started providing the Takas DSL service in 1998. According to the book, in 1998 there were already 40 companies in Lithuania that provided Internet services.[210] By the end of the 1990s and the beginning of 2000s, cable TV companies such as INIT also began providing cable Internet services.[211] The book details the periodic development of Internet in Lithuania according to five phases provided by long-term telecommunications industry practitioner Darius Didžgalvis to describe the emergence of LITNET, Lietuvos Telekomas, and other telecommunications market players. These phases include: the dial-up phase, based on telephone networks; the cable TV phase, based on TV cables and DOCSIS technology to provide both Internet and TV connectivity; the DSL phase, which brought about faster data transmission; the mobile Internet phase (2G, 3G, HSPDA, LTE); and the FTTB and FTTH phase of fiber cable technology.[212] Today, the biggest players in the industry are Telia Lietuva, Bitė, and the unmentioned Tele2, among many other service providers that offer broadband Internet, IPTV, telephone services, and more.

In the book *Lietuvos ryšiai 1918–2018*, four of the main topics—the Ministry of Communications and Informatics; the Communications Regulatory Authority; telecommunications industry actors with a focus on Lietuvos Telekomas, especially its state-owned phase; and Internet development—present telecommunications development in post-socialist Lithuania as a story of modernization through institutional changes by focusing on private and public actors, companies, and physical infrastructure development. Based on mainly the book summary I provided above, it is plausible to state that Lithuania's telecommunications sector underwent structural changes that can be broadly summarized in two main phases: before privatization (1990–1998) and after privatization (1998–present). This second phase includes the dissolution of the Ministry of Communications and Informatics (1998); the establishment of a regulatory body, the Communications Regulatory Authority (2001); Lietuvos Telekomas's telecom market monopolization of fixed telephone services (1998–2003); market liberalization and European regulation (from 2003); and the spread of Internet service providers and data transmission technologies. Thus, *Lietuvos ryšiai 1918–2018* presents a narrative of the Internet's emergence and transformation from public, academic, state-owned networks toward privatized Internet services. Some actors, such as public official Jonas Ūsas, argue that Lithuania had to liberalize and privatize its telecommunications market in order to join the EU.[213] As mentioned above, the EU has fostered telecommunications market liberalization and competition since the 1980s. Akin to discourse that aligns telecommunications development with economic prosperity, the liberal and competitive telecommunications industry today is also commonly understood as a means to

209 Pakštalis and Tranavičiūtė, *Lietuvos ryšiai*, p. 195.

210 Pakštalis and Tranavičiūtė, *Lietuvos ryšiai*, p. 353.

211 Pakštalis and Tranavičiūtė, *Lietuvos ryšiai*, p. 350.

212 Pakštalis and Tranavičiūtė, *Lietuvos ryšiai*, pp. 353, 355–356.

213 Jonas Ūsas, "Untitled," in *Jie kūrė Lietuvos ryšius*, Basevičius, Kuzma, and Žintelis, eds., p. 229.

foster and fuel market economies.[214] This discourse presents a narrative of a modern European nation-state whose telecommunications industry endured historical hardships and continues to grow and prosper. While more mature telecommunications infrastructure might certainly nurture economic prosperity, its sole herculean agency can be doubted by taking into account the highly developed nature of Lithuania's current telecommunications networks in comparison with the high number of Lithuanian emigrants since 1990; 24 percent of the total population has left the country since 1990s.[215] Against this backdrop, the telecommunications narrative provided by the book is mainly a positive one. The text is written in an objective tone that presents well-researched primary sources that focus on the successful development of an emerging telecommunications industry, with barely any mention of the critiques and debates that surrounded these developments. A notable exception is the already-mentioned dissolution of the Ministry of Informatics and Communications in 1998 and its critique in the book. *Lietuvos ryšiai 1918–2018* thus presents telecommunications development in post-socialist Lithuania as an ongoing transformation toward a modernized, liberalized, and evolved telecommunications network that is emerging through allegedly smooth, chronological development of mainly positive institutional and technological changes.

Despite this smooth narrative, certain aspects of post-socialist Lithuania's telecom industry restructuration in the 1990s are omitted from the discussion, particularly details concerning the 1998 privatization of main telecom provider Lietuvos Telekomas, which shaped the industry through its new ownership, services, and other issues, and some of the crucial market players, such as Tele2. In this way, the book's neutral tone and chronological layout of historical dates provides a continuous, evolving, and future-oriented history. This does not mean that events that shaped the industry, such as privatization or market liberalization, simply happened and were not debated. During my research, I encountered many critical statements concerning Lietuvos Telekomas's privatization in various primary sources. I will explore critical negotiations that I encountered during my fieldwork in the third empirical chapter of the book, "Critical Negotiations," in order to illustrate that media technology development is not as smooth as it is sometimes presented, and how it is surrounded by critical negotiations that intensify during industry crucial events.

I would like to finish this presentation of the dominant historical narrative of Lithuania's telecommunications development with an idea from the field that illustrates the current state of remembrance regarding telecommunications development in Lithuania beyond positive historical representation. During my fieldwork in Lithuania from 2017 to 2018, I happened to discover the Network History Museum in the city of Kaunas, which had belonged to the telecom operator TEO,[216] and which, to my misfor-

214 Chrisanthi Avgerou, "The Link between ICT and Economic Growth in the Discourse of Development," in *Organizational Information Systems in the Context of Globalization. IFIP — The International Federation for Information Processing, vol 126*, Mikko Korpela, Ramiro Montealegre, and Angeliki Poulymenakou, eds. (Boston: Springer, 2003).

215 "Migracija skaičiais," *Europos migracijos centras*, accessed 15 January 2020, https://123.emn.lt/.

216 Lietuvos telekomas was privatized in 1998; in 2006 it changed its name to TEO, and in 2017 TEO became Telia Lietuva.

tune, had been closed since 2016. The museum's director Angelė Lekavičienė stated that although the plans to open such a museum in Kaunas had been developed since 1979, the museum was opened only in 1994, after 15 years of historical research alongside resident eviction and resistance to the upkeep and repair of the museum buildings. The museum exhibited material on Lithuanian post, telecommunications, radio, and informatics developments and consisted of 7617 exhibits, 438 old publications and documents, 34500 postal marks, and technical equipment.[217] In his memoir in the telecommunications memoir book *Jie kūrė Lietuvos ryšius*, the Minister of the Ministry of Communications and Informatics Gintautas Žintelis claimed that:

> It is pleasant that ever since it came under the control of the Telecom, even after privatization of the company, under foreign administration . . . the museum has been operating and is being maintained. I am very happy with it because it is a part of Lithuanian culture. "Lietuvos Telekomas" can also be proud of the fact that besides the production issues, its activity includes such a cultural aspect. . . . So now we have the most developed communications museum in Lithuania.[218]

Despite this praise, the museum was closed in 2016 after TEO decided to sell its premises. The CEO of TEO at that time, Kęstutis Šliužas, explained to the journalists the decision to sell the historical building in the center of Kaunas and give museum's content to the city as if historical reflection does not currently apply to the telecom business. He stated that "By focusing on building a next-generation telecommunications business, we are refining our operations and abandoning unrelated real estate management and museum development projects."[219] Simonas Kairys, the vice-mayor of Kaunas, promised the prompt delivery of the updated future museum, which would provide public access to the museum's exhibits.[220] One media article claimed that TEO sold the museum under the condition "that exhibits have to be moved to places where people can see them, not to dusty warehouses."[221] After the closure of the museum in 2016, its contents were dispersed among multiple institutions that I encountered during my fieldwork. As of 2020, the museum has not yet been re-created. During my fieldwork, after multiple attempts to track down the museum's remains, I arranged to visit one of the locations where parts of the museum's former exhibits were stored, the 7th Fort of the Kaunas Fortress. Here I found technical exhibits and documents

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217 Angelė Lekavičienė, "Pašto, telekomunikacijų ir informatikos muziejus," in *Lietuvos ryšiams – 80*, Arūnas and Povilas, eds., pp. 77–78.

218 Gintautas Žintelis, "Untitled," in *Jie kūrė Lietuvos ryšius*, Basevičius, Kuzma, and Žintelis, eds., p. 143.

219 "Lietuvoje liks vienu muziejumi mažiau: Kauno Ryšių istorijos muziejuje įsikurs verslininkai," *Statybunaujienos.lt*, published 18 January 2016, accessed 20 January 2020, http://www.statybunaujienos.lt/naujiena/Lietuvoje-liks-vienu-muziejumi-maziau-Kauno-Rysiu-istorijos-muziejuje-isikurs-verslininkai/6724.

220 "Kaune veikęs Ryšių istorijos muziejus – naujose rankose," *Lrytas.lt*, updated 26 May 2017, accessed 14 October 2019, https://kultura.lrytas.lt/meno-pulsas/2016/05/09/news/kaune-veikes-rysiu-istorijos-muziejus-naujose-rankose-1407872/.

221 Edita Radzevičiūtė, "Ryšių istorijos muziejus kraustosi į naują vietą," *Kaunodiena.lt*, published 12 April 2016, accessed 7 July 2019, https://m.kauno.diena.lt/naujienos/kaunas/miesto-pulsas/rysiu-istorijos-muziejus-pradejo-kraustytis-743612.

that were unsorted and stored in a rundown building that I could access freely without supervision. The next time I wanted to visit these museum's exhibits, I was told that they had migrated to the Kaunas City Museum M. and K. Petrauskas House, where they were now organized and only accessible to researchers. After I inquired about 2020 development plans, I received an answer from the employee of the main Kaunas City Museum that while some of the exhibits are digitalized, and some are partially accessible in one exhibition, "It is really not possible to put all exhibits in the exposition. The exhibits stored in the storage are not publicly accessible, they are only made available on request, for the purpose of research, upon application."[222] In short, the Network History Museum, which offered empirical access to the public, was eventually dissolved, and current engagement with telecommunications history requires effort. It seemed unfortunate that while telecommunications and IT development is celebrated in Lithuania and elsewhere, the one publicly available museum of telecommunications history has been reorganized under precarious conditions. While the dominant narrative I explored against the backdrop of *Lietuvos ryšiai 1918–2018* provides an uncritical historical narrative about telecommunications development in Lithuania, and the sole museum for its history has closed, there is a need to foster engaged studies about the Internet development through fieldwork in Lithuania and elsewhere to situate and complicate such dominant narratives. In the following section I thus focus on my situated fieldwork study of the Internet as infrastructure in Lithuania, which I explore through three empirical chapters: "Everyday Infrastructuring," "Geopolitical Imaginaries," and "Critical Negotiations."

222 Kaunas City Museum, e-mail message to author, 4 February 2020.

2. Everyday Infrastructuring

It was a dark and rainy evening in Vilnius. While searching for a hacker space in one of the side streets in the center of the town, I reached an abandoned collapsing old building—one of those that you could still find in the heart of Vilnius in 2017—and entered its yard. I could not find the entrance in the pouring rain and had to call the hacker space's telephone number to ask for directions. Once inside, I received the contact of a long-term telecommunications industry participant, whom I later contacted for an interview. This interviewee, an employee from a small competitor company, was highly critical of telecom giant Telia Lietuva's activities and employees. He nevertheless advised me to speak with Telia Lietuva's employees and provided me with crucial information regarding the key stakeholder names from Telia Lietuva and other places that facilitated Internet development in Lithuania. One of my following interviewees worked at Telia Lietuva; this person later provided me with an opportunity to observe everyday labor practices at the company and became my mentor there for two months. Thus, I ended up at a telecom corporation by beginning my journey at a hacker space.

The work of all the network maintainers at Telia Lietuva consists of highly diverse practices of manual and communicative labor; mistakes; jokes; conversations in Lithuanian, Russian, and English; and constant travel by car. Their work comprises moments of planned practices, such as digging, mediating, documenting, producing, and others, which I explore in the upcoming chapters in the form of short vignettes. Additionally, network development work consists of what I call "situated experiences," which form the open-ended, unpredictable character of Internet maintenance practices. Situated experiences take place, for instance, when workers are confronted with intense societal differences or fragmented remembrances during their daily work, particularly experiences that cannot be pre-planned and controlled. Thus, the exact workday schedule of the majority of network maintainers is unclear due to these unforeseen variables. What people will they meet? What tasks will they need to carry out? What technologies will be used? What places will be visited? What jokes will be shared? What memories will suddenly emerge? What problems will need to be solved and how? The labor practices described in the upcoming vignettes thus connote place-based doings in which workers' bodies, thoughts, and things, such as used equipment, interact in particular and contingent ways. I avoid assigning those practices to concrete people, because other

Figure 5. Entrance to the hacker space in 2017.

Source: Photograph by author.

people in similar situations would continue to carry out these practices. Despite this, I also claim that practices comprise not only routinized behavior, but also moments of what I call irregular and unpredictable situated contingencies.

Before moving on to the field, it is important to state that a full picture of Internet maintenance practices is impossible. One could, for example, imagine an organogram of a company's structure that elegantly visualizes physical telecommunications network maintenance practices. However, such visualization is not possible due to multiple reasons.

First and foremost, this is not possible because the company's structure is constantly changing; thus, a static picture or a scheme of practices would always be an image too late. During my fieldwork, leading managers at one or another of the company's department often forgot the names of the departments in which they worked because these names constantly changed. Consequently, the company's labor practices are organized not only around formal schemes, but also through established personal contacts. Another reason for the impossibility of the full static picture is the inherently open-ended and transient nature of network maintenance practices. It is possible to explore Internet maintenance practices because they sustain the Internet's material conditions of possibility. Despite this, practices are contingent and thus avoid any description that could encompass all of their constitutive parts. The third reason for this impossibility is rooted in the fact that telecom companies have strict policies regarding knowledge sharing. Although I could visit company's offices, my access was always limited. For instance, I did not have an employee card that would allow me to enter and move be-

tween the floors of various company buildings. My status was unconventional; officially I was an intern who did not really work at or for the company, but carried out my own research. Thus, my movement and possibilities of company exploration were limited.[1] During my first interview at the company, before I acquired intern status, I had to sign a non-disclosure agreement. When I later began my internship, I signed a research agreement that allowed me to gather data relevant for my publication, but necessitated that I confirm its use with the company, which was granted without the need for redactions. Although my internship mentor encouraged me to use my time at the company for my own research goals, support I could not appreciate enough, I felt constantly anxious. This feeling was based on a vague idea that my research might not be allowed to be published due to the atmosphere created by multiple workers, who claimed that the nature of their labor practices is sensitive, cannot be discussed in depth, and cannot be transmitted to outsiders.[2] Some of the workers told me openly that there is information they cannot share with me. At other times, delicate issues—such as worker unionization—were spoken about outside of the company's office. Yet such visible limits upon information sharing were not placed only upon me. Workers from different departments could not walk freely around all company offices or participate in each meeting. My internship mentor contended that some meetings were confidential not only for me, but also for some colleagues who could disturb their flow, and that furthermore they were not relevant for their work. Another reason that it was impossible to gain a full picture of the company's practices was the location of company offices. At the time of my fieldwork, offices were dispersed around the city of Vilnius, and full access was not possible due to limited research resources. The company's buildings comprise not only offices, but also various data centers and infrastructure objects, some of which can be accessed only with special permission, ID cards, keys, and codes.

I realized early on that due to these multiple conceptual, methodological, and practical reasons, the full disclosure of Internet maintenance practices is not possible and thus cannot be the goal in itself. Even a precise description of each and every practice is impossible, because, firstly, there is a multitude of practices, and secondly, because the practices themselves encompass a wide range of situated contingencies that emerge everyday and thus cannot be exhaustively described. These points thus illustrate how participatory observation at the telecommunications company and the consequent description of its labor practices are complex and puzzling. Importantly, these factors are not a means of discouraging fieldwork-based research, but rather a reflexive outline of the access issues I encountered. The following exploration of Internet maintenance practices through the focus on actors, things, qualities, and interrelations discloses the complexities and contingencies of practice-based Internet maintenance. It illustrates that practice—both of Internet infrastructuring and of my research—is always convoluted. After all, this applies not only to practices of media technology maintenance, nor complex research, but also to the lived nature of reality as such.

1 Fieldwork report, Miglė Bareikytė, 12 February 2018.

2 Fieldwork report, Miglė Bareikytė, 14 February 2018.

My participatory observation at Telia Lietuva began at the Physical Network Department.[3] By "physical network," I mean a linkage of material equipment—cabinets, copper and fiber-optic cables, communication channels, server rooms, etc.—that has to be purchased and interconnected by human workers in order to provide the material basis for Internet services. I spent one month observing, participating in and discussing daily labor practices that maintain physical networks. In this context, teams that dealt with network building, data support, resources and other issues ensured a basic level of Internet maintenance by organizing, designing, and building physical telecommunications networks. I observed managers, engineers, documenters, outsourced contractors, and other employees in order to understand how labor practices needed to maintain the physical network are carried out on a daily basis, which resulted in vignettes on Digging, Mediating, Planning, Documenting, and Connecting practices. I also explored Transmitting practice, which links physical network maintenance with more abstract, computer-based maintenance labor. I illustrate the practices, which are predominantly based on communicative maintenance labor, in the subsequent vignettes from the Head Office on Processing, Producing, Wholesaling, and Popularizing.

The maintenance of physical Internet networks at the Physical Network Department includes multiple activities and sites: transportation by car, interconnecting various technical objects, communicating with people, observing and controlling the outsourced laborers, drawing network schemes, and speaking via telephone or Skype. Physical network maintenance practices also include multiple things used at work, including interfaces such as computers, software programs (Microsoft Office for technical requirement designers; Visio, Autokada, internal Oracle, Vantiv, CRM, SAP, and Argis, a map used to observe network configuration; TIS, which describes all network information; and GIS, which is used to visualize this information), cables (fiber-optic, copper), transducers, and many others. In the following section, I take a closer look at the physical network maintenance practice of Digging, which involves laying networks into the ground; Mediation, which includes managing outsourced contractors to build new parts for the company; Planning of technical requirements for new physical network parts; Documenting new physical network parts in order to facilitate network maintenance and avoid future mistakes; and the practice of Connecting, which links company and client equipment. In short, in the following section I explore how the Internet's physical dimensions are maintained in practices that begin in the ground and end at the user's home. While these practices are abstracted by the textual format of this book, it is important to emphasize that they happen repeatedly and on a daily basis; they include planning and contingencies; they consist of bodies, things, implicit and applied knowledge, remembrances, imaginaries, and desires.

In 2017, physical telecommunications networks were maintained in the field and at company offices. My visits to the Physical Network Department in Vilnius' districts of Naujamiestis and Department of Transmission Practice in Karoliniškės district were

3 In 2017, Technology Department that also comprises Physical Network Department at Telia Lietuvaconsisted of nine different sub-departments: IT systems, Infrastructure, IT service management, Customer service, IT service expert, Products and Services, Project management, Service provision and operations, and Network.

initially organized and planned by my internship mentor, who worked as a manager at the Head Office. I first met with network planers, documenters, and installers from the Physical Network Department, all of whom worked in an old Soviet-era building in Naujamiestis. Naujamiestis, which means "new city" in Lithuanian, was built in the nineteenth century as a result of Tsarist government expansions of Vilnius.[4] It is an eclectic district: while close to the Old Town, it comprises occasional factory buildings, Soviet-era apartments, contemporary glass buildings, and a few wooden houses. My second visit, to the Transmission Department in Karoliniškės, consisted of meetings at a comfortable network transmitter building. Karoliniškės, a micro-district (*mikrorajonas*) located in the western part of the city, is famous for hosting Lithuania's largest new construction, a 326.5-meter TV tower that looms above numerous Soviet-era apartment buildings. Karoliniškės emerged during the 1970s,[5] a period during the Soviet Union era but already after the death of Stalin; it is mostly comprised of five, six, and twelve-floor Soviet-era apartment buildings.[6] The district is also widely known in Lithuania for the tragic events of 13 January 1991, when Soviet forces attempted to occupy the TV tower and hinder information transmission to the public. This event resulted in massive protests and the killing of 14 civilians.[7] Despite this history, the current atmosphere felt serene. The telecom building was higher than the others around it and coated with Euroremont-style—a term used to describe homogenous post-Soviet modernization aesthetics—panels. Once inside the building, I was immediately made aware of its corresponding institutional hierarchy. This included a guard positioned at the entrance as well as a renovated interior that spoke to expensive investment. This interior stood in stark contrast to the Physical Network Department in the Naujamiestis district, which is built of decaying grey bricks and lacks worker parking spaces. Once, employees from the Physical Network Department played a mean joke on their colleague by sending him a fake photo of his car with seemingly smashed windows, parked in a shady yard. A vandalized car was not such irrational possibility in the context of such subpar parking, and thus the colleague believed this joke to be true for some time. In comparison, at the Transmission Department in Karoliniškės, there were plenty of parking spaces, while the office itself had an atmosphere akin to a lively newsroom, complete with multiple TV sets and busy workers typing at computers. While the offices in Karoliniškės were bright and workers had access to a refurbished, spacious kitchen, such comfort was not an option at the Physical Network Department, where the kitchen looked abandoned. The Physical Network office was located in two large, open spaces that offered little privacy, a bathroom in need of renovation and a poor-quality free coffee machine.

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4 Danguolė Dainienė et al. "Naujamiestis," in *Pasižvalgymai po Vilnių: miesto mikrorajonai*, Zita Tiukšienė and Nijolė Sisaitė, eds. (Vilnius: Vilniaus apskrities Adomo Mickevičiaus viešoji biblioteka, 2015), p. 63.

5 According to Doc. Dr. Darius Linartas, the Soviet Union withdrew from grandiose Stalinist aesthetics in the 1970s and turned to global aesthetics and new Soviet modernism (Darius Linartas, "Lithuanian Architecture Competitions in the Soviet Era," *Virtualus Architektūros Muziejus*, published 7 December 2017, accessed 4 April 2019, http://archmuziejus.lt/en/lithuanian-architecture-competitions-in-the-soviet-era/).

6 Dainienė et al. "Karoliniškės," p. 49.

7 Dainienė et al. "Karoliniškės," p. 50.

The stark differences between these spaces spoke to an idea of advancement, which was reinforced by physical differences. For example, network transmitters, who engaged in office-based rather than manual labor, had small office rooms separated by glass. Employees from the Transmission Department additionally required me to provide more explanation before I could observe their practices. After I was offered coffee and cookies, they expected me to ask precise questions, describe my research premises, and defend the meaning of my research before I could begin. In contrast, at the Physical Network Department, employees usually did not question why I was there and were furthermore open to sharing their knowledge, experiences, and jokes. In this context, I could either work on my computer or question employees without any resistance.

Figure 6. Physical Network Department in 2017.

Source: Photograph by author.

After visiting the Physical Network and Transmission Departments in Naujamiestis and Karoliniškės, I continued my participatory observation at the Telia Lietuva Head Office in February 2018. At the Head Office, the Internet is no longer maintained as physical telecommunications networks, but is rather made into a product and popularized through communicative labor practices, i.e., labor practices that instrumentalize language as a resource to realize work goals.[8] In 2018, the company's Head Office was located in one of few high-rise buildings near the Neris River, in the Vilnius district of Šnipiškės, known locally as "Šanchajus." This district is comprised of extremes: next to old and decaying tiny wooden houses with gable roofs stand high-rise glass and steel municipality and business offices, a mall called "Europe" and multiple restaurants and

8 McKinney, "Communication, Labor, and Communicative Labor," pp. 58, 153.

Figure 7. Transmission Department in 2017.

Source: Photograph by author.

hotels. According to Dainienė et al., Šnipiškės presumably emerged as district in the sixteenth century; during this time, it was inhabited by people of various confessions including Jesuits, Catholic Christians, Jews, and Orthodox Christians. During Soviet times, it was spatially articulated in modern terms through the development of a broad alley enclosed by shops, and recently further developed through high-rises. The current shape of the district emerged in 2002–2004, the period when Lithuania aimed to enter the EU and NATO. [9] Accordingly, the main square between these skyscrapers is now titled "Europe Square" and also contains the "Europe" shopping mall. This district thus encompasses Lithuania's tensions very well: it symbolizes the country's belief that it is possible to become European through industrial advancements such as contemporary architecture comprised of glass and steel, market entrepreneurship, and liberal governance, while ignoring the visible poverty of Šanchajus' wooden houses. My fieldwork in 2018 continued in one of these high-rises.

The three parts of the high rise at the Head Office were titled "smaller seal," "bigger seal," and "the third seal," which prepared visitors for a maritime-themed interior. The lobby was decorated with pastel-blue armchairs and located in a spacious hall with colossal floor to ceiling windows on one side of the high-rise. The floor was shiny and elevators steadily moved up and down. Despite this initial impression, after I spent

9 Danguolė Dainienė et al. "Šnipiškės," in *Pasižvalgymai po Vilnių: miesto mikrorajonai*, Zita Tiukšienė and Nijolė Sisaitė, eds. (Vilnius: Vilniaus apskrities Adomo Mickevičiaus viešoji biblioteka, 2015), pp. 209–214.

Figure 8. Representative side of Šnipiškės. The orange building in the center is the Telia Lietuva Head Office that I visited in 2018.

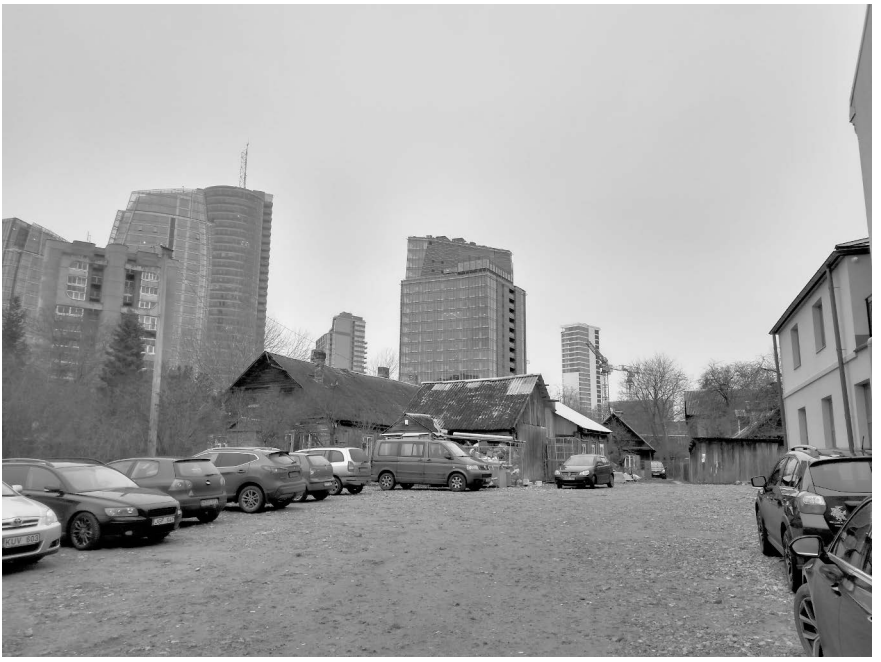
Source: Photograph by author.

time in closed parts of the building, I noticed that some office door handles wobble, as if to remind me that crumbling wooden houses persist just a few steps behind this luminous and looming building. Usually there were never many people in the lobby; those who worked there promptly jumped into elevators moved by their employee-cards and disappeared from the entrance hall.

Every time I arrived at Telia Lietuva's Head Office, I usually parked my car in a nearby parking lot. I was instructed by my internship mentor to inform the administrator that I am the company's intern and that I parked my car in this parking lot. Every morning I had to enter my car number and surname in a grid notebook on the administrator's table. The female administrator would use this notebook to enter my data into the system in order for me to leave the building without paying for parking. While the lobby is accessible to all, one needs permission to access other floors. I would frequently sit in the lobby waiting for the designated time to call my internship mentor, meet a worker for a pre-arranged interview, or talk with the administrator and ask her to transfer me to a particular floor, which she would always verify with the person I intended to meet. Sometimes I would go out, cross the street, and buy coffee at the "Europe" mall. My participatory observation during this time and in this part of the company was thus not spontaneous, but planned in advance and always traced.

Notwithstanding these limits, I could still access the offices in the high-rise, speak with employees, and participate in their meetings, even if I sometimes had problems with moving from one floor to another. The Head Office was spread out from the 2nd

Figure 9. Visiting Šnipiškės from the other side. On the left side is the Telia Lietuva Head Office that I visited in 2018.



Source: Photograph by author.

to the 18th floor and beyond. Each floor had a curved glass wall, which made the offices look light, as well as multiple red chairs and ubiquitous Telia logos. The floors were so similar that once an employee I shadowed managed to exit the elevator on the wrong floor without noticing. I sometimes felt like I was in in Eldar Ryanzanov's Soviet comedy *The Irony of Fate*, in which a drunk protagonist accidentally travels from Moscow to St. Petersburg in an alcohol-induced haze, only to find the same street and building, and even enter a seemingly similar apartment with his normal key. "They all look very similar,"[10] said Ugnius,[11] an employee from the B2B Department who exited the elevator at the wrong floor. In the high rise, most of the people worked on their laptops, talked with each other softly, and sometimes made a call or met a colleague for a short chat. They also drank many cups of coffee, which was freely accessible in the tiny kitchens on each floor. Their desks looked similar and impersonal: papers, the occasional cactus, and scattered Happy New Year cards. Even an office room for employees responsible for public relations and communication tasks looked as it should look, down to the detail of its expected subtle differences: jazz music playing softly in the background and birthday dates listed on a big board. On one of the floors I found a fridge with food

10 Fieldwork report, Miglė Bareikytė, 13 February 2018.

11 Research participants have been allocated pseudonyms.

one could buy with a debit card. It reminded me of Lithuania's attempt to adopt the ubiquitous cashless payment schemes that were introduced by Swedish banks. In this atmosphere of corporate serenity, comfort, and light, I felt like an obvious outsider with my MacBook, as probably everyone there used Microsoft computers.

At the Head Office, I meticulously planned meetings with the workers responsible for the development of the Internet as a product, which mostly took place during scheduled meetings. In contrast to the cable layers and network planners from the Physical Network Department in Naujamiestis, workers at the Head Office would not simply chat informally with me. Rather, they would only meet me for an interview, which either my internship mentor or I needed to plan in advance. Even if all interviews went well, I was aware that I was being observed and scrutinized by the workers at the high-rise, most of whom carried the title of "a leading manager of X."[12] Sometimes, I was required to prove my telecom industry knowledge before being allowed to observe further. During one interview with a highly-respected-yet-somewhat-hostile employee, I nodded to a concept he mentioned, causing him to ask if I was sure that I understood what I was nodding to. Was I? This questioning made me aware of the tense, self-affirming, and goal-oriented environment at the Head Office. However, similar situations in which my research was explicitly doubted were rare. Notwithstanding occasional suspicions and frequent kindness, since the beginning of my fieldwork, the bar for communication and my self-representation as a knowledgeable researcher at Telia Lietuva was continuously raised higher.

Throughout my fieldwork, I often encountered an atmosphere of ambiguous and unexpected participant cynicism, which is important to point out. This cynicism was ambiguous because it was simultaneously caring and detached. Once, I was introduced by Matas, an employee from a Technologies-related department, to his coworkers as "a colleague, but only for one day,"[13] to which his colleagues answered that "Telia dropout has increased, but even for Telia one day is exceptional."[14] Often such and similar statements created an atmosphere of a supposedly cynic detachment from the company or from other employees, while those who had expressed them still carried out their work with emotional involvement and care. Anthropologist Alexei Yurchak describes similar aesthetics of living in an ongoing state of precarious attachment through the concept of "*stiob*." According to Yurchak, *stiob* is:

> *overidentification* with the object, person, or idea at which this *stiob* was directed that it was often impossible to tell whether it was a form of sincere support, subtle ridicule, or a peculiar mixture of the two. The practitioners of *stiob* themselves refused to draw a line between these sentiments, producing an incredible combination of seriousness and irony, with no suggestive signs of whether it should be interpreted as the former or the latter, refusing the very dichotomy between the two.[15]

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12 Fieldwork report, Bareikytė, 14 February 2018.

13 Fieldwork report, Miglė Bareikytė, 27 February 2018.

14 Fieldwork report, Bareikytė, 27 February 2018.

15 Alexei Yurchak, *Everything Was Forever, Until It Was No More: The Last Soviet Generation* (Princeton, NJ: Princeton University Press, 2013), p. 250.

Media scholar Maria Brock describes *stiob* as a genre of humor that originated in the late Soviet era and laughs at mainstream discourses by over-identifying with them. This is exemplified by the famous case of Sergey Kuryokhin's attempt to prove that Lenin was a mushroom by using scientific arguments. Other, less radical examples include characters from contemporary satires such as *The Colbert Report* or *Borat*.[16] A statement from Nerijus, an employee from the B2B-related department, also exemplifies the *stiob*-ish atmosphere of my company fieldwork. According to Nerijus, "We are very cynical in the organization. There are no emotions. At least I do not come to make friends. You come to work, make money."[17]

The Physical Network Department is not responsible for services that emerge from and in relation to the Internet and does not speculate on the effects of the Internet's spreading access and usage. Technical infrastructure, and therefore physical network maintenance practices, is concerned with the establishment of the conditions through which the Internet can emerge as a service. When a client decides that they need an Internet access, they contact Telia's managers. The managers then forward the query to the Physical Network Department, which ensures that the physical network is built, installed and connected for new clients. Workers there and at the Transmission Department then plan, design, monitor, and describe the physical network's emergence and expansion. The physical network is built exclusively by external contracting companies and subsequently used by the company's engineers-technicians to connect new clients to the company's network. At the Head Office, the Internet as a product is both conceptualized and discussed during meetings and communicated to customers as a service devoid of any physical labor and ongoing maintenance. Finally, Internet access that relies on labor practices predominantly from the Physical Network Department and the Head Office is sold as a service to new customers. In the following section, I explore these maintenance labor practices—digging, mediating, documenting, planning, documenting, connecting, transmitting, processing, producing, wholesaling, and popularizing—in the form of short vignettes.

16 Maria Brock, "Political Satire and its Disruptive Potential: Irony and Cynicism in Russia and the US," *Culture, Theory and Critique* 59, no. 3 (2018), pp. 281–98.

17 Fieldwork report, Bareikytė, 14 February 2018.

2.1 Digging

> The problem is that telecommunication lines and cable networks are objects that cannot be seen visually, therefore no work seems to be happening.
> *Aleksandras Anusevičius, Jie kūrė Lietuvos ryšius: biografinės apybraižos*[18]

Summer is considered the preferable digging season in Lithuania, because it is when the earth is more pliable and thus cables can be easily laid. During my first days at the Physical Network Department in June, I often left the office and visited digging sites with employees, one of whom was Benas. Benas would fill in the necessary information in the office notebook required for renting a company car and we would leave the office. Once, we went to visit two network construction sites that were accidentally located on the same street. In the car, Benas told me that one project is based on digging an approximately 90-meter-long ditch to connect a well to a building with a telecommunications cable. The second network expansion project is larger. As it was my first time visiting a telecommunications construction site, I was unsure what to expect. On the way, Benas told me about his job: he is responsible for observing the physical network infrastructure contractors, technical network maintenance, client complaints, and paperwork. This sounded labor-intensive, so I asked him if it is difficult to manage all these tasks. "It is very difficult," replied Benas.[19] He then provided me with an example of one type of difficulty, which had occurred during an old street reconstruction accident. After a part of the physical telecom network underneath a collapsed street was destroyed, it was unclear who should do the job. He rhetorically asked: "When the street is being reconstructed, when its surface is taken off and, in the meantime, that part of the well crumbles and needs to be repaired, who is responsible for that repair?"[20] When the streets are reconstructed, Benas said, everything can temporarily appear to be fine, but holes can form in an underground network and need to be repaired. "You cannot tell who is guilty," he continued.[21] While Benas is mainly responsible for the observation of contractors, i.e., outsourced constructing companies that repair and build physical telecommunications networks, the very goal of his job is to solve actual everyday physical network problems.

The first site we arrived at was small, and digging had already started. I saw a compact digging machine and three people: the construction leader and two workers. They planned to dig up to 100 meters a day, but they did not know how far they would be able to reach, because digging speed depends on the quality of the earth. Their labor tasks consisted of the following examples: in the first task, two people dug a long ditch from

18 Aleksandras Anusevičius, "Untitled," in *Jie kūrė Lietuvos ryšius*, Basevičius, Kuzma, and Žintelis, eds., p. 525.

19 Fieldwork report, Miglė Bareikytė, 12 June 2017.

20 Fieldwork report, Bareikytė, 12 June 2017.

21 Fieldwork report, Bareikytė, 12 June 2017.

the road to the building premises with a shovel and a tractor. They laid a cable in the pipe hole and put warning tape on the pipe to inform others of the pipe's purpose before covering it with dirt. I was told that sometimes it can be dangerous to use a tractor for digging, because it can easily interrupt other underground infrastructures, such as gas or electricity, and thus a shovel is used. Due to multiple infrastructures buried underground one cannot dig randomly and is also obliged to choose appropriate equipment and follow government-issued standards. After digging and laying pipes and cables, the workers smooth the earth and lay grass on top of it. I asked the work supervisor about his workday. "[It's] hell," he replied.[22] His workday, which starts at 7:00 a.m. and finishes at 4:30 p.m., consists of checking objects and material supplies and learning about new commissions. The supervisor smoked a cigarette and acted cool while he told me how many calls he "picks up" per day. "Around 200," he revealed proudly.[23]

When we arrived to the second site, it was already raining. It was summer, the season of many digging operations, a time when the soil is manageable because it's not too muddy or frozen. At the construction site, an asphalt street disturbed an initial digging plan—a 650-meter-long hole for telecommunication cables—so workers had to use an underground rocket to dig under the street. I saw two workers lifting a seemingly very heavy rocket with their bare hands and a rope, while other people joined the workers to discuss the rocket's route. Air was then pressed out of the compressor, which moved the rocket and pipe from one side of the street to the other. While such underground digging, based on rocket compression, is crucial for asphalt paths, it is only somewhat precise and cannot be fully planned because different layers of soil might pull down or lift the pipe because, "no one knows what type of earth is exactly under the ground,"[24] the lead constructor told me.

At some point, Benas and I started walking around the field. It got cold. The rocket was still moving and trying to pull the pipe to the other side of the road. The pipe would remain underground and the telecommunications cables would be laid inside later. The rain continued as cars passed by; a few workers sat around on the ground. Benas and I noticed that the pipe suddenly reached the other side of the street, but nobody was satisfied: it had come out too high. I asked about the reason for this failure, but nobody seemed to have an exact answer. They now needed to dig again. Benas told me that it is impossible to plan such a digging process; perhaps a stone or a piece of rubbish happened to block the rocket's path. There are situations, he said, when people attempt to avoid paying for rubbish transport, so they cover it in asphalt and put it under the asphalt street without thinking that someone would ever dig there. Some people even claim that rubbish might constitute a good foundation for housing projects. "But not for telecommunications," said Benas.[25]

Currently, Internet network data is transmitted through wired and wireless network technologies. In both cases, physical data transmission networks need to be expanded

22 Fieldwork report, Bareikytė, 12 June 2017.
23 Fieldwork report, Bareikytė, 12 June 2017.
24 Fieldwork report, Bareikytė, 12 June 2017.
25 Fieldwork report, Bareikytė, 12 June 2017.

and maintained. Digging is one example of such crucial wired communications development and maintenance practices. During the digging process, people walk, drive from one building site to another, dig holes, and use tractors, cables, shovels, and bare hands. Benas is responsible for technical repair and the smooth reconstruction of physical networks. He also deals with complaints, observes contractors and drives to various construction sites. They work on a project-by-project basis and are employed as an outsourced labor service hired by Telia Lietuva. Workers at Telia Lietuva's Physical Network Department once told me that these contractors do the "dirty" [26] jobs. They literally work with dirt, dig the earth, lay the pipe, and pull out the cables. There are additionally workers from Telia Lietuva, who document the process; they are responsible for updating contractors with information on real-time Telia network conditions in order to avoid accidentally cutting off cables already in use and thus interrupting the signal flow. These three groups use digging equipment, cars, phones, and computers, all of which maintain their communication and sustain the network-building process. Thus, interaction between an observer, a contractor, and a documenter, alongside manual laborers and equipment, is crucial to building new telecommunications network sections and repairing old ones.

As mentioned above, due to the fact that contractor labor is outsourced, contractor jobs are both more precarious and more autonomous. This leads to tensions between Telia Lietuva and these outsourced labor companies and often results in Telia Lietuva attempting to discipline the contractors. According to Benas, sometimes contractors try to exercise more autonomy than they should: they make decisions by themselves instead of communicating with Telia Lietuva. For example, when a client's wishes cannot be met due to limited network capacity, contractors may make their own decision on how to proceed. "It is not pleasant to be deceived," Benas told me.[27] In order to force contractors to communicate with Telia Lietuva, Benas requires them to send photos of the results of their work. In case of resistance, Telia employees tell the contractors that "'If you cannot make a photo, then let us dig everything up.' That usually helps to make photos appear."[28] Contractors and Telia workers thus cooperate in building the physical networks, but this cooperation is based on a disciplinary hierarchy in which Telia Lietuva controls physical network builders—outsourced contractors—by observing their work and requiring photo documentation of work results.

The practice of digging involves creating a hole in the earth, laying a pipe and a cable, and covering everything up. It might sound simple, but digging is difficult to plan. For example, it is important to lay pipes and cables before covering the aboveground street in asphalt, but such rational planning would mean that all participants (urban developers, contractors, street layers) would need to know about one another's plans in advance, which is not always the case. Notwithstanding the actual visibility of the building process at the building site—one can see piles of soil, tractors, trucks, cars, groups of people, and sets of cables—workers at the Physical Network Department told

26 Fieldwork report, Miglė Bareikytė, 14 June 2017.

27 Fieldwork report, Bareikytė, 12 June 2017.

28 Fieldwork report, Bareikytė, 12 June 2017.

me that many city developers still perceive physical telecommunication as non-essential. Although barely anyone in Europe today could think of living without electricity, running water or roads, workers in the field described how telecommunication structures are still often forgotten by those who build roads and buildings or lay other types of infrastructure. I heard workers say that "Every third person would lay the last brick on the ground and remember that they also needed a network connection. Sometimes there are situations when concrete will be laid tomorrow or, even worse, it has been laid yesterday!"[29] Such perceived ignorance not only leads to miscommunication between contractors and end clients, but sometimes also results in a do-it-yourself culture amongst end clients. Examples abound, such as when random private citizens attempt to dig a new hole for cables by themselves, only to learn later that the national regulator, the Communications Regulatory Authority, has issued standards regarding ditches for Internet cables that require one to dig no less than seventy centimeters deep. In addition to such human-related factors, digging also cannot be precisely planned due to the shifting constitution of the soil. As layers of the earth and soil move, pipes sink or rise more than the required seventy centimeters. Due to the same reason—the difficult soil constitution—it is not certain how many meters one will manage to dig per day.

The task of digging is site-specific due to the fact that it takes place in particular locations. Accordingly, there are different types of earth interventions, depending on what underground equipment already exists. For instance, if there is an underground sewage system near the digging location, a cable can be pulled into a pipe at the sewage system, thus making it unnecessary to dig a long ditch. In other cases, earth must be dug and drilled. The first of the digging processes that I visited with Benas was an open digging process in which a hole was dug and a cable was laid into the soil. Another type of digging practice, closed drilling, takes place when an asphalt street cannot be dug out, as described in the second vignette of pulling out a pipe from under an asphalt street. There are two ways to drill into the earth in such a closed drilling process without upsetting the first ground layers: one can either push a pipe through a rocket or engage in directional drilling. During the latter, a machine drills deep, large distances, and can regulate its direction. While no one can predict the exact kind of soil that will be found underground, everyone knows that sand, gravel and clay are especially bad digging conditions. After the earth is dug via either of the methods, cables are laid into the pipe. They are then soldered, the hole is covered and the soil is evened out. At some point, these covered cables will transmit signals and data.

While currently this process is carried out by outsourced network constructing companies, I found it interesting that in Lithuania only few decades prior, everyone seemed to be involved in such physical infrastructure works. According to telecommunication industry builder memoirs, such as ones by Vytautas Kaušpėdas and Vincas Algimantas Strimaitis[30], students, the military, and lay people helped lay telecommunication cables during Soviet times. As Kaušpėdas remembers:

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29 Fieldwork report, Bareikytė, 12 June 2017.

30 Vytautas Kaušpėdas, "Untitled," in *Jie kūrė Lietuvos ryšius*, Basevičius, Kuzma, and Žintelis, eds., p. 511; Vincas Algimantas, "Untitled," in *Jie kūrė Lietuvos ryšius*, Basevičius, Kuzma, and Žintelis, eds., p. 519.

Figure 10. Revisiting one of the digging sites, where the soil was evened out and the cables were already covered with soil and thus invisible.

Source: Photograph by author.

> Some features of the Soviet system need to be mentioned, which do not exist today, and many do not even know what it means. These are the Lenin assistance works. All of the collectives had to work one Saturday in April to clean up the environment, build or lay cables or build telephone canals. Many objects required manual digging in the trenches.[31]

Digging requires the instrumentalization of multiple worker bodies under precarious weather conditions. These workers actually lift heavy digging equipment, carry pipes, connect and cut the cables, repair equipment, observe one another, communicate on the phone, and control the process from afar. Yet digging instrumentalizes not only the human body, but also the body's surrounding environment. It is a violent practice that constantly cracks the earth open and buries glass and plastic underneath. Industry workers used in the field often used "hell" as a metaphor to describe their labor practices. In his memoirs, telecommunications industry participant Vilimas Kulbė remembers how telecom workers during Soviet times engaged with physical infrastructure that was built above-ground:

> The beauty created by nature was not admired by the telecommunications workers. . . . All the repair crews, the installers had to be called forth and sent to the line. They walked along the line and stroke poles with wooden stumps so that the frost would

31 Kaušpėdas, "Untitled," p. 511.

> fall. Wire icing and hurricane winds were the worst. Strong wind struck the trees, twisting and confusing the wires, and breaking the support.[32]

Anthropologist Anna Tsing expresses a similar sentiment, but from a perspective of attentive care. She writes about the instrumentalization of the environment via resourced-oriented mindsets and the resulting alienation from the earth. Tsing posits that "Alienation obviates living-space entanglement. The dream of alienation inspires landscape modification in which only one stand-alone asset matters; everything else becomes weeds or waste. Here, attending to living-space entanglements seems inefficient, and perhaps archaic."[33] Similarly, the main goal of the practice of digging literally fragments the environment and cracks the earth open in order to construct or repair a wired telecommunications network that will enable future data flow.

While digging could be considered an environmentally intrusive practice, other dimensions of this practice also emerged in the field: beyond an observable practice, it was positioned in historical and geopolitical contexts. A worker I met in the field recalled that during Soviet times—although I am not sure how old he was during this period—digging practices were more brutal than today. Massive Soviet digging machines could crush huge stones in one hit. As technology developed, machines got smaller; currently electricians and telecommunications specialists attempt to cooperate and lay cables in one pipe. As Benas claimed, the reason for this is assumed to be European resource optimization policy: "Well, maybe we are getting more European, trying to save."[34] Although there are multiple contractors that compete with one another for network construction projects, I was told that they also cooperate with each other. Benas explained, "Since the equipment is expensive, sometimes some contractors have way more work than others and pass on their work to another company. So, one can come to the field, expect one contractor, but there will be totally different company doing the job."[35] One contractor told me that this strategy of sharing labor with multiple competitive contractors in a capitalist economy is a legacy from a Soviet past in which everyone worked for one structure. In this context, loyalty is important; switching from one contracting company to another is not respected.

While the legacy of Soviet labor cooperation was described in positive terms that connoted loyalty and solidarity, notwithstanding the financial sacrifices of each contractor, current infrastructure builder cooperation deemed "European" was perceived as an ongoing shift. "We are *becoming* more European," remarked Benas in a slightly *stiob*-like manner. "Becoming European" in this context can be understood as an ironic description of becoming more disciplined and rational, a site in which subjects simultaneously laugh both at these categories and themselves. It fits with Yurchak and Brock's description of the late Soviet *stiob* genre of humor, which laughs at mainstream discourses by over-identifying with them. Although some people in the field historicized digging practices through categories such as moving from "brutal Soviet" to "optimized

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32 Vilimas Kulbė, "Untitled," in *Jie kūrė Lietuvos ryšius*, Basevičius, Kuzma, and Žintelis, eds., p. 255.

33 Anna Lowenhaupt Tsing, *The Mushroom at the End of the World: On the Possibility of Life in Capitalist Ruins* (Princeton, NJ: Princeton University Press, 2015), pp. 5–6.

34 Fieldwork report, Bareikytė, 12 June 2017.

35 Fieldwork report, Bareikytė, 12 June 2017.

European" cooperation, others felt that cooperation—such as in the example of electricity and telecommunications workers laying cables in one pipe—emerged not because of political changes, but due to physics and the absence of induction problem, because fiber-optic cables, unlike copper, can actually be laid next to electricity lines. While electric cables create magnetic fields that once disturbed old copper wire telecommunications cables and diminished transmission quality, these electric cables do not affect the fiber-optic cables and thus allow electricians and telecommunication specialists to cooperate. Thus, while digging practices are earthly and violent, the respective degrees of involved cooperation were explained in the field in historical, geopolitical, *stiob*-ic, and physical terms.

What, then, does digging tell us about Internet infrastructuring? By focusing on the site-specific practice of digging, we are able to see one part of the overall Internet development—the wired telecommunications network—as an earthly business carried out through ongoing interaction between outsourced and employed labor forces that, mainly due to geographic factors, cannot be fully planned. Digging practices are rooted in hierarchically framed and controlled cooperation between full-time workers and outsourced contractors. They use workers for three crucial roles: to observe practices; to dig, and thereby build wired telecommunications networks; and to collect data, such as photos, related to practice outcomes.

Digging requires cooperation, the capacity for hard physical labor and the ability to endure both failures and expectations of loyalty. While it is planned as much as possible, unexpected remembrances, political and critical judgments, and geography render digging a geographically and culturally contingent manual and communicative labor practice that sustains Internet infrastructuring in specific places. To dig in a Lithuanian context means to be confronted with Soviet infrastructural legacy, post-socialist labor relations, everyday task distribution, and a large amount of rain.

2.2 Mediating

My internship mentor gave me Physical Network Department employee Emilis's telephone number. When I called, Emilis seemed quite surprised to hear from me. Later it became clear that it was my German number, which started with a +49 area code, that confused him. I stood in front of the Naujamiestis district office building for network installers, documenters, builders, and other Telia Lietuva employees who work with physical telecommunications networks, and waited for Emilis. The building is only accessible with an employee card; I did not have a card, so Emilis used his to let me in. I was led directly into his office, where I sat on one of five leather chairs. His spacious office consisted of what looked like the furniture from the 1990s; glazed glass windows surrounded the space and looked out onto the street and the neighboring open office spaces. Emilis, whom I will call "the mediator," had his computer monitor projected on the office wall. In a few minutes, the first contractor was scheduled to come in and thus the meeting would begin. In such meetings, the mediator—the Telia Lietuva employee who manages contractor work—and the contractor—the company representative who actually builds the physical part of the network—discuss various physical network build-

ing works. A big excel sheet comprised of more than 900 titles and tables with project numbers, client names, dates of commission takeoffs, planned ending dates, and completed works is projected on the wall and serves as the backdrop for this discussion. One of the excel sheets is titled "Goal: construction in time,"[36] and is concerned with projects that are either problematic or must be delivered soon. This immediate delivery is an apt summary of the main goal of the meeting: to communicate with contractors in order to finish telecommunications network construction on time.

I participated in a few of such meetings between contractors and mediators, and they all unfolded in a similar manner. The contractor and mediator looked at the excel spreadsheet and spoke about their client's needs and project uncertainties. The discussion of each issue was followed by the contractor's answer, which was followed by another address, followed by another contractor answer. Conversations were mostly relaxed: the contractor and the mediator not only discussed construction projects, but also shared jokes, such as one about infrastructure builders who plan to lay cables without discerning street layouts. I mostly remained silent: I listened to their conversations, took notes, and heard the sounds of neighboring cars. These conversations bored me because they discussed similar information about telecommunications equipment construction in a seemingly unending loop.

During one meeting, this loop was broken by rising tension between the mediator and the contractor. In fact, there were times during these meetings when the mediator questioned contractors about their unfinished works and plans to finish them in a patronizing manner, to which contractors usually responded by changing the topic or providing ambiguous answers. One time, the mediator tried to squeeze information out of the contractor. Suddenly, the meeting was interrupted by a telephone call: the mediator picked it up while the contractor was still speaking. Afterwards, an utterance of an address was followed by another utterance of an address while the contractor elaborated on the situation, which included statements such as: "We are planning to make it," "We are waiting for the call," "After some time the project will be arranged," and "After two days".[37] This conversation reminded me of other interrogations carried out by mediators in which contractors vaguely admitted that although they had not yet finished building a particular part of physical telecommunications network, they would definitely do so. Once, the contractor complained that he could not enter an apartment building. The mediator answered, in a didactic manner: "How is that logical? One just needs to drive there after work."[38] When the dissatisfied contractor refused, the mediator raised his voice and asked why clients should sacrifice their working days in order to let contractors into their apartments earlier. He suggested that instead, the contractor could sacrifice one of his own free evenings, an observation to which the contractor finally seemed to agree. Thus, most of the contractors took upon a passive and vague role in answering mediators' questions or reacting to their comments. Examples include:

36 Fieldwork report, Bareikytė, 12 June 2017.

37 Fieldwork report, Bareikytė, 12 June 2017.

38 Fieldwork report, Miglė Bareikytė, 19 June 2017.

1. Mediator: It shall be understood that this week you are not going to finish that.
Contractor: If it is possible, I will finish.
Mediator: When will I know that?
Contractor: Tomorrow, maybe.[39]

2. Mediator: This month you are going to finish it.
Contractor: Maybe, I cannot guarantee.[40]

3. Mediator: Will you finish this month?
Contractor: No, next month, God willing.[41]

I wondered why so many construction works needed to be guided by a mediator but also ran behind schedule. Only after some time I noticed that contractors and mediator did not meet to discuss all of the construction works they were involved in, but rather to speak about those that still needed to be completed and thus were particularly demanding. Thus, the mediators needed to pressure contractors to quickly finish their tasks.[42]

Mediating practices take place at the Physical Network Department offices. Mediating consists of an exchange of information between two subjects. It entails weekly mediator and contractor meetings, during which the mediator accepts several contractors and they provide an update about the status of physical network construction. Clients of contractors and Telia Lietuva include private companies, developers, and sometimes even Telia Lietuva's competitors, who need a new cable entry. The mediator makes sure that clients and contractors communicate, while the contractor is responsible for actually building the physical network.

Mediating thus means providing an ongoing communication line between Telia Lietuva and the contractors who build its physical networks. It is a routine practice and takes place at one of the Telia Lietuva offices. The practice of mediating consists of meeting contractors and speaking with them in person, answering their questions about specific objects, and accepting finished projects by occasionally sending a Telia employee to observe a new construction. The mediator and the contractor meet every week and usually discuss projects delays. In these monotonous *tête-à-tête* meetings, long excel spreadsheets containing information on concrete objects and their construction status are projected on the wall. The mediator and contractor focus on the usual problematic issues: why is the contractor late; who is responsible; and what needs to be done in order to move forward?

Once, when I was alone in an office with the mediator, I asked him about why contractors are late. The mediator defended contractors by elevating this problem from an individual to a structural level: he stated that not just some, but *all* contractors are late due to a lack of resources and bad management. This includes instances such as new

39 Fieldwork report, Bareikytė, 12 June 2017.
40 Fieldwork report, Bareikytė, 12 June 2017.
41 Fieldwork report, Bareikytė, 19 June 2017.
42 Fieldwork report, Bareikytė, 12 June 2017.

building developers disturbing the network building process by leaving their equipment on the contractor's work site. Although this practice now happens rarely, I was told that five or ten years ago, one third of house builders laid their final brick only to remember that they also needed a network connection. After the street is laid, it is very difficult and expensive to dig it up again in order to lay a new telecommunications cable. Even today, when everyone wants to be connected, and cooperation between the telecommunications contractors and building developers should flow, mediator Emilis said that "sometimes developers are saving on something, but it is not clear on what. Sometimes developers lay the cables by themselves, and then we receive problems, such as who will pay for electricity?"[43] When a cable is laid by a non-professional, such as a housing developer, this often involves the omission of the necessary pipe for laying cables in order to save money. If the building process takes place in a special territory secured by the state or municipality, contractors need to communicate with institutions that are responsible for the conservation and restoration of cultural heritage. If the special territory is already well researched, it is easier; if not, then "with fetlock and whisk the little bones are being looked for,"[44] and the process becomes slower and more expensive. All of these various causes—bad planning, forgetful clients, saving, secured architectural legacies—contribute to a delayed physical network building process. They also shape the dynamics between the mediator at Telia Lietuva and outsourced contractors. During the meetings I observed, contractors often attempted to win space for action by ambiguously deferring their answers. They would rarely say an exact project completion date, and thus maintained space for unexpected contingencies.

Mediating is a practice that is built upon dependency, meaning that it could not be done without contractors. The decisive factor for Telia Lietuva to choose one contractor over another is not only the best price offer, but also contractors' willingness to participate in the often difficult and complicated network building process. At the time of my fieldwork, Telia Lietuva worked with six to eight contracting companies. During Lithuania's cold winters, contractors do not have much work. During summer, on the other hand, contractors can choose between many projects and tend not to apply for each one that is available. Some objects are so big that contractors even refuse to participate in the competition process. By outsourcing the physical network building process to external private companies, Telia Lietuva gets the best price through competition and saves money through employing part-time contractors, but it also depends on these contractors. Some contractors build networks both in Lithuania and abroad, in countries such as Germany, Sweden, or Norway. Emilis once told me, "Lithuanian salaries are not comprehensible in Sweden, while Lithuanians do comprehend Swedish salaries."[45] Even though contractors comprise an outsourced labor force, they gain some autonomy through the processes of migration and refusal to participate in the Lithuanian competition process.

The practice of mediating thus facilitates communication between a client and a contractor. This infrastructuring practice develops and maintains new physical net-

43 Fieldwork report, Bareikytė, 12 June 2017.

44 Fieldwork report, Bareikytė, 12 June 2017.

45 Fieldwork report, Bareikytė, 19 June 2017.

works that expand physical Internet network access. To build physical network connection involves not only digging the earth and laying and repairing equipment, but also managing the process with the help of a mediator, who guides infrastructuring practices related to physical network building and controls ubiquitous, uncontrollable delays. Physical network building processes depends on many contingent factors, such as the attitude of contractors, shared information about other infrastructure works with city developers, and the location of building sites, among others. To mediate thus means to be able to manage Telia Lietuva's dependency on the outsourced contractors that build physical networks in an inherently contingent environment of network construction, as well as the ability to push them to do their digging job. The practice of mediating is important for the physical telecommunications network building process and Internet infrastructuring because it coordinates communication between two crucial subjects: contractor and client. While the latter wants the network to be built, the former actually does the job. In other words, the mediating practice illustrates that the Internet does not emerge ex-nihilo, but also that the equipment required for Internet access is not randomly dug into the earth. Mediating requires not only a meticulous understanding of the physical network building process, but also the communicative skills required to guide, judge, criticize, and practice empathy toward the contractors who infrastructure the Internet. Thus, a physical network emerges from a routinized, organizational practice of mediating that brings together Telia Lietuva employers and outsourced contractors, but which is also inherently contingent and full of surprises due to often delayed work of physical network contractors.

2.3 Planning

Planners are people in motion. They constantly move from the office at Physical Network Department to the various outside objects that need to be connected to the physical telecommunications network in order to better inform themselves about the situation on the ground and see it with their own eyes before preparing the actual technical requirements that will guide the digging and mediating practices. From a planner's perspective, the physical telecom cable network comprises three main objects: a cabinet, a connection, and a building. A connection is connected to the cabinet, which consists of multiple fiber threads that are eventually connected to the user. From the other side, the connection is attached to the main network transmission channel, the so-called "highway," which uses the connection to connect the user to the physical telecommunications network and, eventually, to global Internet networks.

During one of my field visits, I shadowed a planner at Telia Lietuva named Karolis. One of the designated objects we visited was located in a forest within a gated community. We were only allowed to approach the security booth that stood in front of the neighborhood entrance. Two turnstiles additionally prohibited our entry to a gated street in which the houses had sculptures in their yards. A steward, who stood next to the security booth, greeted us. Our goal was to discuss and gather information about the needed connection between the security booth, which was located just outside the entrance to the district, and the small building in the forest that already had fiber-optic

network access. The steward and Karolis discussed digging issues: who would dig the ditch and how deep should it be? Afterwards, Karolis told the steward that the ditch would need to be 70 cm deep according to Communication Regulatory Authority standards, and the steward looked surprised. Karolis then told him that it would take at least 35 days to build the connection. After this short conversation, Karolis photographed the security booth and small forest building from afar in order to later prepare a project plan and meet its technical requirements. We then moved to the security booth, and after we came closer, the security guard sitting in the booth strictly asked us if it was possible to see the earlier documentary photographs. Upon seeing that his presence in the photo was minimal, the security guard visibly relaxed. We also needed to enter the security booth in order to check its telecommunications equipment, in particular its switchboard cabinet. The guards reluctantly allowed us to enter. Next, Karolis counted the steps from the security booth to the tiny forest house and evaluated an approximate digging distance. When this process of observation concluded, he ordered a taxi and we slowly walked down the road to meet the car.

There was only one road that led back to the city. While walking, we spoke about salaries in Lithuania—a ubiquitous topic at that time that provoked societal indignation—and apartment prices in Vilnius. Karolis was both surprised that I knew nothing about Vilnius' apartment situation and that I had not yet bought an apartment myself, which suddenly made me feel anxious. The taxi arrived and Karolis immediately bonded with the driver by discussing their labor conditions and how difficult it is to pay back credit or save up for a holiday. The taxi driver suddenly started sharing more details about his life. He looked young; he worked as a freelancer for a Lithuanian version of Uber. He was satisfied with this work: although the company took part of his salary, it also provided him with clients. The driver also shared how he would sometimes drive for dozens of hours without a pause, and how he once drove for 49 hours without taking a break. At a certain point, when the conversation turned to remembrances and critique, Karolis—who seemed to be my age, early thirties—started speaking about Soviet times. He told us how back in Soviet times, people saw each other more often and were nicer to each other, while nowadays they are "wolves" and count everything. "Going to a friend?" he asked. "It is expensive, you need to buy gifts! So why go?"[46] He posited that while people in Soviet times did not have a lot, they would still meet often. Him and the driver continued discussing working conditions and income deficiencies until we reached the office building.

At the office, the conversation turned to the underground telecommunications network channels, called "canalization," and other employees joined. I think it was Karolis who claimed that if this "canalization" system of underground telecommunications channels was not built during Soviet times, the physical Internet infrastructure in Lithuania would not be as good as it is today. "Why?" I asked.[47] He responded that this was "Because it would be necessary to dig everywhere" [48], and that would increase the cable laying price. I then asked why such a good "canalization" system

46 Fieldwork report, Miglė Bareikytė, 13 June 2017.

47 Fieldwork report, Bareikytė, 14 June 2017.

48 Fieldwork report, Bareikytė, 14 June 2017.

was built during Soviet times. No one really knew the answer. Employees reiterated that neither Germany nor England had built as good an underground infrastructure as Soviet Lithuania, although in Germany the underground tubes for cables were said to be broader than in Lithuania. "We have been given a present," one of the employees joked.[49] I was told that during Soviet times, everyone could dig under the soil and build a part of "canalization," but after the "canalization" system was privatized in the 1990s, one could sell their share to the privatized telecom industry only up until a specific point. While some people sold their part of the "canalization" system to the main telecom operator, nowadays not everyone has the ownership documents, which leads to difficult situations. I was told that "if it is nobody's, then it is Telia's sewage system."[50] At certain times throughout my fieldwork at the Physical Network Department, the Soviet Union, its cultural and infrastructural legacies, seemed to be a reference point—a floating signifier—for talking about telecommunications development, but it was rarely grounded in specific examples.

At some point, four of us left the office and went to the basement. While there, the concept of "Internet as a service" emerged for the first time during my fieldwork, when I heard from the employees that cabinets located in different basement rooms provide services such as the Internet or television. Up until this point, the Internet had barely figured as a reference point among those employees, who actually build and manage physical underground network channels that are crucial for data transmission in Internet networks. Workers here spoke of the Internet as such rarely, although once, during an occasional walk to a street cabinet I asked Karolis about the meaning of his job, to which he answered, "We give birth to the Internet. . . . If only they paid more."[51] I was told that not everyone at the company is paid low wages, but those who supposedly do the "dirty" work, the "builders" who take care of "canalization plumbing" issues—namely, people from the Physical Network Department—are paid less.[52] On one occasion I was made aware of tensions that exist between the Physical Network Department and upper level managers who remain invisible to one another because their offices are located far away from each other.[53] Despite seeing tensions, workers exercised their complaints and critique lightly, through jokes, such as when one day at the office a few employees told me, "There are four [people here who are] willing to go to Germany [and] work anywhere."[54]

Before the process of competition for outsourced contractors to build future physical telecom networks, workers at Telia Lietuva plan and prepare technical requirements. Each object—a house, an apartment, a new storage building, and others—that needs

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49 Fieldwork report, Bareikytė, 14 June 2017.

50 Fieldwork report, Bareikytė, 14 June 2017.

51 Fieldwork report, Bareikytė, 14 June 2017.

52 Fieldwork report, Bareikytė, 14 June 2017.

53 In 2019, Telia Lietuva moved seven of nine Vilnius offices into a new fifteen thousand square-meter office building: Viktorija Karsokaitė, "Naujieji 'Telia' namai – su miško motyvais ir šikšnosparniais ant stogo," *15min.lt*, published May 17, 2019, accessed May 10, 2020, https://www.15min.lt/verslas/naujiena/kvadratinis-metras/nekilnojamasis-turtas/telia-apsigyveno-miske-graziausias-vietas-atidave-siksnosparniams-ir-virtuvei-973-1146166?copied.

54 Fieldwork report, Bareikytė, 14 June 2017.

to be integrated into company's network is different in size, geographical location, and required services; thus, technical requirements are crafted for each object separately, often with the help of field visits. One usually needs to get out of the office and visit the object, because a photo or a map often does not suffice to grasp the complexity of a building site. Thus, a virtual map devoid of empirical ground observation and experience might be unable to disclose the location of the server room, its situation in space, and its material composition. Even when the object is small, it is necessary to drive to the place, find the related server room, and outline its internal piping, the height of the ceiling, and other characteristics that are important for the building process and the design of technical requirements, but are invisible during mere virtual interaction with the site. After these short field trips, workers return to the office, draw up network schemes, and prepare technical requirements, according to which the physical telecommunications network will be built. Thus, during my time amongst physical telecom network planners, we constantly moved: from the office to the field, back to the office, and yet again to the field. Planning practice was encapsulated in ongoing conversations between planners and clients, taxi drivers, and amongst planners themselves, who either discussed new network equipment requirements or sometimes shared ongoing jokes.

Mobile planning practices thus result in a document that details technical requirements that specify which tasks need to be carried out by contractors during the digging process. The document also specifies the type of network access (the cabinet, a secured hub (*krosas*), wells in a underground telecommunications channel system "canalization" or in a cable cellar called *šachta*); types of cables; network cable channels (telephone sewer channels); existing and planned transmission network (types of cable, connections, etc.); and the name of the person who prepared these conditions. The outlines of prices, materials, types of connections, and tasks, as well as specific technical requirements, object photos and related network schemes serve to define what contractors need to build in each particular situation. In short, these technical requirements provide information about current physical network resources and their interoperability with the foreseen physical network. In this way, planning practices manage the uncertainty of the physical network building process. After technical requirements are outlined, competition amongst contractors begins, and their implementation is synchronized with the municipality.

Planning practice comprises object observation and description; it results in technical requirements, rules for the upcoming competition, and network building processes. Infrastructuring depends on such manual planning practices that control its complexity by outlining a set of rules that determine how the physical network will be built. While planning is still done predominantly by human beings, they use various instruments, such as software, paper, pens, and cars in order to produce a set of rules for the contractors. Amidst these current instruments, it is possible to think about the future automation of planning. By entering a few data points, such as an address, a type of network access, a location of the nearest cabinet, and other categories, a software program can generate a future network scheme, albeit one that is not as precise as is currently needed.

Planning practice is crucial for Internet infrastructuring, because it describes physical requirements of future projects via empirical site observation and thereby lays out

key conditions for further expansion of physical telecommunications networks. While planning aims to predict and balance current network resources with future needs, its practice also comprises multiple situated contingencies. During my time with the planners, I was made aware that planning does not only comprise linear, dry tasks that result in a document of mere technical requirements. Planning is also encapsulated in emerging and fragmented remembrances that materialized at different times in the field through stories about Lithuania's societal communication culture as well as the telecom network path dependencies on its Soviet legacy through jokes, moments of nostalgia, or remarks about other technical legacy from the past. Also, planning practices consisted of contingent everyday expressions of irony and criticism that often circulated around the topics of fair remuneration and tense internal relations within the company. To plan future physical Internet networks thus means to be able to suppress the empirical complexity of future building sites, which emerge from daily interaction with multiple infrastructure objects and clients, into the form of clear technical requirements that will guide the digging process. Planning thus illustrates how physical Internet networks, and thus Internet infrastructuring, not only result from coordinate and earthly practices of mediation and digging, but also from site-specific planning practices that pave the way for future network expansion and could be automated in the future.

2.4 Documenting

At the Data Linkage team in the Physical Network Department, people enter data concerning new parts of physical telecommunications networks into the company's databases. One day, I talked with and observed the work of Jona, a documenter from this team. While she spoke on the phone with a network installer, I had time to observe her unusual office surroundings, which consisted of a tree branch hanging from the ceiling and a box of cables tucked under the table. This room was a part of the bigger open office that was separated from the Physical Network Department by a wall, on the other side of which sat the planners. I asked Jona about the other colleagues in her side of the room, specifically about what work they did. She told me that two other people do a job similar to hers, while others collect information about projects related to copper cables, data on geodesics, and other issues. Jona, who had worked at the company for 30 years, was working on storing information on fiber-optic cables.

During our conversation, I noticed that seven out of ten workers in this part of the room were women. This team of Data Linkage documenters was thus the first group of employees in the Physical Network Department whom I had met and observed in which the majority of workers were female. I signaled my surprise to Jona and asked her why she thought there were so many women in her team in contrast to the mostly male employees, predominantly network planners, on the other side of the room. Jona replied that "maybe the boss has chosen men for the other team. Women here are responsible for checking what the contractors have done."[55] After I later spent more time

55 Fieldwork report, Bareikytė, 14 June 2017.

at different company departments, I noticed that there were many female employees in the company, even in high positions such as testing laboratory manager, which entails the supervision of highly skilled, predominantly male workers. Consequently, I do not claim that female workers are not represented in the company's different departments. In this particular situation however, I saw one big office divided into two spaces: one made up of predominantly male workers on the right side of the room, and one comprised of mostly female workers on the left side of the room. The group on the right planned technical network requirements that required active decision-making and field-based experiences, while the group on the left entered the data about the built network and helped other workers if information was incomplete. Although both planning and documenting processes could be described as supportive Internet maintenance work—both planners and documenters help maintain and expand physical telecommunications networks—the practice of documenting is less physically active and thus helps other workers both do their jobs correctly and avoid mistakes.

Documenting consists of filling in company databases with updated information about new parts of the physical telecommunications network. During the practice of documentation, information regarding transmission channels and geodesic conditions of recently constructed telecom network parts are provided in the form of texts, numbers, addresses, and photos of various physical network construction sites. They are saved digitally in the company's internal digital systems, such as a network information software called TIS. Documentation practice not only archives physical network information, but also attempts to avoid network maintenance mistakes in the future. Correct information is crucial in cases such as when, for example, network installers need to connect the right cable threads for their customers, but are not sure which fiber-optic cable threads they should splice. In such cases, documenters support telecommunications workers via phone by relaying stored information about already-built objects in real time.

The practice of documenting is barely visible for customers and other telecom company colleagues, because firstly, it does not directly result in any empirically apparent physical or virtual object and secondly, its invisibility arises because documenters have recently literally stopped leaving their office to meet other company's employees on the physical construction site. Employees told me that only half a year ago, documenters physically visited and observed construction sites to ascertain the correctness of the data they entered into company databases. At that time, documentation practices depended on the mobile labor of driving around and personally perceiving the broader context, including the construction site, equipment, place where cables were laid, underground wells, and physical network locations. I was told that things changed when the company went through the process of resource optimization. Currently, documenters sit in the office and use computers to both enter and find information about the objects provided by contractors earlier—such as photos from digging sites—instead of personally visiting construction sites and comprehending the problem based on information gathered through experience.

Jona was concerned that the automatization of documenter labor in such a way leads to a particular kind of oversight. For example, repetitive staring at a computer screen impedes documenters' comprehension of actual physical network conditions.

She said that "earlier you could physically see, nowadays it is rather monotonous, it is not clear, what fiber threads are where. Earlier, more information was gathered and it was clear what problems which object has. Nowadays, the information just flies by and it is easy to forget what a particular object is about."[56] In order to support this new type of distanced and immobilized documentation practice, contractors share photos from the construction site with documenters. Such photos from the field are called "extra eyes" by documenters. Notwithstanding the fact that documentation needs to be precise in order to avoid future mistakes, and that empirical experience strengthens worker capacity to grasp future problems—for example, the exact location of a broken cable—by seeing built objects with their own eyes, much data from the construction sites is now easier to forget, because the site-specific, empirical experience of documenters is vanishing. In this way, the labor practices of documenters are deskilled. Such cases of deskilling through automation, as media scholar Alexander Galloway contends, change the type of labor by replacing manual work with specialized labor and thereby discarding those who cannot cope with new practices.[57] Similarly, documentation practices have eventually transformed from an expansive work comprised of empirical site experiences and site documentation into a more focused and immobile labor practice carried out with the help of computers. Although these services are crucial for Internet maintenance in its supporting role for cable installers and cooperation with network planners, it is possible to glimpse how documentation practices could eventually disappear due to optimization and automation. For example, perhaps network builders or planners will start documenting network objects themselves in a more comprehensive manner and thus render documentation practice redundant.

The practice of documenting is also not exempt from mistakes. When two fiber-optic cable threads are joined together, it is important to find the right one to splice. If one splices two threads that are already connected to two different clients, both of them will lose service. Documenters told me that this happens, because technical requirement planners make mistakes: they sometimes forget or provide false information about existing network resources, such as cables threads that are supposedly unused but are actually in service. In such cases, documenters communicate with cable installers via phone and attempt to find the right fiber thread by analyzing previously documented information. Mistakes thus belong to the practice of documentation, and they result from the discrepancy between documented information and actual, empirical telecom network conditions.

In short, documenting practice facilitates Internet infrastructuring by helping other physical network development teams and by organizing, storing, and sharing information that is useful for the maintenance of physical telecommunications networks. This practice illustrates a few things about Internet infrastructuring. In order to document successfully, one has to know the constitutive parts of the physical network and be able to collaborate with other employees, such as network installers, in order to help maintain the network, repair mistakes, and connect new users. Thus, infrastructuring

56 Fieldwork report, Bareikytė, 14 June 2017.

57 Alexander R. Galloway, "Brometheanism," *Cultureandcommunication*, published 16 June 2017, accessed 13 March 2019, http://cultureandcommunication.org/galloway/brometheanism.

depends on the precise documentation of information. Despite this, stored information also includes mistakes that emerge from false documentation. In other words, the practice of documenting is never precise, because it involves human labor, and humans inevitably make mistakes and forget and delay the documentation process. Additionally, documentation practice illustrates the fact that in practice, Internet infrastructuring depends on feminized labor, which is increasingly made less visible through the decreasing participation of its workers in empirical network maintenance observation. Moreover, this labor is less visible because it is located in the already less visible Physical Network Department. This situation is similar to what historian of science Margaret Rossiter describes as the "Matilda effect," a phenomenon in which top employees receive ongoing publicity, while the work of their subordinates fades from historical records.[58] Although documentation practice is crucial for Internet infrastructuring in its supporting role for cable installers and network planners, I could see how future documentation practices might disappear due to labor optimization and automation. If such optimization did occur, current practitioners of documentation practice would disappear without a trace.

2.5 Connecting

During connecting practice, engineers connect client homes and offices to the rest of Telia Lietuva physical telecommunications network, which has already been planned, mediated, dug, built, and documented. During my fieldwork, there were three client service installer teams which carried out connecting work in different Vilnius districts; I spent time with one of them. I was located at the Center team, which is responsible for Vilnius' central and southern districts. There, I followed the daily practices of installers—sometimes called "technicians" by colleagues, when their work is underestimated, or "engineers," when they themselves describe their work practice—who work for private clients.

Once, I travelled with an engineer named Pijus to repair a failed network connection. We went to Nauja Vilnia, a Vilnius suburb famous for its post-Soviet mafia organizations and its large psychiatric hospital. This suburb became vastly impoverished after the disintegration of the Soviet Union; when factories closed, the majority of its Russian and Polish speaking citizens lost their jobs. One can easily reach multiple collapsed Soviet factories, but also Belarus, via a short train ride from the district's center. It is located next to the bus and train station commonly known as "Friendship," which was recently starkly renamed to "Exile" in order to commemorate not only the now-closed Soviet factories, but also the train station from which many people under 1940s Soviet rule were deported to Siberia. Currently, hilly Nauja Vilnia is full of Soviet-style apartment buildings and wooden houses, and a tiny river runs between the wood and the concrete buildings. Pijus and I drove until we finally reached a street containing a Soviet high-rise, located next to an empty field and a bus station. He told me that we were visiting so-called "pilot" clients. This name is given to the customers who have no

58 Jennifer S. Light, "When Computers Were Women," *Technology and Culture* 40, no. 3 (1999), p. 482.

concrete time prescribed for a company visit. We went inside an apartment building whose walls, floors, stairs, and communal corridors had not been renovated for a long time. Due to high security measures, it was not easy to enter the elevator. We needed to use a chip key or contact a resident who had a special chip to both open the entrance doors and activate the elevator. Finally, we were able to use the elevator to reach the apartment, which was located in the back of a long, dark corridor. The apartment was a mess: the floor was partially demolished, bits of broken glass lay on the floor, and it was generally dirty and cold. A friend of a client was smoking in the communal balcony in front of the entrance to the flat. The client started complaining about how difficult it is to install Internet connections in Lithuania in comparison to the good Internet, and life, in Germany. Pijus noticed that the client did not have an Internet connection not only due to unpaid bills, but also because of physical network connectivity problems. Our journey to find and repair the broken signal flow thus began. We first left the building and went to the main connection hub. Before leaving, Pijus borrowed the apartment chip and keys from the client in order to easily enter the building when we came back again. Although in hindsight sharing one's private key seems daring, it felt totally normal in the field. Outside, Pijus warned me that the hub we were going to visit is highly secured. At the gates, we were asked to give our surnames. In order to get into the building, we were required to show our Telia Lietuva ID cards, a form of documentation that I did not have. I was nevertheless reluctantly let in, only after I showed my Lithuanian ID and explained my intern status at the company. Everybody inside wore boots with disposable plastic covers. We needed to pass through two secured doors to enter a server room. The last door was protected by a mechanical lock, which we unlocked by manually providing an entrance code. Finally, we entered the server room, where the installer found the optical distribution frame (ODF) that serves the high-rise we had just visited. He noticed the problem: a required cable had not been connected to the main network. In practice, a fiber-optic cable thread that comes from the main network is divided into more threads, which are then connected to the ODF. The ODF thus connects the user to the main network through designated fiber thread, divider, LAN, and fiber-optic cable equipment. After we connected the ODF to the main "highway" network, we left the hub and went back to the apartment. In the apartment, the installer turned on the router and it worked; the signal flow was thus restored. The client, however, was not fully satisfied. She complained about her TV and the installer attempted to help her. Pijus told me that he receives a bonus for each additional service he sells, and thus his help was not altruistic. Lastly, he prepared an electronic bill with his tablet, and we left for another client residence. This next site was the apartment of a diplomat in Vilnius' old town: it had high ceilings, walls painted a stylish shade of grey, oil paintings, and several visible bottles of whisky. There, Pijus needed to connect a new Internet access point by welding fiber-optic cable threads.[59] Later, we went to yet

59 In the very last meter of a physical network—at the client's house—fiber and copper cables need to be connected through the transducer, an instrument in the form of a little box that changes the signal from fiber to electro impulse through which the data is then being transmitted. When, for instance, a fiber-optic cable, which consists of multiple glass threads and is protected with a layer of varnish, has to be taken of before splicing, a fiber cable gets increasingly naked and lo-

another Soviet-era building, which was located in one of the Soviet low-rises in central Vilnius. An intoxicated client opened the door. She repeated multiple times that she had been in this apartment for only one night in an attempt to explain why it was so messy. Despite these protestations, this statement was not true, as the technician had already visited the apartment a short while ago and had had to come back again due to missing repair connection equipment. While Pijus reconnected to the router, the client drank vodka and occasionally offered us a sip.

The job of a cable engineer mostly consists of manual tasks supported by physical and virtual tools, although there has been a recent push for this job to include communicative labor as well. In addition to an engineer's daily tasks, they are increasingly required to sell products. Pijus once told me, "We come to work as engineers and they ask us to be salesmen,"[60] because cable installers are also encouraged to promote additional telecom services to clients. Importantly, the image of a telecom worker as a salesman is a rather recent one. During one of my interviews with telecom stakeholders, I learned that in the 1990s, and earlier Soviet times, telecom-provided citizen telephone access was highly desired but rare. In those times, telephone line deficiencies meant that "telecom worker" was both a desirable status and an entity that people begged for services. When the biggest telecommunication company, Lietuvos Telekomas, was established as a state enterprise on 1 January 1992, more than two-hundred thousand people waited for telephone access.[61] Aloyzas, a government official and academic I interviewed after my fieldwork at Telia Lietuva, described how after Lithuania's independence and the subsequent emergence of market economy services needed to be sold, which resultantly shattered the identities of telecom industry workers:

> During Soviet times it [for instance, a telephone line] was a deficit. He did not need to sell, but he was given a bribe for making it. . . . And it is, again, a psychological thing . . . imagine, a person is 50 years old, his whole life he was sitting in an office, and someone comes to his door, 'Maybe you could do me something.' Well, 'Alright,' or 'Not alright.' And suddenly he is being told that 'You need to sell this thing.' . . . What does it mean, 'to sell'? His whole working life, [people] were walking on their knees for him to provide to them. And now he needs to sell. . . . Can you imagine, what a psychological breaking point?[62]

Not only telecom workers subjectivities changed after the emergence of the market economy and subsequent rise in the number of telecom services and providers. The

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ses its peel. Because fiber threads are made of glass and thus immensely fragile, their threads are secured from breaking with a metal tube. In the practices I observed, fiber threads were spliced and connected to the transducer with an optical fiber fusion splicer. When it was done, transducer—a little box—is connected to the electricity network, fiber cable, and copper LAN cable, and constantly sends signals to Telia Lietuva. Transducer's identification happens all the time in order to track if the signal is active or broken. With this task, the cable is installed in the client's house and the connecting practice is ended.

60 Fieldwork report, Miglė Bareikytė, 21 June 2017.

61 Jonas Jagminas, "Lietuvos telekomunikacijų 80 metų kelias," in *Lietuvos ryšiams – 80*, Arūnas and Povilas, eds., p. 61.

62 Interview with Aloyzas, 9 November 2017.

number of workers in the telecom sector, especially at Lietuvos Telekomas after its privatization, dropped by thousands. While the majority of workers were fired, some technicians managed to integrate selling procedures into their work. According to Aloyzas, the majority of remaining workers who wanted to survive in the changing industry needed to accept new work ethics and integrate a seller's mentality into their work practice:

> It was needed to sell a product after the establishment of commerce. . . . Telekomas, that of Lithuania, when it was privatized, during the privatization, almost eleven thousand people were working there. Two years after the privatization, three thousand people worked there. More than seven [thousand], we fired. The remaining ones there, for instance, there were brigades, people, who, if the cable is broken, they drive and physically connect the cable, [do] that technical work. They were told, 'If you want to earn extra, since you are working in contact with people, offer them telecom services, some extra ones.' . . . Well, what happened? That was told to everyone. A portion of people after some time said, 'No, that work is not for me, I simply do not want,' or, 'I simply do my work, but that other one—no.' That's fine, such ones are also needed. Others said, 'I like it this way, I do not want to do my old job, I will only do this one, selling.' Good. And some part remained doing both things [doing technical job and selling].[63]

Thus, according to long-term industry expert Aloyzas, the image of a desired telecom worker in post-socialist Lithuania eventually changed into a part-time seller, and the cable installer I encountered corresponded to this new, post-Soviet telecom imaginary of a flexible telecom employee.

Connecting practice is mobile. Engineers barely stay in the office. In the morning, they change into their uniforms and receive a pre-planned daily schedule from an administrator. They then get into a company car, enter their daily schedule into a GPS device and make sure that they have the right equipment for the day's job. When everything is prepared, engineers call their clients and the road trip begins. Although their schedule is preplanned, work situations only become clear at the site of the client's home. Also, although cable installation is partially a manual labor practice—i.e., it requires human physical labor to install the right equipment—it comprises multiple tools that enhance and automate the engineer's work. The main tools an engineer uses to connect, cut and splice include: cables (copper/LAN and fiber-optic); transducers, fiber optic splicer (which connect fiber optics with copper cables through a transducer); power meters (which check whether signal suppression is weak enough); an engineer's tablet (for data entry); and protective shoe covers. Engineers also rely on tablets to connect to Telia's virtual systems during the cable installation process. Pijus used his tablet to manage his work in real time; to describe specific network conditions at client premises and thus help other colleagues by documenting client-rented hardware; and to manage his list of upcoming jobs. There are more instruments and objects involved in this task, yet it is impossible to outline their entirety, as each installation requires a different set of equipment. Perhaps the engineer will need a ladder to reach a subscriber's box attached

63 Interview with Aloyzas, 9 November 2017.

to the façade of a house? Maybe an engineer will need to borrow the inhabitant's keys, as illustrated in the earlier example, because the signal was lost somewhere between the house and the street and thus frequent visits to the house and the hub are necessary? Signals can get lost in many places. While physical telecommunications networks are predominantly physical, they are also notably complex. Fiber threads emerge from an underground trunk cable and reach the client's house through multiple mediators, including but not limited to cabinets, buildings, staircases boxes, subscriber boxes in the apartment, transducers, and routers. If one of those objects malfunctions, is disconnected, or connected falsely, a cable installer needs to find the problem and repair it. In any case, the end goal of engineers is the same: they need to arrive at a specific place, evaluate the situation, decide how they can establish or repair the physical Internet connection at the client's house with the help of multiple tools, and leave after their job is done.

Cable engineers use the tablet to connect to Telia's RKVD Department, a department whose title I could not decipher throughout my stay, and which controls signals from a distance. Signal routes are thus both physical and virtual: they are installed physically and managed virtually. Thus, it is possible to see whether fiber threads are physically spliced and connected, observe the router, touch the cabinet and get into a secured hub called *krosas,* which contains multiple cables, dividers, cabinets, and optical distribution frames. Yet the internal virtual system of RKVD also establishes a non-physical path of signal transmission that guides the virtual connection of physical fiber threads. RKVD thus manages the signal's route by accepting a signal sent by a transducer. Accordingly, the physical network needs to adapt to the virtual one in order for a signal to flow, whereas a signal flow can be disconnected virtually without detaching a physical cable. Despite this seeming clarity, Pijus was unsure of what information RKVD could exactly see or even where the team was located. While Pijus could physically establish a route, RKVD could virtually shift the route or even disconnect the client. Engineers thus often somewhat ironically say "NKVD" instead of RKVD. In the Soviet Union, the NKVD (People's Commissariat for Internal Affairs) was an invisible governmental security agency feared by the citizens because of its unpredictable terror and ubiquitous surveillance. Similarly, in a *stiob* kind of way, the cable engineer's work is observed and controlled by an actor of whom he is aware, but knows little about.

Although a cable engineer's work can be observed in real time, the connecting practice also requires interaction with virtual systems that engineers cannot fully comprehend. Connecting practices are thus physical, but also more abstract than digging or planning. During my observation of this labor practice, my sense of the complexity of what the Internet means in workers' daily life increased. Although in other forms of labor practices there was a feeling of control, total visibility and comprehension of one's tasks—such as in practices of digging and planning, which were perceived as birth places of the Internet—here the graspable materiality of cables was abstracted into a signal flow that was not only maintained by engineers like Pijus, but also by the software he and a RKVD team used and that he could not directly access.

Although the practice of connecting employs software-aided services such as virtual signal distribution, contract signing, and network diagnostics, it still requires humans who can endure everyday contingencies, repair faulty cables, install new ones, and talk

to different clients and colleagues. To connect thus means to use various tools, as well as communicative and technical skills, and thus simultaneously engage with unforeseeable contingencies while maintaining the end customer's physical telecom network connectivity. An installer needs to deliver, but will also be exposed to the constantly changing environments of private spaces and people. In other words, physical network maintenance practices require engineers to exercise emotional distancing, which allows them to distance themselves from these situated contingencies and learn to adapt to continuous experiences of unforeseeable differences. This is necessary because the weight of situated contingencies is heavy; engineer Pijus once contended that it is "difficult to not think about work after work."[64]

In summation, connecting practices are one of the main parts within Internet infrastructuring, as they connect and repair the company client's physical communications networks. Connecting practices involve users and engineers who carry out installation work and use various pieces of equipment. They take place at multiple private and public locations in which private and business clients are connected to the physical telecommunications network. Physical network engineers such as Pijus, have to visit multiple places every day in order to personally observe crucial physical network equipment (cables, routers, etc.) and environments (fields, forests, yards, houses, apartments, corridors, rooms, furniture, staircases, floors, and elevators), and decide how each particular physical network building process should be connected or repaired. A physical network might fail (a glass cable can crack, rain can affect the transmission of the wireless signal, a user's router can fall and break), and thus tracing the malfunction and repairing the problem depends upon the ability to rapidly discern its localized problem. Thus, experiencing and seeing the environment in an empirical manner is an imperative that is necessary for engineers to make grounded decisions and solve actual problems. Nevertheless, visiting and working at various places also means exposure to multiple contingent experiences. Although such situated experiences cannot be foreseen, they often comprise feelings of inequality, transience, and precariousness during a physical network installer's daily practice due to the fact that they engage with different societal groups. In his book *Talking about Machines*, anthropologist Julian Orr describes the work of service technicians as comprised of a workers-customers-machines triangle.[65] Similarly, Telia Lietuva's connecting practice also consists of a technician's negotiation with clients and equipment in order to find the source of a possible malfunction and immediately solve problems. As Orr describes, "Although management theories claim that modern workers, both users and maintainers, will need to understand modern machines less, the technicians' job also requires learning and preserving otherwise unavailable information."[66] This quote also poignantly illustrates the labor practices of the cable engineers I observed. Connecting practices demand an experienced understanding of physical telecommunications networks and all potential malfunctioning sites in order to link users to telecom operator networks. Engineers gain this knowledge through long-term situated experiences that not only are goal-oriented,

64 Fieldwork report, Bareikytė, 20 June 2017.

65 Orr, *Talking About Machines*, p. 3.

66 Orr, *Talking About Machines*, p. 4.

but also—similar to Orr's claim that technicians not only repair the machines that break unexpectedly, but also need to keep customers content[67]—involve engaging with, taking care of and enduring unpredictable client personalities and technical problems to bind the company to its users.

2.6 Transmitting

I felt as if I was floating in space. Throughout the course of my fieldwork, I moved from the Physical Network Department—where I observed digging, mediating, planning, documenting, and connecting practices that expand and upkeep the physical telecom infrastructure that secures daily data flow and Internet connectivity—to the Transmission Department. This department was located in spacious offices in Vilnius' Karoliniškės micro-district. In some of my conversation with employees, I was told that workers in this department do not usually speak about "the Internet," but rather that they use the term "data transmission from A to B." Statements also began to emerge about the non-specificity of a Lithuanian telecom market that is a part of global telecommunications industry,[68] although it is important to note that multiple Transmission Department office workers do not leave their office space. As workers always remain behind their computers, their outdoor experience of physical networks is rare. While I previously observed the Internet as the result of physical cables dug, connected, and installed in specific places, here I noticed its emergence as an allegedly non-physical service build upon protocols.

Accordingly, there was not much action to observe. At this point I remembered one of my PhD thesis supervisor's cautious stories about uneasy situations in which field researchers have to shadow people working on their computers. I remained at the office for a couple of days and tried to ask as many questions as possible. Where am I? What do employees do here? What is the role of this department in the company? Can I participate in a Skype meeting?

"Transmission Department" is an invented title for an amalgamation of teams, such as Resource, Network Maintenance, and Troubleshooting, as well as others located in one Karoliniškės building that I visited during my fieldwork in June and July 2017. Shortly after I arrived to the office, I was told by the team leader Erikas that "the Transmission Network Department is like a truck which carries something, but the type of carriage does not matter . . . as it is only this truck on which everything is stacked."[69] After a short introduction, I was brought into an office room, where I sat with two female employees. One of them, Rūta, told me that workers here describe "the frame and containers, configure and transmit the stream."[70] In other words, employees at the Transmission Network Department are responsible for the virtual interconnection of telecommunications equipment that serves to link the different virtual packages that

67 Orr, *Talking About Machines*, pp. 62–63, 159.

68 Fieldwork report, Miglė Bareikytė, 26 June 2017.

69 Fieldwork report, Miglė Bareikytė, 22 June 2017.

70 Fieldwork report, Bareikytė, 22 June 2017.

flow through the network. The Transmission Department is thus a necessary condition for the emergence of the Internet, although it maintains not only the Internet, but also all the telecom networks and dozens of their different services. This means that only one part of the network's equipment, such as the portion that processes IP traffic, is devoted to the Internet.

Stream transmission plays a crucial role in the Transmission Department. It comprises the transmission of coded information in the form of a signal, which moves from point to point, or station to station. Streams are expressed in speed (Gb/s) and types (LAN, Ethernet, fiber, etc.). They comprise both virtual and physical equipment, which help transmit signals and can only later take the form of specific services. Thus, a combination of floating signals can be used for different services according to the upper management's needs; the Internet is only one of these services. While transmitters, aided by computers, maintain stream transmission networks, services are created on top of those networks. Stationers, who sit elsewhere, receive a stream of signals from the transmitters and fragment it, describe it, and provide it to clients.[71] Employees at the Transmission Department not only take care of the stream, but also monitor the network and troubleshoot client problems. Within this, a part of this department known as the Back Office manages stream transmissions in order to maintain the network. Other employees are responsible for telecommunications resources: they make sure that there are enough resources, such as bandwidth, available for the over one hundred Telia Lietuva services. Yet another group of employees observe the telecommunications network, take care of system crashes, manage cyber-attacks, collect information on usual network activity, and flag anomalies.[72] Thus, multiple employees maintain virtual networks in general and the stream in particular. The stream has a double identity and can be understood as a service for, for instance, internal telecom company's requirements, but also as a service for the more specific end-user services, such as the Internet. The Internet thus would not exist without both stream transmission and physical network maintenance practices, such as digging or planning, which serve to maintain it on the ground. One of the differences between transmission of stream and physical network services is that transmission is very difficult to observe empirically.

At the Transmission Department I saw the sterile side of Internet maintenance, which was tethered to laptop screens and opaque qualities of stream maintenance. Akin to the variation of employees at the Physical Network Department, different people worked here: men and women, old and young, and people who spoke Lithuanian, Russian, and English. Although the overarching tendency to make cynical jokes was visible at each of my stays at various company departments, here the employees even warned me to prepare for their daily jokes. I already had the context of growing up in Lithuania, so I was thus aware of the mundane nature of daily ironic and sarcastic remarks. In this department I also observed an employee named Vakaris make a comment regarding the lack of rural need for not only fast but also exciting new telecom services beyond mere Internet access. He said, "There is enough speed already, maybe in 'some villages' this topic is still relevant, but it is not that 'in' anymore. Something

71 Fieldwork report, Bareikytė, 22 June 2017.

72 Fieldwork report, Bareikytė, 26 June 2017.

new is needed."[73] Also, Vakaris described telecom industry users as drug addicts: "All service providers are looking for 'how to put a human on the needle'—they are allowed to offer, but better not to choose."[74] Such a cynical and ironic attitude was not unique to Telia Lietuva's Transmission Department: rather, it was the prevailing attitude within the whole company and, dare I say, the entire industry. I also found it interesting that so many telecom industry workers I met during my fieldwork—Telia Lietuva employees such as Vakaris or public academics outside of the company, such as Kaunas Technology University professor Jonas, and many others—did not invest much hope in future Internet technology developments, but rather shared a sarcastic attitude toward Internet usage, best expressed as "better not to choose."

I became dizzy after spending a few days at the department staring at the computer screens full of software that defines streams, listening to the jokes and drinking lots of coffee. It was a stark change to move from the Physical Network Department, with its predominantly earthly focus—even during documentation and mediation practices—to a department primarily oriented toward computer screens. I thus found the Transmission Department to be a place of irritation. Here, the physical, observable and tactile side of everyday Internet infrastructuring began to dissolve and disappear from my empirical sight and the Internet began to emerge as a virtual abstraction. Here, the Internet was perceived by employees not as a collection of physical equipment and manual labor, but rather as one of more than 100 telecommunications services provided by Telia Lietuva,[75] all of which are maintained by streaming upkeep tasks. From the Transmission Department, I moved to the Head Offices, where the meaning of the Internet and its infrastructuring became even more abstract and shifted even further from physical toward communicative labor.

2.7 Processing

After I spent one month at the Physical Network Department and Transmission Department from June to July 2017, I received approval from the company to carry out the second part of my participatory observation at Telia Lietuva. In February 2018, I went to the Head Office.

My first day at the Head Office began with a discussion. The internship mentor and I talked about sites I could visit to explore the Internet's maintenance as a sold product. Thus, at the Head Office the understanding and praxis of the Internet production shifted: it moved from a physical media technology maintained through observable labor practices toward a form of communicative labor that does not result in a tactile

73 Fieldwork report, Bareikytė, 26 June 2017.

74 Fieldwork report, Bareikytė, 26 June 2017.

75 Telecom companies provide different services, such as: service of international stream, payphone, virtual servers, TV for business, etc. At the time of my fieldwork, Telia Lietuva provided over 100 different services, many of which were Internet-related (ADSL service, FTTx service, Wifi service, etc.), but others ranged from office equipment rent to cloud computing (Telia, e-mail message to author, 27 June 2017).

product, but rather one that is sold to customers of company's retail stores. My mentor at the Head Office advised me to start exploring the Internet as a product and its production practices at the Process Department (this title is my invention: the department's full title at the time of my fieldwork was Operation Activity Efficiency Department), which is responsible for the optimization of organizational processes, such as production. Thus, my fieldwork moved from observation of predominantly manual infrastructuring practices toward an examination of predominantly communicative labor in which the main work resource was the language spoken in numerous meetings.

I began my observation by meeting with the Process Department's leading manager, Laima, and an employee, Ana, in order to learn more about the Process Department's activities and discuss my further research plans. In fact, during most of my time at the Head Office, I spoke, interviewed people and listened to various conversations.

The Process Department establishes rigid processes—in 2018 there were 95 general processes at the company—to systematize and monitor other departments' activities through concepts such as key performance indicators, process flow, standards, and others.

During one of my visits, Laima and I looked at the online technical service catalogue, in which the Internet was described as one of many company's products. The technical service catalogue outlined different telecommunications product groups categorized into Connectivity, Customers, End User Services, Infrastructure, IT, TV, Voice, and Unified Communications. In the catalogue, the Internet was located under the category of Connectivity and divided into four product types: mobile Internet, fixed Internet, Internet VAS (value added services), and wholesale Internet. Later I noticed that the company presents Internet products through even more differentiated lists, such as the Internet for private customers, which differs in technological solutions and speeds: FTTH (up to 1 Gb/s), DSL (19 Mb/s), DSL+LTE, VDSL (up to 100 Mb/s), SVDSL (up to 250 Mb/s), and MBB mobile 4G Internet.[76] Laima showed me an image detailing how the Internet as four main products is developed by two department groups that were responsible for managing and developing Internet products: the Business and the Technology. The Business-related departments focus on client needs through commercial and communicative tasks such as pricing and advertising. A group of departments linked to Technology is concerned with feasible technological solutions that maintain sold customer services. I use the aforementioned broad department categories ("Technology" and "Business") because they outline key parts of the practices that are used to create Internet products, which are sold to customers as services. In particular, these terms link multiple departments that work together to develop new projects via technology maintenance, product management, commerce, and marketing. Additionally, I use these terms because multiple workers from the Head Office used them to describe actors from different departments (for example, employees would say, "He works at Business"); these terms were also used to refer to specific departments ("Business Department"), and commercial as well as technical rationales ("Business logic").

Throughout the course of my fieldwork, Laima and I discussed my plan to explore practices that maintain the Internet as a group of products. Based on our conversation,

76 Fieldwork report, Miglė Bareikytė, 19 February 2018.

I attempted to build the following Internet product development logic scheme. If the Internet is perceived as a group of products and sub-products at the Head Office, and a product is developed according to a specific process, it should be possible to disclose Internet production practices by following these systematized processes via the list of involved people. Accordingly, Laima and I planned to move through the product register and find the responsible Business and Technology "owners," i.e., workers from crucial department groups responsible for Internet product management, contact them and plan my stay at the Head Office.

While I assumed that it would be possible to use participatory observation to track Internet production practices at the company in real time, the employees from the Process Department warned me that a process-oriented perception of Internet production practices did not necessarily exist in other departments. They stated that "people in different departments will perceive the Internet, what it is, differently. . . . every department would speak about the Internet from a different perspective, or use different names for it, e.g., not the Internet, but TCP."[77] Moreover, Laima told me that "the Internet is already done, but it has to be maintained and developed."[78] While we tried to create a plan for my stay at the Process Department, we could not find any particular individual who was responsible for the company's Internet product strategy and management.

In light of this information, I desperately hoped to explore Internet production by using the "Confluence" software, in which all company's products, including the Internet, are listed and described. I also thought I could search for Internet "owners" in a product catalogue that outlines managing personnel responsible for product maintenance from either technical or business perspectives. This software listed nine business owners and four technical owners as currently responsible for Internet production at the company. However, if I were to follow through with the Internet "owners" listed in company's software systems, I would end up talking to proxies, i.e., workers who did not carry out actual Internet production work. Furthermore, what work actually goes in to Internet production?

During these discussions, it slowly and heavily dawned on me that it would not be easy to find a clear description of Internet production practices at the company. Either the Internet as such would be perceived, and thus described, differently or its production would be questioned by pointing out that it has been already produced long ago. Also, since there were many people responsible for various Internet products, I could not find a person solely responsible for these tasks. It became clear to me that my initial aim to withdraw from abstract conceptualizations of the Internet by conducting fieldwork-based, situated research of the Internet infrastructuring was suddenly destabilized: I spent my first days at the Head Office meticulously conceptualizing my stay.

In fact, conceptual perspectives regarding the Internet and its description as a result of product management processes and without clearly definable, responsible people did

77 Fieldwork report, Miglė Bareikytė, 12 February 2018.

78 Fieldwork report, Bareikytė, 12 February 2018. This statement, of course, can be destabilized by arguing that 5G Internet is not currently finalized.

not negate my fieldwork. The conceptualization of the Internet as a group of products is part of the Head Office's work.

What, then, can we learn about Internet infrastructuring from the Process Department? Processing perceives the Internet as a result of systematized conceptualizations that are organized and enacted by Technology, Business, and other departments and their interactions. If I had only followed the department's conceptual logic, I could have asked company employees to send me various documents that conceptualized Internet production and undertaken much less fieldwork. Actually, for a brief moment I found myself willing to plan the second part of my fieldwork at the Telia Lietuva Head Office according to how it conceptualized specific Internet product management processes. For a short time, I thought that I could link all production practices in a linear sequence at the Process Department—do what Process Department does, try to systematize my own research practice—and thus follow them during my participatory observation. After a day at the Process Department, I understood that the conceptual optimization of labor practices, including Internet production is the task of Process Department employees. However, my hope to fully plan and trace empirical, live equivalents of these conceptualizations crumbled in light of my lack of meetings planned for the next days. Thus, my expectations to develop a schedule for the observation of practices according to a plan I hoped to find in Process Department that systematizes action at the Head Office also failed, because the Internet here is perceived as a highly fragmented product comprised of sub-products and their sub-sub-products (mobile, fixed, value added services, wholesale, and others). Accordingly, there was no "Internet product" that I could track and conversely no clearly responsible people who "produced the Internet." This is because the Internet as a product comprises a group of products that is managed by a vast group of people, many of whom have different views regarding the Internet's product development. Consequently, I continued my participatory observation by visiting the Technology, Business, and other departments, such as Wholesale, to familiarize myself with their labor practices and try to understand their perspectives regarding Internet production.

2.8 Producing

What comprises the production of the Internet? How does an Internet product differ from an Internet service? In the following section, I explore how these questions were answered by multiple employees from the Head Office departments, such as Business-to-Business (B2B), Business-to-Consumer (B2C), Marketing, Technology, Portfolio and Project Management Office, and Wholesaling (or Business, Technology, and Wholesale in brief). These places are responsible for the development of the Internet as a product and a service. While I briefly described the Business and Technology departments, the Wholesale Department differs from the latter due to its selling of wholesale access to Telia Lietuva's physical Internet infrastructure for company's competitors.

Currently, the telecom industry is locked in cooperative tension with over-the-top (OTT) service providers, which use physical telecommunications infrastructure to transmit data, such as user content. In fact, the telecommunications industry seems to sink

into widespread oblivion once Internet users start to perceive the Internet as a quality—the fast Internet—or equate the Internet with Facebook or Twitter, which are OTT provider services. Importantly, telecommunications operators maintain physical telecom infrastructures that are also used by OTT service providers. I was interested in how telecommunications operators make Internet access into a product that both private customers and OTT service providers can buy and later use to generate new online services, applications, and platforms. Accordingly, in the following section I explore field-based meanings of the "Internet as a product" and the ways of producing it.

At Telia Lietuva's Head Office, terms such as "Internet as a service" and "Internet as a product" were often used interchangeably. While both I and company employees often struggled to discern a meaningful difference between the two, in this book I use the term "Internet as a product" in the context of labor practices that take place in the company's Head Office to develop, manage, and maintain Internet products during internal meetings. I use the term "Internet as a service" to indicate a client-oriented end result, such as "Internet for Home" or "Internet for Business," which can be purchased at company stores.

Once, I told my internship mentor how workers at the company perceive the Internet as a product, to which he answered that the Internet is not a product, but a group of products comprised of fixed Internet, mobile Internet, wholesale Internet, and value-added services.[79] According to Povilas, an employee from the B2C Department, "product" is a technical term that designates methods of construction, while "service" designates something provided to a client. Povilas contended that Telia Lietuva develops many Internet products (such as IPTV, digital TV, Internet TV, Home telephone, Broadband Internet, City Wi-Fi, Antivirus, and others) that are sold under specific conditions and prices as services and offerings (e.g. Broadband DSL, bundles Namai 123, Internet bundles, Broadband DSL Internet offers, and City Wi-Fi offers).[80] Nojus, another employee from the B2C Department, stated that the Internet is a service because someone pays money for it, that "In everyday activity the Internet is a service. It is simply a service which we *charge* and get money for. Whether it is mobile data, or MBB, that mobile broadband, or fixed Internet lines—does not matter, but it is simply a specific service."[81]

This focus on the Internet as a product and its distinction from, for instance, Internet as a physical telecommunications network, allowed me to focus on the contemporary situation: Internet is not provided as one public infrastructure for everyone under same conditions, but is rather sold in a competitive market that requires differentiated services that need to be continuously produced.

One way to describe Internet product production is titled PDMP, an abbreviation for "product development and management processes." At the Process Department I was introduced to three systematized product development and management processes that take place in Business and Technology related department groups, which manage Internet as a product at Telia Lietuva. The first PDMP is related to market analysis.

79 Fieldwork report, Miglė Bareikytė, 14 February 2018.

80 Fieldwork report, Bareikytė, 19 February 2018.

81 Interview with Nojus, 15 February 2018.

The second PDMP is responsible for linking market needs with Technology product processes. The third PDMP is initiated by the CRA, an external regulator which obliges Telia Lietuva to develop or change certain products due to the company's substantial role in the telecommunications market. The latter process results in the Internet as a wholesale product.

While product development, such as modernized VDSL Internet, which was already sold on the market during my fieldwork, is mostly internally initiated by Business and Technology department groups, the company's market position necessitates that it is also regulated by an external regulator, the CRA. Wholesaling manages and rents Internet-related products, such as physical communication channels, against the regulatory backdrop of CRA, while Business and Technology department groups have more freedom and engage in the development of different Internet products, such as FTTH, DSL+LTE, VDSL, SVDSL, and MBB.

Retail product development and management follows a flow path also known as a product lifecycle. It comprises five main steps: product and strategy, idea creation, development, business management, and completion in the case of product failure. Multiple employees thus told me a very similar, linear story of the development of the flow path comprised of idea creation, development, production, and, in the occasion of failed success, closure. Initially, a small team from both Business- and Technology-related departments consults an idea and then they discipline one another. "Because an idea can emerge, you know, well, 'let's do, *davai*, a teleportation apparatus,' well but, so to say, there are no means to do it," claimed Matas from Technologies.[82] According to Vytautas, who is responsible for product development, due to an abundance of ideas and lack of resources, products have to be prioritized:

> there are plenty of ideas in *telco* business. . . . Our job is to properly select those ideas, isn't it, and then with internal stakeholders coordinate if those ideas are really *relevant*. Sometimes the idea itself dictates that it is important, right, useful. Other times we have to test with a user survey, focus group, or simply through some conversations with future clients or employees and so on.[83]

At the Head Office, multiple employees told me that ideas for new telecom products come from various sources, such as customers, competitors, and company departments. In particular, the company's long-term strategy, existing market competition, global technology innovations, market research, as well dissatisfied customers, can push the company to develop new products faster. Nevertheless, it usually takes years for the ideas to mature.

If an idea is chosen, investment documentation is prepared on the basis of the developed technological solutions. This includes information regarding resources such as production time, hardware equipment, human labor, and other investments. After an idea is chosen, it is delivered to the Business group departments, which defend the investment documentation against an Investment Committee. According to Gabrielius from Head Office, this

82 Interview with Matas, 22 February 2018.

83 Interview with Vytautas, 5 July 2017.

> consists of higher-level managers, who decide upon strategy, investments, investment basket, where to invest, where not to. Because not one product, not one solution comes in. In reality there are tens or hundreds. . . . if it is decided . . . then a product manager is assigned and the whole project team with project members is formed . . . and the development takes place. At the same time those technical product owners, experts, architects, they participate in the project as resources and . . . control as well as wait for the result.[84]

Production begins after the idea has been successfully defended in front of the Investment Board, which reviews payback and risks related to new resource distribution. Matas from Technologies told me that a prototype of one product, a broadband VDSL Internet service, was planned for many years. He said, "Finally, well, Business saw that now, perhaps, it is the time."[85] One of Telia Lietuva's leading managers, Lina, explained that production is followed by a test phase and product delivery to the market, during which vendors are instructed on the proper marketing strategy.[86] Next, the product is sold to retail stores and maintained by employees, who are responsible for client support, service installation and repair.

The documentation of product development is an important production step. Productists insert information about product business and technical owners, architects, vendors, technological service details, and other details in the Microsoft "Confluence" system. Nerijus, a productist who develops and documents projects, told me that documentation serves to render employees replaceable. He stated, "For instance, if I am hit by a car while crossing the zebra . . . or if I am fired, or if I quit, documentation still will be there, on its basis someone could go deeper to understand how the service functions or to take over some things."[87]

New products are almost always developed in the form of projects that last for one or two years and are important for tracing the work process. Projects are managed through meetings, which follow different goals and varying levels of complexity.[88] To organize a project meeting—a crucial form of employee collaboration for project management—workers use an online platform in which available meeting rooms and names of colleagues are listed, visible, and can be booked. Informal meetings take place at the Head Office floors, while online meetings take place through Polycom, Skype, and other software tools.

According to Matas, it is crucial to use the form of a project, because they allow one to track old agreements:

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84 Interview with Gabrielius, 5 March 2018.

85 Interview with Matas, 22 February 2018.

86 Interview with Lina, 12 March 2018.

87 Interview with Nerijus, 15 February 2018.

88 For example, steering meetings gather the company's upper management to discuss projects that cost more than fifteen thousand euro. Reporting meetings distribute information about the ongoing project status. Team meetings share and discuss specific tasks and general information. Irregular meetings can be initiated by everyone to solve particular problems. While meetings comprise one of the crucial forms of the Internet product management practice at the Head Office, they also differ in complexity. (Interview with Matas, 22 February 2018; Fieldwork report, Bareikytė, 14 February 2018).

> During this time, for one thing, market demands can change anyway. Another thing: in an organization of this size, again, there are . . . changes in agreements, that dynamic is unavoidable. But with this, just well it can be that finally nobody would know what we are actually trying to do. *Project management* here is, well, an important part.[89]

During my fieldwork, I participated in many meetings that served to discuss not only the development of new products, but also maintenance of already existing ones. This included the advertisement of Internet services, ordering of new equipment, introduction of business management software SAP into companies' systems and many other issues. While the meeting rooms at the Head Office seemed dull and similar—the same red chairs, conference phone, occasional flat-screen TV, and Telia Lietuva poster—communication aesthetics and meeting content were diverse. Some of the meetings were casual, while others consisted of so many technical abbreviations that were incomprehensible to non-company members.

One time, Business and Technology specialists discussed potential advertisement strategies for Telia's retail customer Internet services. In this meeting, employees critiqued both themselves and their competitors, while minor tensions arose between the Business and Technology groups. They discussed ways to better represent Telia's Internet to customers: should they focus on quality and technological capacities, or prepare a tremendous representation of the Internet, as was currently done by competitor Tele2 via their "free Internet" advertisements? At the beginning of the meeting, Technology and Business representatives encouraged each other to collaborate with an implied tension:

> *A:* I hope that we will also make some sort of a flying house [as the competitors did with their 'free Internet' advertisement].
> *B:* Well, it will depend on you now. We will help you in the same way you will help us.[90]

Over time, the room simmered with intense, critical judgments. One time, managers reflected upon their own shortcomings:

> *C:* Tele2 [the competitor] goes, we follow, and it was very much about adapting, instead of trying to find our own edge.[91]

Sometime later, they criticized the same competitor, Tele2:

> *X:* Because, even after having seen that animation [the competitor's ad in which the house attached to an air balloon flies in the sky while a voice in the background states that the Internet is free], well there was not a single number mentioned, it seems to me.
> *D:* No, it said, 'We raised the Internet to the higher level.' What does that mean? Nobody understands.
> *A:* Well, with a balloon.

89 Interview with Matas, 22 February 2018.
90 Fieldwork report, Miglė Bareikytė, 26 February 2018.
91 Fieldwork report, Bareikytė, 26 February 2018.

> *B:* Yes, and they, and they will defend for sure, defend legally through the following: 'I took, you know, my modem and raised it.'[92]

This mixture of self-criticism and critique of others is prevalent in the industry. Issues specific to the case of production are also the implied tensions between Technology and Business departments. I was told several times in the field that telecommunications company employees are often specialized in issues either related to technology or commerce, although rarely in both. This specialization might lead to internal misunderstandings and conflicts. Once, Lina, a leading manager, shared her experience with Business employees who, she claimed, tend to think in a rather homogeneous manner. According to Lina, Business employees need to describe customer needs in a precise manner during the product development process, although they often fail to do so:

> business [group employees] have to be very clear in what they want. But what they want in a language of business: what needs, expectations they want to satisfy. Based on that, [someone] needs to tell how is it possible to do it: through some tool, or some system, or something else. . . . they need to say: 'I need a car, I need it to be big, because . . . Four children and two adults [will use it]. This family lives in the suburbs and will need to drive, I don't know, all the time.' These are the needs. And accordingly, the IT then says: 'Aha, since it is a big car . . . perhaps it is that big jeep, then so-called *mini for the city* will not fit . . . we need to think about fuel consumption and so on.' Very often Business tells us: 'I need a car.' That's it. . . . What is that? What kind of car? What are your expectations, what needs do you want to satisfy? 'Oh. It would be cool if there were leather seats. And the color needs to be green.' Wait, [I am] not [talking] about that, these are not expectations, these are not your needs. . . .this is simply a classic [case] . . . Also in the bank it was the same, also here, I also had to work in a start-up with various companies. 'What is unclear, I, well, said?' It has to be understood, [they think], as if you were a psychic. It is everywhere.[93]

Although new Internet products are developed according to projects that comprise not only constructive and planned work, but also criticism and tensions, their beginning and end are contingent. While an idea can emerge from multiple sources, the end of production is often open-ended and not equated with the time when the product is actually sold in the market as a service. Current market competitiveness requires producers to both quickly launch their products on the market and continuously maintain them. Matas argued:

> There is one [project] that is closed formally, but in reality it is not closed: hybrid Internet project . . . so I, let's say, still provide a significant amount of time to bring that service to a normal level, although it already is in commerce. But it is normal, because in . . . current fast world you cannot plan in a way that first we will lick everything, and then launch it, because when that happens, so to speak, it will probably take up three times as much time there and the market won't need it anymore. So a normal

92 Fieldwork report, Bareikytė, 26 February 2018.

93 Interview with Lina, 12 March 2018.

> activity model is, so to say, that you will launch on the market as fast as you can. You will finish developing it later.[94]

My internship mentor similarly posited that while it is possible to deduce the type of project development I explored through flow paths—i.e., conceptual project development through idea creation, development, run, and closure—earlier, in reality, all product development practices happen simultaneously.

The Internet as a particular product—such as recent VDSL Internet, which increases copper-based Internet speed—is prepared for market by Technology and Business departments, which are responsible for idea creation, further development and run comprised of market analysis, pricing, advertising, selling, and other tasks, that take several years to mature. Yet this part of Internet infrastructuring, often described in linear narrative of flows by multiple company employees, comprises tensions and criticisms from idea creation to a product's release to the market. Furthermore, its maintenance is ongoing and does not finish after the product is sold on the market. In other words, production practices do not only follow clear paths of product development that start with ideas, continue with their development, and end with production. Additionally, production practices involve situated contingencies, such as ongoing criticisms, emerging tensions between various internal product development stakeholders, the respective judgments and gossip about internal and competitor performances, and irrational expectations exchanged between these stakeholders. Moreover, in practice, product development doesn't finish when the product is available for market purchase but must be constantly maintained. As such, production is a long-term, planned, and contingent practice of conceptual and technical means to shape the Internet into a particular service for customers.

2.9 Wholesaling

There is another Internet product produced at Telia Lietuva but not available for retail customers: wholesale Internet, or broadband access sold to other telecom companies. The sale of this service is based on legal requirements that require Telia Lietuva to provide other Internet service providers access to its underground communications channel infrastructure, which was privatized in 1998. While previously I explored Internet product management practices for retail customers that encompass Technology and Business rationales through a conceptual flow path and its contingencies, here I focus on the Internet as a regulated wholesale product. In the Wholesaling team, the Internet is sold as a wholesale product to other telecom operators, thereby providing those operators access to Telia's physical underground infrastructure and an opportunity to later resell Internet access services.

Wholesaling is an ongoing daily practice that takes place against the backdrop of telecommunications market requirements issued by the national CRA, which is a member of the Body of European Regulators for Electronic Communications (BEREC). Dur-

94 Interview with Matas, 22 February 2018.

ing my fieldwork in 2018, the CRA's 2011 market analysis stated that Telia Lietuva was a substantial market power in Lithuania and therefore had to take the CRA's mandates into account,[95] but also the mandates and laws of the Competition Council. This meant that Telia had to sell access to its physical network infrastructure to its competitors, in this case broadband wholesale access to its physical infrastructure. Despite these rules, Ugnius from the Wholesale Department told me that the company's department is unknown: "Eight out of ten people at the company would not know that such a service exists."[96]

When I arrived at the Wholesale Department, as per usual, I parked and registered my car at the front desk, and then an administrator accompanied me to the elevator. He brought me to the 18th floor, where I was met by Ugnius. We passed a room of eight women working on their computers and sat down in a small office hidden behind a corner. The room was very bright and had a column next to the left side of the room, slopping walls, and bent glass windows. Like most of the offices at the Head Office, it was furnished with a computer, telephone, red chairs, and, unexpectedly, a small bistro table on which a calculator and a rubber stamp rested. I could see about half of Vilnius through the glass wall. Due to the fact that I had met Ugnius because he was an Internet business owner, I still hoped he would help me find some correspondence between the schemes from the Process Department and the Wholesale Department's daily practices. I shared my highly conceptual schematization in which, according to my understanding, the Internet as a product emerges from the Connectivity catalogue and has four sub-products (wholesale, fixed, mobile, and VAS) that are managed by the designated Business and Technical owners. In turn, I learned that Ugnius does not feel that the concept of "owner" applies to his work. Also, he stated that he might not see the same schemes as his colleagues at the Process Department due to different information access options for each of the company's employees. Actually, Ugnius did not even personally know his colleague who had arranged our meeting. While we sat in a tiny office and I attempted to translate conceptual correspondence from the Process Department into an empirical reality, I learned that long-term personal interaction carries much more importance in everyday work than any scheme. Every day, Ugnius prepares and signs contracts with clients, administrates services, and arranges reports for the CRA. He additionally collaborates with clients, negotiates faster service installation, troubleshoots, and takes care of client service maintenance. Thus, the department's place within the official company's structure did not mean a lot in Ugnius's daily work, and, thus, finally

95 RRT, e-mail message to author, 11 April 2019; Lietuvos Respublikos ryšių reguliavimo tarnyba, *Dėl didmeninės (fizinės) tinklo infrastruktūros prieigos (įskaitant iš dalies arba visiškai atsietą prieigą) fiksuotoje vietoje rinkos apibrėžimo, Nr. 1V-628*, (Vilnius: Lietuvos Respublikos Ryšių Reguliavimo tarnyba, 2011), https://www.rrt.lt/d/del-didmenines-fizines-tinklo-infrastrukturos-prieigos-iskaitant-is-dalies-arba-visiskai-atsieta-prieiga-fiksuotoje-vietoje-rinkos-apibrezimo; Lietuvos Respublikos ryšių reguliavimo tarnyba, *Dėl ūkio subjekto Teo Lt, Ab, turinčio didelę įtaką didmeninės (fizinės) tinklo infrastruktūros prieigos (įskaitant iš dalies arba visiškai atsietą prieigą) fiksuotoje vietoje rinkoje, Nr. 1V-629*, (Vilnius: Lietuvos Respublikos Ryšių Reguliavimo tarnyba, 2011), https://www.rrt.lt/d/del-ukio-subjekto-teo-lt-ab-turincio-didele-itaka-didmenines-fizines-tinklo-infrastrukturos-prieigos-iskaitant-is-dalies-arba-visiskai-atsieta-prieiga-fiksuotoje-vietoje-rinkoje/.

96 Fieldwork report, Bareikytė, 13 February 2018.

lost meaning for me as well. In fact, few Telia Lietuva employees knew the title of their own department, but after being asked about the names of the departments that they communicate with, they remembered people instead of official department names.

Another question arose: when do other Internet service providers want to buy a competitor's service? Ugnius told me, "It is hard to say, depending on an operator, when they feel competition, when they supply services through mobile network but need fixed [access], when they have a network in one city, but not the other."[97] In order to buy a wholesale Internet service, a client needs to complete an online order form. This order then migrates to a system within the company called Vantiv, although during my time at the company it was already being shifted to the SAP business management software. After workers have processed the order and evaluated technical requirements (i.e., if it is possible to provide access), the client receives an answer. If the answer is positive, the client needs to confirm the order and then receives the service, which includes options such as access to a particular fiber thread in a Telia Lietuva-owned underground network channel. After this step, Ugnius's colleagues use Vantiv to arrange when engineers will install the service. During the week I visited, they received 197 orders, yet only 47 of them were technically feasible.

Due to the partial regulation of the Lithuanian telecommunications market, wholesaling is strictly defined and rigidly observed. For example, Wholesale product prices cannot be calculated freely and have to be confirmed with the CRA. Thus, wholesale service prices cannot be higher than Telia Lietuva retail service prices. Retail prices are disclosed to the Wholesale Department after they are calculated, which defines their wholesale prices and offerings. According to the unwritten agreement with the Competition Council, the wholesale price needs to be at least 10 percent lower than the retail price. Additionally, Internet retail services can only be publicly offered after wholesale services have taken effect. I was told that clients always buy their wholesale services through offering campaigns. According to CRA requirements, offers must appear two months before they are issued to the retail market. Additionally, Telia Lietuva cannot use their offers before these two months have passed. While it is interesting that external operators are concomitantly Telia's competitors and clients in a liberalized regulated telecom market in which the CRA aims to "ensure effective competition" by limiting Telia Lietuva actions through Wholesale Department,[98] it must be emphasized that Lithuania's competitive environment did not emerge naturally, but rather through the 1998 privatization of publicly developed networks. According to an email sent to me by a CRA employee, physical infrastructure channels have been used commonly since 2002. The symmetrical regulation of physical infrastructure was defined in 2011 according to rules instated in 2005 regarding the installation, marking, maintenance, and use of electronic communications infrastructure. This physical infrastructure regulation stated that because Telia Lietuva has a significant market impact it must follow additional obligations for physical infrastructure sharing.[99]

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97 Fieldwork report, Bareikytė, 13 February 2018.

98 "Briefly about RRT," https://www.rrt.lt/en/about-rrt/briefly-about-rrt/.

99 RRT, e-mail message to author, 11 April 2019; Lietuvos Respublikos Seimas, *Lietuvos Respublikos elektroninių ryšių įstatymas, Nr. IX-2135* (Vilnius: Lietuvos Respublikos Seimas, 2004), https://www.

Although the sharing practices of Telia Lietuva's substantive ownership of underground physical network channels were debated during my fieldwork,[100] Ugnius contended that Telia would risk big fines if it attempted to hinder general network development and competitor access.

I was additionally told that companies in other Lithuanian cities, such as Šiauliai, have more clients than Telia. During the period in which I undertook fieldwork, Telia wanted to convince the CRA to introduce geographical market segmentation. This technique would enable telecommunications companies to analyze their market share according to their particular market share in the counties rather than on a national level. If Telia Lietuva could prove that the majority of the county's inhabitants are not their clients, it would not need to provide wholesale service to their operator-clients. Despite these attempts, I was currently told that data regarding the exact number of operator-clients in different counties is still lacking.

Daily competitor cooperation is thus not trivial. Ugnius shared that in cases such as technology malfunctioning, it can be difficult to determine whether Telia's client or Telia's employees should undertake repairs. Additionally, it can be hard to juggle two contradictory tasks at the company: first, Telia Lietuva has the largest role in Lithuania's telecom market. It sells Internet services both to its retail customers and competitors, who then attempt to resell their own access to the same customers that they and Telia Lietuva compete to attract. How does a company maintain this internal contradiction? Ugnius claimed that when a conflict arises, the other telecom operators go immediately to the CRA. He did not understand why operators do not communicate their issues to Telia Lietuva, or why they sometimes avoid providing more information on the exact usage of their company-rented broadband access. He stated that "maybe they imagine that Telia will cheat,"[101] there is perhaps some "mistrust,"[102] but these evasions are not practiced by all operators. While currently there are fewer disagreements, I was told that sometimes operators mistrust the company and avoid sharing all their service information with Telia. When we went back to the office, Ugnius received a call in which he learned that a client-operator does not disclose his client's identity to Telia Lietuva. Ugnius told to "write a comment, that there are no TR [technical requirements],"[103] thereby implying that the wholesale services will not be sold to that client-operator. When I asked Ugnius why this client refused to provide this information, he replied,

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e-tar.lt/portal/lt/legalAct/TAR.82D8168D3049/asr; Lietuvos Respublikos ryšių reguliavimo tarnyba, *Įsakymas dėl elektroninių ryšių infrastruktūros įrengimo, žymėjimo, priežiūros ir naudojimo taisyklių patvirtinimo, Nr. 1V-978*, (Vilnius: Lietuvos Respublikos ryšių reguliavimo tarnyba, 2011), https://www.e-tar.lt/portal/lt/legalAct/TAR.D560737E2392/KdgYfoBXYc; Lietuvos Respublikos ryšių reguliavimo tarnyba, *Dėl ūkio subjekto Teo Lt, Ab, Nr. 1V-629*; Lietuvos Respublikos ryšių reguliavimo tarnyba, *Dėl didmeninės (fizinės) tinklo infrastruktūros prieigos (įskaitant iš dalies arba visiškai atsietą prieigą) fiksuotoje vietoje rinkos apibrėžimo, Nr. 1V-628*, (Vilnius: Lietuvos Respublikos Ryšių Reguliavimo tarnyba, 2011), https://www.rrt.lt/d/del-didmenines-fizines-tinklo-infrastrukturos-prieigos-iskaitant-is-dalies-arba-visiskai-atsieta-prieiga-fiksuotoje-vietoje-rinkos-apibrezimo.

100 Interview with Vytenis, 21 March 2017.

101 Fieldwork report, Bareikytė, 13 February 2018.

102 Fieldwork report, Bareikytė, 13 February 2018.

103 Fieldwork report, Bareikytė, 13 February 2018.

"You tell me. . . . They are afraid that we pass this communication to our sales people. It is an ungrounded fear. After we tell them that we do not provide the TR, they will call."[104]

I later sat down on a pouf in the lobby and stared at my laptop. The few employees nearby did not seem to mind my presence. I overheard them speaking about processes, highways, and non-stimulation of tendencies, but I only later understood the direction of this cryptic conversation. Ugnius had already told me that competing operators buy increasingly more wholesale Internet services from Telia Lietuva, but during this informal meeting I overheard that the company's two departments have two different goals. This was what is known as a "coded confrontation."[105] One employee claimed that "the goals need to be synchronized,"[106] but the other contended that "they have their selling goals, and we have [ours],"[107] and "I don't know, maybe there is an internal conflict."[108] Another employee complained, "Today I say: 'Give me the numbers,' and they say, 'We will not give them to you!'"[109] The other carefully conceded that "it is a sensitive topic."[110] The first tried to discuss the topic further and suggested, "but perhaps [we could share the information] in the organization, internally,"[111] to which someone replied, "No, the Authority [CRA] is checking, there are auditors."[112] The conversation was summarized by the following sentence: "The problem of Wholesale [Department] is that they do not need even to build the infrastructure, and they can get any client they want,"[113] which implies that inside the company, two logics—wholesaling to competitors and selling retail access to customers—work in tension.

Internet products are infrastructured not only as multiple retail products, but also as a wholesale product, which includes other telecom players renting access to Telia Lietuva's physical telecom infrastructure. While retail Internet products can be conceptualized and developed in a creative, rather open-ended manner against the backdrop of existing path dependencies and complex project development process, wholesale Internet as a product is relatively stable and sold daily to other telecom operators through an online tool. External regulator CRA controls wholesale prices and offers, which requires Telia Lietuva to sell other Internet service providers access to its physical telecom infrastructure. Although wholesaling practice seems straightforward—a wholesale client orders a service online and a Telia Lietuva employee then manages it —it includes ongoing observation by an external regulator, tensions between Telia Lietuva, and other operators and tensions between internal company departments. Thus, the very existence of the Wholesale Department is politically charged due to Telia Lietuva's dominant role in the market. By looking at both wholesale and retail Internet production as a part of

104 Fieldwork report, Bareikytė, 13 February 2018.
105 Fieldwork report, Miglė Bareikytė, 15 February 2018.
106 Fieldwork report, Bareikytė, 15 February 2018.
107 Fieldwork report, Bareikytė, 15 February 2018.
108 Fieldwork report, Bareikytė, 15 February 2018.
109 Fieldwork report, Bareikytė, 15 February 2018.
110 Fieldwork report, Bareikytė, 15 February 2018.
111 Fieldwork report, Bareikytė, 15 February 2018.
112 Fieldwork report, Bareikytė, 15 February 2018.
113 Fieldwork report, Bareikytė, 15 February 2018.

infrastructuring, one can see how a smooth plan of product development—idea creation, development, and production—is actually not so smooth at all. Due to the fact that the Internet as a product at the Head Office is a result of communicative labor practices carried out by company managers and external actors (regulators, and retail and wholesale clients) through continuous meetings and reports on Telia Lietuva's role in the market, the Internet shifts from being solely physical technology toward a conceptualization involved in ongoing debates.

2.10 Popularizing

> According to data published at the end of April by the Telecommunication Statistics Centre 'Europe-Internet', the international electronic communications network Internet is not yet popular in Lithuania. Only one in 3,578 residents of Lithuania regularly uses Internet services. According to BNS, one in 679 people uses the Internet in Latvia and 266 in Estonia. The most popular Internet from European countries is in Finland (one in 20 people regularly use electronic network services), in Iceland respectively 27, in Norway, 41, in Sweden, 52, in Switzerland, 74, in the Netherlands, 78.
> *Verslo Žinios*, "*Internetas Lietuvoje nepopuliarus.*"[114]

Internet products are not only produced and maintained, but also must be made desirable in order to be sold.[115] While it seems like everyone these days is interested in the Internet, customers still need to choose one particular Internet service. At the Head Office, I spoke to people from the Marketing and Commerce departments and visited Telia Lietuva's retail store in order to grasp how the Internet is sold as a service and popularized in practice. It is also important to remember that Internet access was not always desired, what made me wonder how the Internet's significance is contingent on varying factors. As far-fetched as it is to imagine, perhaps there may come a time when Internet usage does not play such a major role in our lives.

During conversations at Marketing and Commerce departments, it seemed that those who work with language and images needed to rigidly control their statements. This was exemplified during a conversation with Jurga, then head of the Marketing department; I finished all the questions I had to ask her in fifteen minutes because she

114 "Internetas Lietuvoje nepopuliarus," *Verslo Žinios*, updated 14 May 1996, accessed 12 July 2019, https://www.vz.lt/archive/news.php/id=402865#ixzz6CPuJP3tL.

115 Fieldwork report, Miglė Bareikytė, 3 July 2017.

replied to each one with brief, crisp answers. Jurga perhaps sensed my confusion and eventually opened up and discussed the Marketing Department's work. She told me that its main goal is to communicate with clients, interpret valuable research, and adapt the company's communication in order to reach more future customers. Thus, the department's main marketing tasks comprise brand development, promotional material, and copywriting special offers. Due to the fact that not every message has an impact, employees also investigate if customers have actually understood their messages. Jurga stated that "if the offer was irrelevant, then it is the fault of the Commerce Department; if people did not understand it, then this department is guilty."[116] Employees at the Marketing Department thus constantly prepare and evaluate advertisement campaigns, discuss company brand development paths, meet other managing leaders from Business group departments and discuss the results of product sales. Their most important communication channels are TV, digital banners, and Facebook—"The only relevant social media in Lithuania," according to Jurga.[117] In their Internet service advertisements, Telia Lietuva does not advertise their technological service background; they only occasionally mention the titles of respective services and their speed, because, as I was told, there is already a strong desire to consume technology, and technological construction of services is complicated. Instead, it is easier to sell the Internet as a service through its affective characteristics by outlining vague Internet qualities such as the absence of any genuine distinction between the physical and the digital life, or the importance of speedy connectivity without interruptions.

Jurga told me that accordingly there has been a shift in Lithuania's telecom market toward emotional marketing that focuses on the Internet's qualities and values, such as speed. Their client focus is on "a 35-year-old person with a family, well adapted, prone to pay."[118] Yet one can still find residual discourse with more explicit statements about media technologies that include topics such as 3G and 4G mobile Internet due to high competition among various Internet Service Providers for these Internet services. While the Marketing Department does not advertise Internet through technologically comprehensive messages, I was interested in how Jurga herself understands the Internet. She told me that "the Internet is like H20, electricity. Its purpose is for that, what is accumulated on the Internet, to reach people."[119] Additionally, Jurga described infrastructure in abstract terms, as "a network which supports life."[120] It seemed to me that departments such as Marketing, which communicates messages about the merit of purchasing Internet services, perceive and foster an understanding of the Internet in a non-physical manner akin to air or electricity. Similarly, Technology Department employee Matas once told me, "Usually they [Business people] have a very limited understanding of technical implementation . . ."[121]

116 Fieldwork report, Bareikytė, 3 July 2017.
117 Fieldwork report, Bareikytė, 3 July 2017.
118 Fieldwork report, Bareikytė, 3 July 2017.
119 Fieldwork report, Bareikytė, 3 July 2017.
120 Fieldwork report, Bareikytė, 3 July 2017.
121 Interview with Matas, 22 February 2018.

At my visit to the Business group's Commerce Department, Arnas, then a head of B2C business development, told me that the current telecommunications market is fragmented, highly specialized, and difficult to innovate within. He stated that "there is no unified market: there is a market for TV, Internet, etc. . . . Market competes through mobile solutions. . . . The borders between mobile and fixed Internet are being dissolved. People understand less how the Internet functions, who supplies them with it, where it comes from."[122] Due to the fact that various commercial aspects—the pricing and selling of services, user transfer and management, market research, business plan development, communication with the company's sale channels, and other tasks—need to be taken into consideration, employee roles within the telecom branch are highly specialized. Arnas said that "only telco and banks have such a specialization of work—other companies have single people who take care of these issues."[123] He additionally contended that the telecom market currently struggles to innovate new products and services. In this context, every fiber is similar to every other fiber and the company must try to differ in the quality of their services and added value services. Arnas described this as: "Evolution, not revolution."[124] He explained that his department does not create change, but rather aims to continuously improve user service experience.

During the course of my fieldwork, not only Arnas or Jurga, but also multiple other industry stakeholders, described the typical lack of user understanding regarding how the Internet functions. I often heard statements akin to those of Arnas, that the customer's lack of knowledge is good: "we can create new offers, new technologies, and consumer does not care."[125] Consumers actually care about specific Internet qualities, such as "speed, stability, and price. Internet is a commodity and consumers want good conditions."[126] Jurga also argued that contemporary users seek simplicity, speed and connectivity; thus the department's communication strategy is also focused on speed, that "you do not have to think, but trust the experts—us—and do what you like."[127] In order to communicate Internet services in an abstract, simple way, the company used the phrase *visakotinklas* (the network of everything). This slogan is supposed to create an image of a seamless national network that includes each and every technology and connects all corners of Lithuania.[128] Povilas, another Business employee, similarly contended that if a client actually starts to think about how a service works "it is perhaps a signal that something is not working."[129] While the Business group is concerned with simplifying user experience and developing communication strategies focused on ease and speed, at Telia Lietuva's physical shop in a Vilnius' mall, shop manager Rasa told me

122 Fieldwork report, Bareikytė, 3 July 2017.
123 Fieldwork report, Bareikytė, 3 July 2017.
124 Fieldwork report, Bareikytė, 3 July 2017.
125 Fieldwork report, Bareikytė, 3 July 2017.
126 The main telecom retail services today comprise mobile connection, mobile data, Internet, IPTV and the value-added services, such as particular programs from the IPTV system, mobile and travel insurances, telephone insurance, rent of office equipment, cloud, data centres for businesses (Fieldwork report, Bareikytė, 3 July 2017).
127 Fieldwork report, Bareikytė, 3 July 2017.
128 Fieldwork report, Bareikytė, 3 July 2017.
129 Fieldwork report, Bareikytė, 14 February 2018.

that clients "sometimes know issues concerned with the Internet better than us,"[130] and thereby want to understand the technical background of the services they purchase.

These experiences led me to conclude that although telecom company communication strategies have become increasingly non-technical and built upon the image of clients who know little, this does not mean that users are actually not interested in technical basis of their Internet services. Perhaps on the contrary, if digital technologies do actually become all-pervasive due to the expansion of systems such as the "Internet of Things," the users will increasingly require more information about the production, maintenance, and development of these services.

While the Internet is currently communicated to customers as an abstract service through metaphors of connectivity and speed, there was a time when people had no desire to use this media technology. Telia Lietuva store manager Rasa told me that the store's team nowadays consists of 10 salespeople who have to be psychologically strong, because in the context of strong customer demand, "only the strongest survive, like in a war."[131] Despite this mentality, demand for Internet services is relatively new. Since the 1990s, private businesses, and governmental- and non-governmental organizations—such as the Open Society Foundation, the public infrastructure project RAIN, and private companies such as Omnitel—have actively popularized the Internet access services to the general population. When one accepts the current perception of the Internet as ordinary and common, it is easy to forget that the need for this media technology did not emerge naturally, but has been created and maintained throughout the years.

One example of an active maintenance and popularization force is the Open Society Foundation (OSF; in Lithuanian: *Atviros Lietuvos Fondas*, or ALF), which was established in Lithuania in 1990 against the backdrop of multiple foundations developed by investor and philanthropist George Soros in Central and Eastern Europe since 1984. The OSF foundation stayed in Lithuania until 2008 and was reestablished in 2017. The Foundation supports the notion of diverse democratic societies by implementing various re-

130 Fieldwork report, Miglė Bareikytė, 1 March 2018; Additionally, at this Telia Lietuva's retail store, I was provided with internal company documentation. According to this documentation, company's customers were typed into four types: "doubtful," "rational," "e-generation," and "visible," each of whom require different approach from the retailers. Accordingly, doubtful clients are not interested in deep technological understanding of services they are buying; they purchase the most popular services and require retail store assistance. Rational clients constantly compare Telia Lietuva services with their competitors, search for the best technological solutions, do not require retail store assistance, are said to have friends in foreign countries and stand for justice: "They can be bothered, for example, if the customer queue is managed not incorrectly." (Fieldwork report, Bareikytė, 1 March 2018). E-generation follows online reviews, is technologically most advanced, but does not show it. They require most qualitatively advanced Internet services and related products, and do not want long-term obligations. Visible customers take care of their appearances, know substantially about technologies and want to express themselves through their brands. They require high quality service, attention, and high quality (Material received during fieldwork. Fieldwork report, Bareikytė, 1 March 2018). Although general Telia Lietuva message for customers is abstract, some of the customers, accordingly to internal company's documentation, want to understand technical background of services they are purchasing.

131 Fieldwork report, Bareikytė, 1 March 2018.

gional programs in Central and Eastern Europe that are able to undertake independent local activities.[132] One of the OSF programs in Lithuania was concerned with Internet development. According to Sigitas, the former director of the Information Program, the development of the Internet at the OSF focused on online content creation, access, and usage.[133] From 1995 to 1997 it was also possible to connect to the Internet for free through the OSF by using the telephone lines of then state-owned Lietuvos Telekomas. This was because the OSF provided the possibility for individual users to connect to the Internet from home when for-profit companies had only just started professionally selling Internet access. Eventually, around 1998, when the Internet access became increasingly commercialized by multiple Internet service providers, the OSF shifted their focus from Internet infrastructure access management toward its usage in communities, schools, universities, hospitals, and governmental institutions.[134] Despite this access, throughout this period of OSF support, the Internet usage was not always desired. Sigitas remembered that the first big problem in Lithuania was the lack of useful online information in Lithuanian. Also, some institutions that the OSF aimed to support with Internet access, such as hospitals, initially did not see the merit of using the Internet and accessing online content. Sigitas stated:

> We offered money also for Santariškės [one of the biggest hospital complexes in the country] to connect to the Internet: we gave money to lay the cables. Well, they were laid, but were used very little. And then there, in the library, we wanted to set up a few computers, and [they] said, 'Who needs that?' etc. While the doctors were saying, 'We don't need [this] at all, we get articles, those, who need receives books, why do we need that Internet?'[135]

Sigitas also argued that while some professionals did not use Internet much, others perceived the Internet as a morally dubious medium:

> OSF even bought many electronic data bases, which humanitarians, medics, lawyers, and everyone who wanted could connect to. [OSF] paid a lot. And the usage was very small . . . already in 2010, 2011 among the humanitarians there started a movement, that it is evil. . . . [Those,] who already surfed the Internet, saw that also pornography started to spread, and fears emerged. We then started even with our own cinema . . . organized public discussions about the Internet: whether it is good, or it is bad.[136]

Lack of access, disinterest, and distrust were not the only causes of low Internet usage. Sigitas also contended that urban and rural tensions framed the expansion of Internet access and usage. While OSF popularized Internet usage in rural areas,[137] the intervie-

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132 Atviros Lietuvos Fondas, *2002 m. veiklos ataskaita* (Vilnius: Atviros Lietuvos Fondas, 2002), http://olf.lt/wp-content/uploads/2017/03/alf_ataskaita_2002.pdf.

133 Sigitas, e-mail message to author, 18 January 2019.

134 Sigitas, e-mail message to author, 18 January 2019.

135 Interview with Sigitas, 9 September 2018.

136 Interview with Sigitas, 9 September 2018.

137 The OSF also supported Internet usage and electronic communication among people with disabilities and among ethnic minorities. They also supported processes of distanced learning and information society research in order to strengthen links between citizens and the government

wee claimed that those who promoted rural IT integration were criticized by the media as only seeking profit. According to the interviewee, an ongoing popular negative opinion about village inhabitants described them as disinterested in Internet access due to social fragmentation between cities and villages, higher poverty levels in the villages, and condescending media coverage:

> Because collective farms collapsed . . . there were many poor people, who were just starting to develop their own farms, and big fragmentation emerged. As you know, people were used to working in collective farms, and when there is no one to work for, getting drunk [alcoholism] was increasing, city dwellers had very poor opinions of them. And even our media promoted that: newspapers, photos of how a drunken pensioner is walking . . . Nowadays it is so, that a majority of village inhabitants buy tickets to theatres [online] . . . Then nobody believed, [they] were saying: "Why for this drunken part of society, it is not necessary, it is an expensive thing, who would use those computers?" As it appears, it was untrue.[138]

While Internet access, online content development and usage was promoted by the OSF in Lithuanian cities and rural communities, Sigitas provided different examples that illustrate how some usage of Internet services in the 1990s and early 2000s was limited due to the lack of access to Lithuanian content and distrust in the moral character of the Internet. Another portion of this lack was due to those, such as doctors or lawyers, who had little interest in the Internet as a service, and contempt toward disadvantaged rural parts of the population was expressed through critique of rural Internet access expansion. Importantly, these examples illustrate how interest in Internet usage has not emerged naturally, but is rather the result of long-term popularizing practices of non-governmental organizations, such as the OSF, which were embedded in societal disinterest, distrust, and negative critique.

Lack of initial user interest in the Internet was also described by Donata, one of the first employees at private telecommunications operator Omnitel, which was established in the early 1990s. According to Donata, the first sale of the Internet by a private telecom company in the 1990s was rather difficult because

> technologies were not mature. . . . In Lithuania there were practically no websites. Basically, only e-mail. . . . and only later, Web surfing . . . In the beginning, browsers were not even graphical. There was a browser 'Links,' basically a text browser, which allowed one to review only textual information without any pictures.[139]

Omnitel used to educate potential users about the merits of Internet usage. It also employed a sales team, developed marketing material, conducted multiple seminars and workshops, used door-to-door selling techniques, and even developed an online news portal in Lithuanian. Donata stated that the "situation was the following: nobody—not only customers were unaware of the services, but also potential providers, which could

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with equipment and direct community engagement (Sigitas, e-mail message to author, 9 April 2018).

138 Interview with Sigitas, 9 September 2018.

139 Interview with Donata, 27 March 2018.

use the Internet and provide services . . . It means that it was needed . . . to make the beginning ourselves."[140] In 1996, Omnitel had approximately 2500 Internet users, the majority of whom were small companies. At the same time, other Internet service providers emerged in Lithuania, some of which, such as Baltneta, Infostruktūra, and Penki Kontinentai, obtained a dedicated line for fixed network interconnection from Lietuvos Telekomas and sold Internet connections to their clients. Donata posited that the growth of telecom service providers also lead to the spread of information about the Internet. At first, users knew little about the Internet:

> In most cases, those users knew nothing: neither about the Internet, nor, often, about technology. And actually that initial act of selling was very difficult. Since at that time I had to . . . coordinate the selling, thus the sellers were in Vilnius, Kaunas, Klaipėda, Šiauliai later, Panevėžys, and Marijampolė, and they . . . just kept telling . . . They say: "I went, for half an hour I was telling what is that Internet, what it is possible to do with it. I am told: 'Well', [they] say, 'you talk nicely, I don't understand, why is this Internet necessary, you talk nicely, well give it to me, I will buy.' Another one says: 'Don't tell me fairy tales, I have partners in the US, there [they] have fax, telex, it is fully sufficient, why do I need your Internet? It is unnecessary.'" . . . Actually it was needed to educate people, to simply explain, that the Internet exists, what it is used for. There were loads of seminars. Going to the companies, inviting companies to our place. And we had really not a small team of sellers because it was them at first who needed to go, offer, explain to the company, and finally help install. Those marketers had both IT knowledge and business inclinations.[141]

In 1998, there was a breakthrough: people started widely using the Internet and mobile phones due to the emergence of country-wide alternative providers and government-led project Rural Area Information Technology Broadband Network RAIN, which took place in Lithuania from 2005 to 2008. RAIN aimed "to provide broadband access for all rural public sector administration institutions."[142] Gediminas, an academic involved in the RAIN project, also claimed that the users, such as farmers, did not initially understand why they might want to use the Internet, but later changed their opinions:

> [People] did not understand why it was needed. It was necessary to explain it to them, that, for example, when they want to declare their crops, they need to measure them and later fill in the documents, bring them somewhere to Vilnius . . . now, not only it is unnecessary to agitate, they are saying: 'Give,' because it is a practical thing. . . . it is not enough to have infrastructure, it is necessary to have people who are prepared and ready to use this infrastructure. In Lithuania, this issue is still to be corrected. It should be pushed a little bit more.[143]

Public and private telecom operators have advertised Internet services since they were first established. Although the desire to purchase Internet access in the 1990s differed

140 Interview with Donata, 27 March 2018.

141 Interview with Donata, 27 March 2018.

142 "Rain," *Plačiajuostis Internetas*, accessed 20 June 2019, https://www.placiajuostis.lt/en/rain.

143 Interview with Gediminas, 14 March 2017.

from current times, especially because access technologies and services were much more expensive, the need to advertise Internet services in the private sector is an ongoing daily practice. Internet access in Lithuania has thus had to be constantly advertised by telecom industry stakeholders including NGOs, government entities, and private businesses. As illustrated in the examples above, diverse groups of Internet users, such as doctors, farmers, and businesspeople, with the exception of academics, initially did not see the value in Internet usage. In fact, most people did not understand what the Internet was and had to be convinced to give it a try. According to data from EUROSTAT, provided by the Information Society Development Committee [*Informacinės Visuomenės Plėtros Komitetas*], 75 percent of Lithuanian households in 2017 had Internet access, while the EU average was 87 percent. Moreover, in the EU, 90 percent of urban dwellers had access to the Internet (compared to 83 percent in Lithuania) and 82 percent had access to the Internet in rural areas (compared to 67 percent in Lithuania). Although access to the Internet in Lithuania—both in rural and urban areas—has been so well developed that today anyone could have it if they wanted to, currently 62 percent of Lithuanian households that do not have Internet access claim that they simply do not need it.[144]

Thus, even today Telia Lietuva devotes many resources to convincing customers to buy Telia's Internet products that are sold to them as services. In this context, the high number of telecom operators and the resulting competition certainly contributes to the practice of convincing customers to purchase particular company services. I have heard from multiple sources at Telia Lietuva's Business departments that Lithuanian telecom users have thus developed a habit of bargaining. According to Povilas, "This can be felt so much in Lithuania, [because there] is a big price-sensitive segment here that searches how to save. But there is a huge segment, [that] simply demands for a discount . . . "[145]

Thus, the popularization of Internet services is an ongoing practice at both Telia Lietuva and the broader Lithuanian telecom industry. Although supposedly the Internet is currently a widely desired service, popularizing it is still a crucial infrastructuring practice in the telecom industry. Due to high market fragmentation and different Internet service packages, the recent popularization focused on simplicity. Telia Lietuva is not exceptional here: other telecom operators seem to pursue similar advertising strategies. For example, mobile Internet providers Tele2 advertised the Internet as "free,"[146] Bitė Lietuva spoke of "the home Internet,"[147] and Telia Lietuva described itself in universal terms, as "the network of everything."[148] Increasing number of users had to, and still have to, be convinced of the merit of the Internet since its emergence in the 1990s in

144 "Lietuva pagal interneto naudojimą namų ūkiuose vis dar atsilieka nuo ES vidurkio," *Informacinės visuomenės plėtros komitetas*, updated 27 February 2018, accessed 7 July 2018, https://ivpk.lrv.lt/lt/naujienos/Lietuva-pagal-interneto-naudojima-namu-ukiuose-vis-dar-atsilieka-nuo-es-vidurkio.

145 Fieldwork report, Miglė Bareikytė, 21 February 2018.

146 "Su laisvu internetu gyvenimas tęsiasi," *Tele2*, accessed 3 April 2020, https://tele2.lt/privatiems/laisvas-internetas; "Free" here refers to liberating potentiality of the Internet, not that it is provided for free.

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

148 "'Teo' ir 'Omnitel' tampa 'Telia,'" *Telia.lt*, published 1 February 2017, accessed 10 November 2019, https://www.telia.lt/pranesimai-spaudai/-teo-ir-omnitel-tampa-telia-.

Lithuania. Although the advertisement of Internet services in the competitive liberalized telecom market will certainly continue to be an ongoing practice of Internet infrastructuring that upkeeps societal interest in services of various telecom providers, after my fieldwork experience I began to wonder what alternative communication strategies telecom market departments will pursue in the future. How will current popularizing strategies change if customers, with their dynamic desires, increasingly educate themselves about Internet infrastructuring and actual technological developments of telecom networks that are exposed to growing societal criticism and are, by some,[149] said to be part of surveillance capitalism that gather user data for profit?

2.11 Chapter Conclusions: Everyday Infrastructuring

The Internet is infrastructured through situated labor practices. According to media scholar Martin Warnke, technical infrastructure does not determine the services it will maintain in advance. Instead, it provides the conditions for the possibility of the emergence of Internet services. In this research and especially in this chapter, I use infrastructuring as "a condition of possibility" for the emergence of the Internet by moving away from a traditional understanding of infrastructure as a network of technical objects toward exploring it as a result of ongoing and contingent labor practices that maintain the Internet services to exercise an immense effect on daily life.[150]

To illustrate how Internet infrastructure is not a stable thing, but rather a result of ongoing labor practices I turn to particular doings, places, and actors of the Internet's production and maintenance at telecommunications company Telia Lietuva that provide both necessary and unexpected situated conditions for the emergence of the very possibility of the Internet. Media technologies such as the Internet did not naturally come into existence, nor are they effortlessly global. I argue that such situated focus on labor practices that maintain the Internet allows us to better understand the nature of media technology development as constantly emerging, changing, and requiring lots of maintenance work, communication, and the endurance of tensions and other contingencies.

In this chapter, I explore labor practices at the company Telia Lietuva, in particular its Physical Network Department and the Head Office. I use fieldwork-based vignettes to illustrate how different labor practices work together on a daily basis to maintain Telia Lietuva's Internet on the ground. Digging practices comprise wired telecommunications network construction and are carried out by outsourced and employed laborers in various field sites in Lithuania. They are both planned and contingent due to unforeseeable geographic factors such as soil constitution. Mediating practices manage Telia Lietuva's dependency on outsourced physical network builders, the contractors; these practices push the outsourced laborers to do their often-belated jobs through systematically occurring office meetings. Planning practices reduce the empirical complexity of

149 Shoshana Zuboff, *The Age of Surveillance Capitalism: The Fight for a Human Future at the New Frontier of Power* (London: Profile Books, 2019).

150 Martin Warnke, *Theorien des Internet zur Einführung* (Hamburg: Junius Verlag, 2018), p. 111.

future building sites by preparing technical requirements for future network constructors. They are based on mobile labor that first observes future building sites and their immanent situated contingencies and then prepares technical requirements based on these empirical experiences. Documenting practices facilitate the work of other physical network developers, such as cable engineers who install telecom networks at end-user premises by organizing, storing, and sharing information useful for physical network maintenance. They depend on the feminized labor from the Physical Network Department, which is increasingly office-based, as well as less visible and empirically experienced. Connecting practices are based on installing and connecting network equipment between users and physical telecommunications networks at user premises. They involve the experience-based knowledge of engineers who swiftly repair and connect users to the network, as well as workers' capacity to endure ongoing daily experiences of social difference in the form of client home meetings. During transmitting practices, the Internet's physical maintenance practices of digging, maintaining, documenting, planning, and connecting—as explored above—have become increasingly less physically graspable and empirically observable due to the emergence of the Internet as a virtual product of stream maintenance. Through processing practices of systematized action monitoring, an increasingly abstract perception of the Internet is particularized by the conceptualization of this media technology as a virtual group of products. Producing practices at the Head Office develop the Internet as a product through Business and Technology department groups and are comprised of idea creation, development, production, and specific tasks, such as pricing and advertising work, as well as situated contingencies such as tensions that arise during frequent company meetings. Wholesaling practices maintain and sell the Internet as a wholesale product to other telecom network operators in compliance with external regulatory requirements particularly issued to Telia Lietuva by the Communications Regulatory Authority. Finally, popularizing practices aim to advertise the Internet as a group of different services and sell physically built and communicatively managed Internet services to customers by continuously using simple and accessible messages.

Through its focus on manual and communicative labor maintenance practices at multiple departments, the Internet at Telia Lietuva first emerged as a result of earth-based and tactile practices such as digging and cable installation. In the departments I later visited, the company's internal perception of the Internet changed to an understanding of it as an abstract media technology that transmits data, is developed as a product, and is sold as a service. Thus, while these labor practices result in a media technology usable by consumers, all Telia Lietuva employees implicitly both carry out and practice different perceptions of the Internet in their everyday work. For some, Physical Network Department labor comprises the Internet's point of emergence; for others, the Internet is an abstract product and a service that results from communicative labor such as idea creation and project management. The underlying similarity is that among the actual Internet producers in the company, the Internet is rarely perceived as a thing in itself, but rather as the result of manual and communicative labor practices.

These practices comprise not only daily planned tasks, but also involve situated contingencies such as everyday critique, fragmented remembrances, multiple experiences of difference, and limited access to locations that help maintain the infrastructure, such

as company offices and customers dwellings. Thus, Internet maintenance comprises not only foreseeable planned labor tasks, but also involves situated contingencies that are inherent to Internet maintenance on the ground.

To infrastructure the Internet means to be immersed with one's body and mind in a particular environment, to conduct tasks and undergo experiences within the realm of the Internet as a constantly expanding physical network and product. I argue that in order to understand how the Internet is produced and maintained, it is important to explore its maintenance from the situated perspective of labor practices, which not only involve labor tasks by people and things in particular places, but also are made up of tensions, failures, change, and uncertainty. By problematizing labor practices, it is possible to discuss the ways in which these practices are routinized *and* avoid routinization. Specifically, when the Internet is perceived through the lens of practice, "it" turns out to not only affect our attention.[151] It is also not a mere vessel of colonizing datafication[152]; a social control mechanism that looms over us in an eternal feedback loop[153]; or a result of one heroic human mind, as propagated by the veneration of actors such as businesspeople Steve Jobs or Elon Musk. The Internet is a conglomerate of situated infrastructuring that is not only rational, deterministic, concrete, foreseeable, or planned, but also contingent. In this chapter I illustrate how the Internet as a complex of practices emerges and is maintained in a particular place. By doing so, I revise "the hyperrational and intellectualised picture of human agency and the social . . ."[154] The complexity of infrastructuring practices that are both planned and contingent, as well as their increasing abstraction from the physical to the communicative, demonstrates that the Internet needs to abstract its different physical foundations to be useful, as well as sellable. In the upcoming chapter, "Geopolitical Imaginaries," I will further enact a situated approach to infrastructure by exploring how the Internet is not only a result of infrastructuring labor, but is also encapsulated in complex strange geopolitical imaginaries.

151 Jonathan Crary, *24/7: Late Capitalism and the Ends of Sleep* (New York: Verso Books, 2013).

152 Nick Couldry and Ulises A. Mejias, "Data Colonialism: Rethinking Big Data's Relation to the Contemporary Subject," *Television & New Media* 20, no. 4 (2019), pp. 336–49; Nick Dyer-Witheford and Svitlana Matviyenko, *Cyberwar and Revolution: Digital Subterfuge in Global Capitalism* (Minneapolis, MN: University of Minnesota Press, 2019).

153 Michel Foucault, *The Order of Things* (Abindgon: Routledge, 2005); Michel Foucault, *The Archaeology of Knowledge* (New York: Vintage, 1982).

154 Reckwitz, "Toward a Theory of Social Practices: A Development in Culturalist Theorizing," p. 259.

3. Geopolitical Imaginaries

> In this era, in this generation, we are entirely convinced that facts are not simple; quite the contrary. And what's more, in things that touch on human condition, the individual, humanity in some way, opinions about facts are completely and inextricably enmeshed in value judgements, attitudes, stances. . . . Even worse, various opinions about a given fact are equally justified even if they are mutually contradictory.
> *Alexander Wat, My Century*[1]

Field research disrupts one's assumptions. When I traveled to Lithuania to research Internet development for the first time, I wanted to interview telecom industry stakeholders and learn more about their perspectives on the emergence of the Internet in a post-socialist country. Eight years after the new nation-state declared its independence from the former Soviet Union, it privatized and outsourced its main telecom infrastructure to TeliaSonera, a predominantly Swedish-Finnish owned telecom company. I initially thought that I could probably tell a story of Lithuania's independence as overshadowed by its telecom sector's economic dependency on international corporations, perhaps by using the perspective of media imperialism.[2] Conversely, I imagined that I could create a narrative about the heroic acts of telecommunications workers in a small, post-socialist nation-state that managed to develop an accessible and robust telecom industry just a decade after the Soviet Union's disintegration. However, the story on the ground turned out to be more complicated than I originally anticipated. The telecom field spoke in many voices and complicated my initial desire to establish a clear-cut geopolitical narrative about Internet development in Lithuania.

In this book, situated geopolitical imaginaries often occur through fieldwork-based stories, beliefs, perceptions about geographically distinct telecom industry actors, their

1 Alexander Wat, *My Century* (New York: New York Review Books Classics, 2003), p. 9.

2 Oliver Boyd-Barrett, *Media Imperialism* (Thousand Oaks, CA: SAGE Publications, 2014).

roles, and thereupon implied dependencies and tensions in developing the Internet in Lithuania, which I illustrate using selected excerpts from fieldwork reports and interviews.

The following text explores narratives provided by local telecom industry stakeholders during my fieldwork in Lithuania from 2017 to 2018. These stories were told by public and private telecom-related employees: government officials, academics, and telecom industry workers, whom I either interviewed or observed during participatory observation practices and designate as "stakeholders" or "producers." In the field I often heard practitioners make judgments about foreign and local telecom industry actors located in geographically specific territories, as well as contribute various evaluations regarding these actors' involvement in the Lithuanian telecom industry. These imaginaries, in the form of adjectives that connote specific roles prescribed to oneself and geographically distinct others ("Modernizing," "Competing," etc.), present opinions of local industry stakeholders regarding themselves as well as other, geographically distanced, actors related to Internet maintenance in Lithuania. In short, these imaginaries outline how foreign and local contributors to Lithuania's Internet development were viewed in the field. This inquiry resulted in the argument that a particular kind of strange geopolitical imaginaries shape and constitute the Internet as infrastructure in Lithuania. In my use of the term "strange," I rely on sociologist Zygmunt Bauman, who argues that the notion "strange" is suffused with the indeterminate, anti-binary logic of modernity.[3] In this book, "strange" connotes an indeterminate and tensed logic of geopolitical imaginaries that disentangle the possibility of one national imaginary of telecom geopolitics and one story by presenting ambiguous geopolitical imaginaries on the ground.

I explore these geopolitical imaginaries in depth in the upcoming text. By focusing on these imaginaries, I thus make a broader claim that Internet as infrastructure comprises not only the labor practices of infrastructuring investigated in the previous chapter, but is framed by discourses of different geopolitical imaginaries that I theorize as constitutive to and framing the Internet's development. Multiple people not only work to produce and maintain the Internet through particular labor practices and their situated contingencies, but also actively geopoliticize Internet development through imaginaries. While in the following section I focus on complex geopolitical imaginaries due to the fact that the material collected during interviews, participatory observation and e-mail exchanges often circulated around geopolitical issues, this angle was not pre-planned and has evolved over time. While the interview citations are illustrative, their imaginary nature also means that I encountered more similar views in the field and specifically chose illustrative examples as cases.

Importantly, I am not interested in causal analysis of this information, namely in the question of whether these imaginaries had any impact on official state geopolitical narratives, telecommunication policies, or the transformation of the telecom sector in Lithuania. Instead, I perceive geopolitical imaginaries as imaginaries that were produced through field perspectives and that have framed, i.e., surrounded, the Internet as infrastructure development during my fieldwork among key past and present telecom stakeholders. These imaginaries constitute the part of the field of Lithuania's Internet

3 Bauman, "Modernity and Ambivalence," p. 151.

infrastructure and telecommunication industry that is shaped by foreign and local telecom network participants. In other words, I do not analyze the effect or linkage these gathered geopolitical utterances had on Lithuania's official geopolitical position. Rather, by studying infrastructure I geopoliticize the notion of infrastructure and complicate the possibility of one geopolitical narrative in a nation-state.

Before moving to the field, I want to briefly explore how the Lithuanian state is geopoliticized according to prevailing geopolitical narratives in Lithuania. I do so by first outlining Lithuania's dominant realist geopolitical narrative, which I explore by looking into the work of political scientists and geographers, before delving into specific cases from the field.

Geographers in Lithuania already initiated geopolitical discourses in the first part of the twentieth century.[4] Geographer Stasys Vaitiekūnas writes about the first geographers of independent Lithuania, such as Kazys Pakštas and Stanislovas Tarvydas. These scholars were interested in the relation between geography and politics; they contemplated these issues as they experienced Lithuania's 1918 independence, which they hoped to maintain amidst chaotic relationships with neighboring countries.[5] After the interwar period independence (1918–1939), Lithuania lost its independence three more times over the course of four years: first, to the Soviet Union (1940), then to Nazi Germany (1941–1944), and finally to the Soviet Union (1944), until independence was regained in 1990. Currently, official Lithuanian geopolitical discourse is predominantly focused on statist territorial international relations. According to political scientists Nortautas Statkus and Kęstutis Paulauskas, Lithuania is a parliamentary democracy that is market-oriented economy and focuses on a pro-European and transatlantic international relations and securitization policies regarding the threat of Russian aggression.[6] They state, "Most Lithuanian foreign policy makers and international relations and geopolitics specialists agree that the fundamental guarantor of our state security is full integration into the economic, political and military structures of the western world."[7] Political analyst and journalist Viktor Denisenko similarly argues that the geopolitical paradigm of post-socialist Baltic states, including Lithuania, comprises a pro-western stance, a valuation of the Soviet period as a time of occupation, the perception of interwar independence (1918–1940) as foundational to current statehood, and the self-positioning of the state as a "bridge" between the East (the post-Soviet realm and Commonwealth of Independent States [CIS]) and the West (Central and Western Europe and the US), rooted in the historical experiences of WWII and the Cold War.[8] International relations and geopolitical experts contend that Lithuania's security is premised on Lithuanian socio-cultural and economic integration into the West (understood as Western Europe and the US) and its dissociation from the East (understood as the CIS

4 Vaitekūnas, *Lietuvos geopolitika*, p. 5; Kazys Pakštas, *Baltijos respublikų politinė geografija: politinės geografijos problemos, nagrinėjamos atsižvelgiant į Baltijos tautų likimą* (Kaunas: "Spindulio" b-vės sp., 1929); Stanislovas Tarvydas, *Geopolitika*. (Kaunas: Spaudos fondas, 1939).

5 Vaitekūnas, *Lietuvos geopolitika*, p. 5.

6 Statkus and Paulauskas, *Tarp geopolitikos ir postmoderno*, pp. 38–39.

7 Statkus and Paulauskas, *Tarp geopolitikos ir postmoderno*, p. 40.

8 Denisenko, "Rusijos periodinės spaudos požiūris," pp. 35–36.

realm).[9] According to political scientists Česlovas Laurinavičius et al., Baltic countries and thus Lithuania are not only geopolitically oriented toward the West, but actually comprise a unique geopolitical constellation similar to that of Cuba due to the pressure they feel from their neighboring countries, especially the Russian Federation.[10] Moreover, the authors claim that the Baltic countries constitute a challenge to Russia, which "still does not refuse the attitude that the Baltic states belong to its geopolitical influence zone, and has not finally reconciled with Baltic states' integration into Euroatlantic structures."[11] Laurinavičius et al. posit that the situation is even more complex from a broader societal perspective: the Baltic states comprise a geopolitical anomaly; they are zones of ambivalence that consist of unstable, culturally diverse, hybrid societies located on the border of two civilizations. In the case of Lithuania, these borders are comprised of the Latin West and the Orthodox East.[12] Viktor Denisenko quotes Nortautas Statkus' et al.'s similar claim that while the official outlook of the Lithuanian state and statist elite is pro-western, i.e., pro-European and pro-US, its societal position is ambivalent: it is sometimes pro-western and sometimes pro-eastern.[13]

According to political scientist Jonas Daniliauskas, Lithuania is particularly important to Northern European countries because it is a territory that geographically expands the security of Northern region.[14] At the same time, political scientist Tomas Janeliūnas et al.'s book *Šiaurės šalių geostrateginė svarba Lietuvai* (Geostrategic Importance of Northern Countries to Lithuania) describes Northern countries as geopolitical threats due to the vast Scandinavian influence in Lithuania's crucial sectors of telecommunications, finance, and, partially, media.[15] It argues that through the development of democracy, civil society, and market economy in Lithuania, northern countries aim to help form a stable security zone in the Baltic states and thereby extend security regions further to the east.[16] Authors claim that northern countries, such as Sweden, Denmark, and Norway, support post-socialist Lithuania's independence in various ways: through assistance for its democratic structures, support for Lithuania's attempt to join the EU, military support when Lithuania joined NATO, and Foreign Direct Investment (FDI).[17] Economist Alf Vanags posits that FDI and trade indicates economic integration,[18] i.e., it illustrates an actual implementation of the single market, yet in the Baltic countries such integration fostered economic and cultural divides; in this context, richer Scandinavian countries influence multiple Baltic state sector developments, while post-

9 Statkus and Paulauskas, *Tarp geopolitikos ir postmoderno*, p. 42; Vaitekūnas, *Lietuvos geopolitika*, pp. 21–23.

10 Laurinavičius, Motieka, and Statkus, *Baltijos valstybių geopolitikos bruožai. XX amžius*, p. 23.

11 Laurinavičius, Motieka, and Statkus, *Baltijos valstybių geopolitikos bruožai. XX amžius*, p. 25.

12 Laurinavičius, Motieka, and Statkus, *Baltijos valstybių geopolitikos bruožai. XX amžius*, p. 26.

13 Denisenko, "Rusijos periodinės spaudos požiūris," pp. 36, 39.

14 Daniliauskas, et al. *Šiaurės šalių geostrateginė svarba Lietuvai*, p. 19.

15 Daniliauskas, et al. *Šiaurės šalių geostrateginė svarba Lietuvai*, p. 22.

16 Daniliauskas, et al. *Šiaurės šalių geostrateginė svarba Lietuvai*, p. 20–21.

17 Daniliauskas, et al. *Šiaurės šalių geostrateginė svarba Lietuvai*, p. 18–19.

18 Alf Vanags, "Economic Integration and Cohesion in the Baltic Sea Region: A Critical Perspective from the Baltic States," *Journal of Baltic Studies* 42, no. 1 (2011), p. 92.

communist Baltic countries remain relatively poor.[19] Vanags uses data regarding Baltic trade and FDI in 2009 to illustrate that Sweden, in particular, has engaged with Baltic economies more as investors than traders through its engagement with Lithuania's telecom, tailoring, and banking sectors.[20] However, FDI, taxation, strong trade unions, social welfare systems, and other structural and historical differences separate wealthier Scandinavian countries from the less privileged Baltic states, and have occasionally resulted in tensions between the two.[21] If it is assumed that the telecom industry is a structurally crucial sector in Lithuania, and Sweden has had a substantial presence in Lithuania's telecom sector development since the 1990s, then the telecommunications sector can be perceived as a geopolitically important industry that is threatened by foreign ownership. On the other hand, closer ties with EU member state Sweden could also concomitantly express Lithuania's tighter integration into the European economy and its "desecuritization," namely its disappearance from the list of countries considered a defense threat.[22]

This is the scholarly story that presents Lithuania's telecommunications geopolitics as pro-western due to its access to the EU and NATO, interactions with Scandinavian countries and alliance with the US. How does this story hold up to the geopolitical narratives I encountered on the ground? How did local telecom industry stakeholders describe and valuate the geopolitical roles of foreign and local actors? What did they think of foreign actors' involvement in the local telecom industry, and furthermore, why did they get involved in the first place? How do they describe their own telecom industry field? What everyday geopolitical imaginaries, i.e., narratives that are based on geographic distribution of power among the locals and the foreigners, result from telecom field utterances? In this explorative investigation, I thus map the local Internet's geopolitical imaginaries through geopolitical utterances collected during my fieldwork. Exploring geopolitical imaginaries in Lithuania's telecom industry thus means analyzing how Internet development and maintenance is felt, remembered, described, and experienced by local telecom industry participants whose stories follow spatial lines of power distribution. When I discuss geopolitical imaginaries, I thus depart from official, mainstream realist statist geopolitical narratives and their possible effects on the formation of hard power politics, and seriously consider discourses gathered in fieldwork.

I take field perspectives seriously, but do not deny the relevance of geography or official state-led geopolitical actions in the formation of official realist geopolitics. One does not need to look far—think of the statist spatial power politics fueled by the emergence of hard nation-state politics apparent in recent events in Afghanistan, Belarus, Georgia, Ukraine, and Syria—to become aware that the practice of geographically-constituted strategies to gain more state power continues to play an important role in contemporary nation-state politics. However, my focus is different. I complicate the clear-cut realist geopolitical view that each state only has one geopolitical narrative through an

19 Vanags, "Economic Integration and Cohesion in the Baltic Sea Region," p. 100.

20 Vanags, "Economic Integration and Cohesion in the Baltic Sea Region," p. 94.

21 Vanags, "Economic Integration and Cohesion in the Baltic Sea Region," pp. 94–95, 98–99.

22 Statkus and Paulauskas, *Tarp geopolitikos ir postmoderno*, p. 25.

exploration of telecom industry geopolitical imaginaries that emerged on the ground.[23] I also argue for conceptual attention to geopolitical imaginaries in research of the Internet as infrastructure. Finally, while I argue that realist geopolitical theories are precarious due to their potential suppression of alternative political agency and particular type of anti-intellectualism grounded in a desire to eradicate cultural complexity and internal societal contradictions, I present Lithuania's telecommunications industry as a case in point of geopolitical strangeness. While statist power politics transpire through physical actions such as military interventions and particular resource distribution, I will use the following section to illustrate that diverse and incommensurable geopolitical imaginaries continue to co-exist on the ground. I begin by presenting perspectives about "the foreign Others," then describe a section of the telecom industry's self-perception, and end with an imaginary of telecom industry as cooperating.

3.1 The Others

3.1.1 Modernizing

3.1.1.1 Progress Takes Place Abroad

Vidas, a former Minister in the Ministry for Networks and Informatics (1991–1998) said that when he asked a Lithuanian government official why the Ministry was dissolved, the only explanation he received was that the US did not have such a ministry. When I asked why such country comparisons were made, the ex-Minister claimed that it is normal to look for examples of progress internationally.[24] His argument thus implied that progress takes place outside of Lithuania, a context in which Lithuania can only look outward and then adapt to developments that begin abroad. Thus, it was not surprising that when one hears comparisons of Lithuania's efforts with "the world" in the field, this usually means "the western world," specifically Northern Europe and the US, because in Lithuania these regions often seem to be perceived as more advanced. According to this logic, Lithuania's government structure, as illustrated by Vidas, could be improved by learning from the best. Similar comparisons with "the West" and subsequent praise of the US, Germany, Norway, and other countries in relation to telecom development emerged several times during my fieldwork.

In the following section, I focus on fieldwork examples of how local telecom producers described "the Others," or foreign actors who participated in local telecom developments, as modernizers. I use the concept "modernizer" as an inclusive term for such utterances from the field, which compare the local telecom industry with that of other places by establishing a hierarchical binary narrative comprised of motifs of local underdevelopment and foreign advancement. Cultural critic Svetlana Boym argues that "marginal Europeans today are more sober about Europa, their last love. . . . East Central Europeans seem to have lost some of their dreams; instead of projecting their

23 John Vianney O'Loughlin, "Introduction," in *Dictionary of Geopolitics,* ed. John Vianney O'Loughlin (Santa Barbara, California: Greenwood Pub Group, 1994), p. viii.

24 Interview with Vidas, 8 November 2017.

romantic fantasies onto the West, they turn to introspection neither loving the West unconditionally nor blaming it for local ills."[25] Despite this claim, I still encountered local imaginaries in my fieldwork that expressed awe of "the West" and that were based on binary structures such as lacking versus developed, and chaotic versus civilized. These sentiments were produced in different field contexts, especially the participatory observation of telecom labor practices and interviews with various telecom industry stakeholders who were either prompted to answer questions related to the interests of foreign actors in Lithuania's telecom industry or initiated such topics themselves. In short, binary descriptions of others as modernizing forces resulted both from reactions to staged questions and spontaneous utterances. I explore two general themes that emerged from the field material as one of many geopolitical imaginaries that were produced during my fieldwork. First, I look into the representation of geopolitical imaginaries that progress takes place not in Lithuania but abroad, and then I inquire into more specific examples, such as the claims that Sweden's and Estonia's telecom industries are more advanced than that of Lithuania.

In the field, I asked Matas from Telia Lietuva to clarify his statement regarding how Lithuania's telecom infrastructure differs from the infrastructure in "the West." Matas contended that such a comparison was grounded in his experience and conversations with other industry stakeholders. According to Matas, physical infrastructure differences comprise geographical location, historical legacy, regulatory framework, and culture:

> Starting here even from a simple thing, such as geography, i.e., the place, right. Are there mountains or no mountains? It's usually there that those infrastructures very strongly differ. One issue, is there some historical infrastructure, or isn't there? Another issue, how did it develop historically and on what basis was it built? Let's say, based on some reasoning to save. . . . Copper lines for telephone, then. When that infrastructure was built, there was not much thought given to some future generation technologies, nobody also knew about them, that there will be some DSL, and afterward some generations of DSL. Telephone was required to function. And then again, what is the attitude toward the quality. And there is that sparing. That Russian standard was [based on] much thinner lines, which actually fit the telephone very well, but we have problems with the later generation technologies. Let's say the same DSL in the Western Europe works much better than here. . . . But at the same time, there are differences in all the regulation and, I would say, even perhaps in human mentality. Well would you easily allow to drill the wall in your apartment, or is it something for which, well, you can be only forced to? Well here there was this example with copper technologies, which work on very short lines. Here [in Lithuania] they don't make much sense, because it is relatively easy to come to the very building with fiber: either to the apartment or the house. In Western Europe it is a little bit different: the users usually do not understand the wish, 'I will dig through your field and install yet another cable.' Then, alternative ways need to be searched for and that's why those copper technologies are successful . . . Another example could be perhaps local

25 Svetlana Boym, *The Future of Nostalgia* (New York: Basic books, 2008), p. 246.

> apartment buildings here. Well again, perhaps we have more of the post-Soviet chaos, nobody controls what the communication channels are there, even in the staircases. Each operator—big or small—basically does those works in [an] arbitrary way. All the channels here are stuffed, so the first to come is the lucky one. This is usually regulated by local communities or by the supervising companies, which really do not care. . . . Well, in reality there are five operators, and each with their own cable, and there is not enough space for all of them. Sometimes it happens that the laying is done not in the channels but somewhere outside. So it is similar to some satellite dish: not everywhere in the world it is allowed to hang them in the balcony.[26]

Matas stated that the diversity of possible physical telecom infrastructure aspects is what make it specific: its location, equipment legacy, mentality of infrastructure developers, users, and regulatory differences. This differentiated description explores how each physical infrastructure development actually is dependent on place. However, by providing specific examples and using irony ("Not everywhere in the world it is allowed to hang them [satellite dishes] on the balcony.") the statement also claims that foreign, in particular western telecom infrastructure and its users, are more advanced than local ones. For instance, the "Russian standard" brought poor quality copper cables to Lithuania and caused "problems with the later generation technologies."[27] Moreover, it is possible to lay fiber-optic cables in Lithuania because local population allegedly does not care about privacy issues and allows telecom operators to dig into the area surrounding their dwellings. In this schema, the mentality of Lithuanians is one that accepts chaos and uncertainty. Additionally, apartment building staircases are stuffed with cables from various data transmission providers, while users similarly stuff their balconies—and are allowed to—with satellite dishes. In contrast, this would not happen in "the West," where people value their privacy and copper cables are of a better quality. In brief, although this perspective presents a highly differentiated view toward physical telecommunications infrastructure development by showing how local specificity (geography, technological legacy, and people's mentality) defines its development path, it also establishes a binary narrative of chaotic locals and civilized foreigners. In particular, the Lithuanian telecom industry is narrated as less developed than "the West" due to its technology (thinner copper cables), mentality (chaotic), and regulatory culture (not valuing private space enough).

Joris from Telia Lietuva also elaborated on the differences between Lithuania and the rather abstract "West." He told me:

> Here is a problem, that our building regulations—what is perhaps civilized in the West—that are necessary for each apartment building, well I guess, there [in the West] is written that it has to have water supply, electricity, all the issues concerned with sewage, and the Internet. Well at ours, unfortunately, it is [that the issues around the Internet are] not that clearly formulated in the law.[28]

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26 Interview with Matas, 12 March 2018.

27 Interview with Matas, 12 March 2018.

28 Interview with Joris, 1 March 2018.

Although he later admitted that he did not know enough about telecom industries and policies in the West, he simultaneously declared western superiority. He stated, "I would like to know, how it is in the civilized country, in the West, I would really like to."[29] In a similar line of thought, when Vilius, a telecom practitioner from another telecom company, spoke about network problems, he posited that the irrational destruction of telecom networks that allegedly takes place in Lithuania would not happen in the West, for instance in Germany, where supposedly no one steals:

> The network [might] have many problems: their cables might be interrupted, someone might sabotage, use your cable. A need for marking, locking the cabinets, appears. There are some things which happen probably only in Lithuania. Or maybe somewhere else in the post-Soviet [realm]. Somewhere like in Germany, cables and active equipment stand outside . . . unlocked, and no one needs to do anything, no one will steal anything. . . . For example, would you ever throw a burning torch into a well with cables? You would not. I don't know, I probably also wouldn't throw. . . . Or, for instance, if there is a need for a fix [drugs], then you need to find copper, cut the cable, bring it to the metal scrap shop [skupkę], get five *litas* [Lithuanian currency before Euro] from there, and you go and buy your dose, if you are a drug addict. . . . It happens, even rats erode cables.[30]

There might be plenty of causes that influence physical network connectivity. Yet when Joris and Vilius provided examples of network failure, these consisted of West-East binaries (e.g., "How it is in the civilized country, in the West," "Somewhere like in Germany . . . no one will steal anything.") which were contrasted with ironic exploration of chaotic, lawless, disorganized Lithuania (e.g., "Well at ours, unfortunately, it is not that clearly formulated in the law," "Would you ever throw a burning torch into a well with cables?").

The examples above contribute to the narrative of "Others" as better in many ways: technologically (better copper cables), socially (less chaotic, less stealing, safer, valuing private space), regulatory (clearer rules for network construction), and, in general, as more advanced than the local telecom industry. These descriptions of "the Others" represent a binary narrative about the local telecom industry ("Lithuanian telecom industry/Other telecom industry") by first establishing a spatial hierarchy ("better West/worse Lithuania") and then explaining it through cultural terms (e.g., mentality) and technological terms (e.g., copper cables). Finally, these descriptions not only diminish Lithuania's telecom industry advancements, but they also present a highly reductive view of the West. In short, they project an image of the "Other" that is simultaneously vague and more advanced. Yet this "Other," with the exception of Germany (although this comparison is also destabilized by the word "like," as in, "like in Germany"), is a universal actor from "the West," which represents an idea that progress takes place abroad, in the imagined West, but not in Lithuania. As sociologist Stuart Hall observes, the historical concept of the West plays a role in societal ranking systems, yet what actually is perceived as more or less developed and thus western in such classifications has to

29 Interview with Joris, 1 March 2018.

30 Interview with Vilius, 16 March 2017.

be made specific through condescending comparisons. Hall posits, "For example, 'the West'= developed= *good*= desirable; or the 'non-West'= under-developed= *bad*= undesirable."[31] Sociologist Attila Melegh describes debates in Europe that value Western Europe as more advanced than Eastern Europe, which Melegh terms the "East-West slope."[32] According to such a vision, European states and regions are viewed through the image of spatial power distribution, which is maintained through daily imaginaries that the East, such as post-socialist Eastern part of Europe, is less advanced and the West is more advanced. Similarly, political scientist Gražina Miniotaitė claims that post-socialist Baltic states' political identities are grounded in accordance with such an East-West opposition. She states:

> They have been creating narratives of belonging to the West, with the East as their threatening 'other'. The narratives legitimise the Baltic States foreign policy of integration with the West and differentiation from the East. The concepts of the East and the West are highly value-loaded; the West is being associated with prosperity, security and democracy, whereas the East is linked with poverty, unpredictability and insecurity. It is a normative ideological division. Geopolitically, the West is associated with the EU and the NATO state, the East with the Commonwealth of Independent States (CIS), mainly with Russia and Belarus.[33]

In this context, what specific examples of "the West" emerged in the field?

3.1.1.2 Sweden is Better, Estonia is Almost Better, and Poland is Worse

In addition to valuation of "the West" and the concomitant devaluation of the Lithuanian telecom industry, there were more specific statements in the field that compared the local telecom industry with geographically distant "Others." In these comparisons, particular nation-states were praised for fostering Lithuania's local telecom industry development. Specifically, in the following section I unpack two examples that were provided in the field, those of Sweden and Estonia. Some of the producers described Sweden's influence on Lithuania's telecom industry in positive terms: a relaxed, slow, ethical telecommunications industry modernizer with clearly defined labor roles. This was depicted as a stark contrast to Lithuania's telecom industry, which has been trying to catch up by getting rid itself of a corrupt mentality, yet still experiences overwork and stress. Estonia's telecom industry was also described as more socially, politically and technologically advanced than that of Lithuania, as well as better in marketing its telecom achievements. Through these everyday geopolitical projections, the general imaginary of more advanced "West" is made particular: it is concerned with the Northern part of Europe, in particular Sweden and Estonia.

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31 Stuart Hall, "The West and the Rest: Discourse and Power," in *Formations of Modernity*, Stuart Hall and Bram Gieben, eds. (Cambridge: Polity Press in association with Blackwell and the Open University, 1992), p. 277.

32 Attila Melegh, *On the East-West Slope: Globalization, Nationalism, Racism and Discourses on Eastern Europe* (Budapest: Central European University Press, 2006), p. 39.

33 Gražina Miniotaitė, "Convergent Geography and Divergent Identities: A Decade of Transformation in the Baltic States," *Cambridge Review of International Affairs* 16, no. 2 (2003), p. 214.

Mindaugas, director of a public wholesale Internet provider, once told to me that in the 1990s, the physical network of the biggest public telecom operator, Lietuvos Telekomas, was in poor condition, but was intensively modernized after privatization. The Swedish and Finnish owned TeliaSonera company privatized Lietuvos Telekomas in 1998, which involved modernizing its physical infrastructure. He stated that, the "network was in deplorable condition and, on the other hand, after TeliaSonera purchased Telekomas, they were committed to invest an insane—at that time—sum, some four billion euro, litas, or however much [it was], in order to modernize everything."[34] The new owners did not only bring money, but they also imported a particular set of values. According to a current Telia Lietuva manager, Andrius, the Swedish Telia owners adhere to ethical and responsible business politics and do not accept bribes. I was told that because the Baltic region is "a cleaner segment,"[35] Telia and its predecessor TeliaSonera—which owns Telia Lietuva, the biggest telecom provider in Lithuania—compete legally in Lithuania through the Competition Council and legal court system. Andrius denied any bribery practices, but added that, "I can only say that Lithuania is a country of cousins, and I was made to become aware of that,"[36] when he spoke of competitors. He thus claimed that TeliaSonera invested substantial funding in the local telecom industry and adhered to ethical business practices. Accordingly, the Baltic region has been described as ethically advanced ("cleaner," but not as perfectly clean as the Swedish Telia owners, who adhere to ethical business politics), but also as inheriting the legacy of a shadow economy (a "country of cousins"). Actually, while Transparency International evaluated Telia Lietuva's transparency as "excellent,"[37] there have been published media accounts regarding Telia Company's alleged corruption in Uzbekistan.[38]

Scandinavian countries were not only described by some as financially supportive and more ethical than Lithuania, but were also praised for their more advanced labor practices. Matas from Telia Lietuva told me that the Swedish branch of the Telia Company is managed differently than the one in Lithuania. In Telia Lietuva, employee roles are less specialized than in Sweden, although in Sweden everything takes more time. Moreover, I was told that telecom industry worker culture is different. Matas stated that "if somebody gets into an argument in Sweden, then a person takes the rest of his working day to relax. In Lithuania—someone takes their anger out on a co-worker. And in general, [in Lithuania] one person does several functions, while in Sweden they are more distributed."[39] Gabrielius, who is tasked with harmonizing Telia Lietuva's labor practices with those of the international Telia Company, argued that local labor practices need to reach the company's international standards:

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34 Interview with Mindaugas, 7 February 2018.

35 Interview with Andrius, 2 February 2018.

36 Interview with Andrius, 2 February 2018.

37 Transparency International: Lietuvos skyrius, "Privataus sektoriaus skaidrumas," 2019, http://skaidrumas.lt/imones.

38 BNS, "'Telia' dėl korupcijos skandalo sumokės milžinišką baudą," *Delfi.lt*, published 22 October 2017, accessed 9 September 2019, https://www.delfi.lt/verslas/verslas/telia-del-korupcijos-skandalo-sumokes-milziniska-bauda.d?id=75837441.

39 Fieldwork report, Bareikytė, 27 February 2018.

> The goal of my work is . . . that what we develop as an organization would match general guidelines and strategies of Telia Lietuva and Swedish Telia Company, i.e., that the development would be synchronized and planned. That there would be less chaos and as little as possible of 'on hook,' i.e., as few [as possible] separate, individual decisions. That there wouldn't be any, I don't know, Gariūnai market, if compared with some marketplace. If compared with some shopping center, there is Gariūnai and some neat, I don't know, Panorama, Ozas center, i.e., there is a desire to have systemic, ordered planning and development of decisions as well as organizational decisions: [of] internal organization and with the leading Swedish company, in that sense, [of] the mother company.[40]

The aforementioned examples provided by Matas and Gabrielius describe Sweden-based Telia Company's labor practices in positive terms. There, order is respected, employee roles and responsibilities are clearly defined, workers take time to resolve personal problems and care for both individual and communal well being. In contrast, the Lithuanian telecom industry environment is described as less organized, overworked, but also as attempting to catch up to this Swedish model. Interestingly, a person responsible for harmonization of local and international labor practices illustrated his aim by using an image of "Gariūnai" ("That there wouldn't be any, I don't know, Gariūnai market"). Gariūnai is a huge post-Soviet market in Vilnius that locally stands for the ultimate metaphor of a shadow economy, while Panorama and Ozas are recently built luxury shopping malls. This comparison between Gariūnai and Panorama/Ozas can be interpreted as conveying an implicit idea that Lithuania still retains its turbulent and corrupt past, which could be rejected by installing a shiny capitalist market structure that exists elsewhere at the Telia Company.

The examples above present Sweden both as housing the Telia Company headquarters and as a country in itself. Sweden stands for a positive image of an ethically, socially, and financially advanced public and private actor that was able to help modernize Lithuania's telecom industry. Multiple examples in the field praised Swedish entrepreneurial practices, while the Lithuanian telecom industry was described as catching up to this model.

Despite this, Tadas, a leading manager at Telia Lietuva, contended that Lithuania's telecom network is good, at least better developed than that of Poland. He stated, "Probably we outdistance [Poland by] some three to four years."[41] He also evaluated Estonia's telecom progress as a result of politically conscious activity that is lacking in Lithuania and posited,[42] "Such slogans like the ones in Estonia, 'Let's become a smart country,' did not exist here [in Lithuania]." [43] According to Tadas, Lithuania lacks a sustainable political initiative necessary to develop "information society," with the positive exception of the Communications Regulatory Authority.[44] Karolis, another Telia Lietuva employee,

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40 Interview with Gabrielius, 5 March 2018.

41 Interview with Tadas, 13 March 2018.

42 Estonia as a country is known internationally for being a hub for innovative digital technologies development and implementation, such as Skype and vast E-government services.

43 Interview with Tadas, 13 March 2018.

44 Interview with Tadas, 13 March 2018.

also cited Estonian Telecom as a positive example for social justice while criticizing Lithuania's greedy bosses. He asserted that "they also had bad times, but after an engineer who climbed the career ladder from the lower to the highest position came to lead the company, everyone became satisfied, because the conditions improved."[45] Estonia's telecom industry was not only described as advanced—politically active and socially fair—but also as leading in technological developments. In a Telia Lietuva testing lab during my fieldwork, employee Laurynas praised the fact that Estonia's telecom industry participants have already tried symmetric 40Gb/s PON network "which would never, or not now, pay off."[46] In contrast, Mindaugas, an interviewee from a public wholesale Internet provider, claimed that Estonia's success is only a marketing trick, simply a means of showing off. He posited:

> Estonia—show. I went there and work with them a lot . . . Show, well, because they, I would say, well, how you speak about an infrastructure, I am deeply convinced, because I know sufficiently, that neither in Latvia nor in Estonia they do not match that, what we have. . . . In general range of infrastructure.[47]

Notwithstanding the reality of Estonia's telecom industry developments, Estonia's telecom industry emerged in the field as a comparative signifier. Various local telecom industry participants described the Estonian telecom sphere as socially, politically, technologically, and commercially advanced. In contrast, its advancements were also portrayed as a marketing tool. In other words, the Estonian telecom sector has been simultaneously praised and criticized as not living up to its publicized image. In short, binary imaginaries were also established between the Lithuanian and Estonian telecom spheres, in which the latter's telecom industry was described as one step behind Scandinavian countries or "the West" due to its doubtful advancement, but also as more advanced than Lithuania's due to its political, social, and technological advancements, and its successful political marketing. Similarly, Miniotaitė explores emerging contests between the three Baltic states[48]; in this context, on various occasions of post-socialist Baltic era local political elites attempted to present their countries as different entities that both rival and have nothing to do with one another.[49] Miniotaitė writes:

> Retrospectively, one can say that at the time when they sought the withdrawal of Russian troops in 1991–94, the Baltic States acted as a geopolitical unit. Since then, however, despite growing cooperation, a kind of rivalry has evolved among them. It is mainly related to economic and political competition in the process of nation-state building and integration with the NATO and the EU. Examples include the so-called 'fish war' between Latvia and Estonia; the 'pork war' between Lithuania and Latvia in 1999 . . . [50]

45 Fieldwork report, Bareikytė, 14 June 2017.
46 Fieldwork report, Miglė Bareikytė, 23 June 2017.
47 Interview with Mindaugas, 7 February 2018.
48 I.e., Estonia, Latvia, and Lithuania.
49 Gražina Miniotaitė, "Convergent Geography and Divergent Identities," p. 212.
50 Gražina Miniotaitė, "Convergent Geography and Divergent Identities," p. 211.

As illustrated by previous examples, local industry stakeholders describe "the Others" as "the West," but then exemplified these entities through the concrete and positive examples of Sweden and Estonia and their respective relations to their local telecom industries. This hierarchy was maintained through the presentation of binary narratives through illustrative examples in fieldwork encounters: "the West," in this case Sweden and Estonia's telecom industries, was described as more advanced than Lithuania, with the peculiar exception of Poland, which was judged in an explicitly negative manner. Accordingly, Estonia's telecom market was praised as politically, technologically, and socially progressive, but also described as a convincing "show-off."[51] In these examples, Sweden's influence on Lithuania's telecom sector was also described in positive terms: a force for investment and modernization, that is ethical and relaxed. These examples certainly do not represent all of the attitudes of Lithuania's telecom sector participants toward Sweden, Estonia, or Poland's telecom markets. Importantly, these examples illustrate how some of Lithuania's telecom producers developed an image of "the West" as advanced and particularized this image by producing a binary supported by examples from local telecom industry interactions with Swedish and Estonian actors.

Interestingly, this modernizing narrative is supported by examples drawn from countries in Northern Europe. While the example of Poland was a brief exception, there were no comparisons, especially of modernizing nature, made between Lithuania's telecom industry and countries with a similar post-socialist history, such as Hungary, Slovenia, Ukraine, or Russia—countries that, like Lithuania, belong to Central and Eastern Europe. Even neighboring Latvia did not prominently emerge in local discussions about foreign telecom actors. I think that in some way, this expresses Lithuania's ongoing paradoxical disinterest in neighboring countries while focusing its gaze toward an imagined "West." As Miniotaitė contends, there is no common "Baltic state" identity. Latvia, Estonia, and Lithuania prefer to perceive themselves as either European, or, in the case of Lithuania, Eastern Central European,[52] or, recently, also Northern European.[53] The 2017 United Nations decision to recategorize Lithuania as "Northern European," rather than its previous "Eastern European" designation, was welcomed positively.[54] To this date a rivalry exists in the social imaginary between Estonia, Latvia, and Lithuania, in which Estonia is often perceived as the most advanced country of the three, the one that was also the first to be invited to the 1997 EU accession negotiations (Lithuania and Latvia were invited in 1999).[55] Beyond the Baltic context, Lithuania's prowestern orientation is also often expressed through an image of returning to Europe that serves to distance Lithuania from the East, which is understood as comprising, for

51 Interview with Linas, 17 March 2017.

52 Gražina Miniotaitė, "Convergent Geography and Divergent Identities," p. 219.

53 "Mes nebe 'rytų europiečiai': Lietuva priskirta Šiaurės Europai," *Kaunodiena.lt*, published 1 August 2017, accessed 7 August 2018, https://m.kauno.diena.lt/naujienos/Lietuva/salies-pulsas/mes-nebe-rytu-europieciai-Lietuva-priskirta-siaures-europai-790883.

54 Miglė Bareikytė and Viktorija Rusinaitė, "Future-Past Infrastructures of Poland and Lithuania," *Obieg*, no. 9 (2018), accessed 20 March 2020, https://obieg.u-jazdowski.pl/en/numery/news-from-elsewhere/future-past-infrastructures-of-poland-and-lithuania.

55 Gražina Miniotaitė, "Convergent Geography and Divergent Identities," p. 217.

example, Russia.[56] As early as 2013, Dalia Grybauskaitė, then-President of the Republic of Lithuania, stated that "Lithuania and Northern countries share common values, a united approach to many things and similar traditions. Thanks to the unique cooperation between the Baltic and Nordic countries, the region has become one of the strongest in the European Union."[57] Thus, this narrative of modernizing "Others," in particular Sweden and Estonia, has embedded itself in Lithuania's telecom industry toward Lithuania's broader self-positioning in relation to "the West" in general and the North in particular, exemplified through its EU and NATO membership; conversely, key telecom stakeholders do not devote much time to speaking about neighboring countries in Central and Eastern Europe.

In the preface to her book *Modernism: The Creation of Nation-States*, historian Maria Todorova explores the concepts of "modernism" and "modernity." Todorova contends that modernism is often understood as a cultural condition that results from large-scale socioeconomic, political transformations—such as the emergence of nation-states or industrialization—and the resulting break with previous traditions. Todorova maintains that modernity theories usually focus on "capitalist expansion, development and globalization through which the non-Western becomes Western."[58] She acknowledges sociologist Bruno Latour's argument that modernist logic scales down his self-proclaimed ontology of hybrid interconnectedness between human-made culture and non-human nature by classifying the world into neat and ordered types.[59] Within such a simplistic modernist logic, post-Soviet Eastern Europe is a flawed place where the modernization process should be practiced. It is propelled by the desire, as Todorova claims, "to close the temporal and spatial lag vis-a-vis the west, and everywhere the often-debilitating consciousness of this gap was the primary motor of activity."[60] The flip side of this progressive modernization is the idea of slower and reduced development, reserved for places such as post-Soviet Eastern part of Europe. Latourian critique of modernistic logic—that hybrid daily complexity is reduced to plain dichotomies—is persuasive in the context of a post-Soviet Eastern Europe that aims to transform the deficient into the modern in a way that perpetuates an idea of a gap that stands not only for differences as such, but also for differences in hierarchy. Hence, modernization logic divides a region's complex realities into a narrow binary logic and is perpetuated by key telecom stakeholders on the ground. The examples I used in this part of the chapter not only show how the local telecom industry perpetuates geographical division ("us versus them"), but also presents them through modernizing, namely binary and hierarchical geopolitical imaginaries of the East and the West. According to such a binary image, telecom progress takes place abroad. It does so, akin to what writer Petrică Mogoş describes as the mythical, imagined space of the "zagranitsa," a metaphysical space of the

56 Gražina Miniotaitė, "Convergent Geography and Divergent Identities," p. 211.

57 "Lietuvą ir Šiaurės šalis vienija vertybės ir tradicijos," Lietuvos Respublikos Prezidentas, updated 20 June 2013, accessed 20 March 2020, https://www.lrp.lt/lt/Lietuva-ir-siaures-salis-vienija-vertybes-ir-tradicijos/16445.

58 Maria N. Todorova, "Introduction: Modernism," in *Modernism: The Creation of Nation-States* (Budapest: Central European University Press, 2010), p. 11.

59 Latour, *We Have Never Been Modern*, p. 11.

60 Maria N. Todorova, "Introduction: Modernism," p. 19.

West in which everything is more advanced: "This Eastern vision of the West, functioned as a vast accumulation of mediated images, as a subjective representation of reality . . . it did not represent a mere gaze toward the sacrality of other societies, it was an appropriated and embodied idea delineating how social life itself *should* be lived."[61] Such everyday geopolitical narratives maintain a binary logic in which the world is divided into the East and the West, big and small countries, and unequal power distribution among the two in geographic, social, technological, and organizational terms. This identification of "the Others" as more advanced aligns closely with a realist geopolitical vision, which divides the world into hierarchically more or less valued regions and nation-states. In this geopolitical imaginary of "the Others" as a modernizing force, the local telecom industry plays the role of a younger sibling that attempts to prove itself and eventually catch up. The foreign "Others" hold the most power to make decisions about global and local telecom industry developments through investments. In particular, "the West" emerges through prevalent examples about the Estonia and Sweden, which decide upon local telecom development on financial, physical network, political, and cultural levels. Thus, one everyday geopolitical imaginary about "the Others" is that of "the Others" as a modernizing force.

3.1.2 Helping

3.1.2.1 Help from Scandinavia

At the beginning of the 1990s, another Scandinavian country, Norway, helped Lithuania first establish its Moscow-independent communication channel through an X.25 protocol-based satellite connection with a landing point in Norway. In 1998, 60 percent of then-public telecom company Lietuvos Telekomas (Lithuanian Telecom) was sold to the Swedish Telia and Finnish Sonera consortium during the second privatization stage.[62] Sweden is the main foreign investor in Lithuania's telecommunications industry and one of the main foreign investors in the country.[63] There is a strong Scandinavian presence in Lithuania's telecommunications sector—examples thus include the aforementioned purchase of Lietuvos Telekomas by Swedish-Finnish TeliaSonera, or Norway's 1991 aid regarding Lithuanian access to western telecommunication networks—but also in other sectors, such as banking; it has been visible since Lithuania's post-socialist independence and evolved since this point. During fieldwork, both locals and participants from Scandinavia described Scandinavian entanglement in various Lithuanian sectors as an act of modernization, but also as an act of help.

During several live and e-mail exchanges, a former Norwegian University employee explained why he initiated and helped Lithuania access international telecom networks

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61 Petrică Mogoş, "Performing the West: Imagination, Desire & Revolution," *Kajet*, no. 3 (2019), p. 79.

62 Gediminas Ramanauskas, "Experience of Dramatic Systemic and Structural Changeover until the EU Accession: Lithuania," in *Rebuilding the Market Economy in Central-East Europe and the Baltic Countries*, ed. István Kiglics (Budapest: Akadémiai Kiadó, 2007), pp. 378–384.

63 Gediminas Ramanauskas, "Experience of Dramatic Systemic and Structural Changeover," p. 387; Romualdas Ginevičius and Manuela Tvaronavičienė, "Inward and Outward FDI in Lithuania and Estonia: Review of Patterns in Neighboring Countries," *Journal of Business Economics and Management* 6, no. 3 (2005), p. 180.

in the early stage of the country's independence. His remarks are self-descriptive and illustrate a particular perspective of "the Others" who were involved in Lithuania's telecom development process. I wanted to present his reflections in depth, because they articulate a perspective on the reasons for the actions of key Norwegian actors. Additionally, his perspective enables further interpretation of these self-descriptions through the lens of public diplomacy, but above all it comprises yet another everyday representation of "Others" as helpers in Lithuania's telecom sector.

During the Soviet Union's disintegration, interviewee Romas worked as the chief of operations at the Norwegian University Press publishing house in Norway. While watching television one evening, he saw people from Lithuania giving a talk at the Norwegian Parliament and was motivated to help:

> They said, 'We need everything, we need computers, we need competence, we need communication,' and then it [occurred to] me . . . that we have lot of computers that we are changing. . . . Then I asked my director, maybe we can ask Lithuania, if they like to have computers that [are] built mainly for office automation, work, for text processing, for publishing, counting. [They were] super-minicomputers.[64]

After the interviewee approached his boss with the idea to donate super-mini Norsk-data computers to Lithuania, the process began. They presented the proposal to the University of Oslo. Dr. Rolf Nordhagen supported the interviewee[65]:

> Dr. Nordhagen was my mentor and direct contact at Oslo University, [F]aculty of Informatics at the time when I was doing communication projects in the Baltics. Dr. Nordhagen was coordinating the Nordic funding for our projects together with Mr. Mats Brunell from Swedish Institute of Computer Science.[66]

Romas also presented the idea to the Lithuanian consulate in Norway. He first spoke with the first honorable consul of Lithuania, lawyer Leon Bodd, and to the Vice President of Lithuanian Academy of Science, renowned mechanical engineering professor Algirdas Žukauskas. Both the consulate and Žukauskas agreed.[67] According to Romas, after the first head of independent Lithuania, Vytautas Landsbergis, received the Norwegian People's Peace Prize, an alternative Peace Prize from the University of Oslo,[68] in 1991,[69] donations from Scandinavian countries increased. Accordingly, what started as an idea

64 Interview with Romas, 5 February 2018.

65 Nordhagen helped establish Norwegian academic network UNINETT, the Nordic university network NORDUnet, networking among Scandinavian and East European countries, and was also a member of the NATO Advisory Panel on Computer Networking ("Internet Hall of Fame Pioneer: Rolf Nordhagen," *Internet Hall of Fame*, accessed 17 June 2019, https://www.internethalloffame.org//inductees/rolf-nordhagen.)

66 Romas, e-mail message to author, 6 September 2018.

67 Interview with Romas, 5 February 2018.

68 Interview with Romas, 5 February 2018.

69 AP, "Norway's Other Peace Prize Given to Lithuania's Leader," *New York Times*, published 12 March 1991, accessed 20 November 2018, https://www.nytimes.com/1991/03/12/world/norway-s-other-peace-prize-given-to-lithuania-s-leader.html.

soon evolved into a large project with the participation of various Norwegian public organizations. Later, other Scandinavian countries agreed to help by donating funds and hardware toward telecommunications and IT development in Lithuania. Romas stated, "In my position, I was able to get a lot of state institutions, like departments, ministries, able to donate . . . It became a very big project, [which] lasted for five years."[70] With initial support from the Norwegian Foreign Ministry and Norwegian ministry of Church and Education, this project grew to include donations from Denmark, Sweden, and the Nordic Council Ministry for the Baltic states. Romas remembers that "the Nordic Council of Ministries gave a lot of funds in money to make it possible to buy routers . . . Internet communication equipment."[71]

The first donation, which comprised five Norway-produced Norskdata mini-computers with approximately 300 computer terminals, was given and delivered to the Lithuanian Academy of Science in February 1991. Half a year later, a satellite antenna was brought from Norway to Lithuania via Finland, Estonia, and Latvia.[72] Involved actors decided to use a satellite connection because it was not possible to dig and install underground cables due to the still unclear political fate of the Soviet Union. Romas said, "It would never be given permission to set up a cable, a physical cable from Lithuania to the rest of the world as it was still part of the Soviet Union."[73] This first connection to the world (through data, telefax, and 20 voice channels) was installed in Vilnius on 10 October 1991. Satellite equipment connecting Lithuania with Norway was located on the roof of the Lithuanian Parliament.[74] According to Romas, "The Norsk Data X.400 Notis Mail system was interconnected via satellite to the global mail exchange X400 system in Trondheim [Norway]."[75] This day was important mainly for Lithuanian politicians. Romas stated, "That means that Zingeris and Langsbergis,[76] and all Lithuania was able to dial a special code from every phone . . . and then they got this dial tone via the Norwegian system. And they could call freely where they wanted in the world. [That] was a fantastic day."[77] What is currently perceived as Lithuania's first Internet connection arose with the help of Scandinavian countries and was based on their financial and technical support,[78] the delivery of technology to Lithuania under difficult circumstances through Soviet-controlled borders and ongoing cooperation with local academia and politicians. According to the prominent Lithuanian cybernetician Gediminas, this help from Norway was "invaluable."[79]

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70 Interview with Romas, 5 February 2018.

71 Interview with Romas, 5 February 2018.

72 Interview with Romas, 5 February 2018.

73 Interview with Romas, 5 February 2018.

74 Gediminas Gasiulis, "Lietuvos interneto istorija: nuo pirmojo signalo iki optinio voratinklio," *15min.lt*, updated 6 September 2012, accessed 17 November 12019, https://www.15min.lt/mokslasit/straipsnis/internetas/lietuvos-interneto-istorija-nuo-pirmojo-signalo-iki-optinio-voratinklio-645-245969?copied.

75 Romas, e-mail message to author, 13 May 2019.

76 Prominent Lithuanian politicians: Emanuelis Zingeris and Vytautas Landsbergis.

77 Interview with Romas, 5 February 2018.

78 Gediminas Gasiulis, "Lietuvos interneto istorija."

79 Interview with Gediminas, 14 March 2017.

Although assistance from Norway and other Scandinavian countries was crucial for the internationalization of Lithuania's telecommunication system and Internet development, former Kaunas University of Technology academic Jonas told me that this help came with conditions. For example, Lithuanians relied on help from Norway when they wanted to establish Internet connectivity based on TCP/IP protocol. Even if the first Internet connection in Lithuania was established in 1991, technically, according to Jonas, it was a X.25-protocol based packet-switch network. He stated that "Norwegian machines were not fitted for the Internet. In those times, there [was] another, so-called protocol X.25. . . . through the University of Oslo, it was possible to go to the Internet."[80] Jonas claimed that some academic institutions in Lithuania were prepared to implement the Internet Protocol TCP/IP already in 1992 and 1993, but could do so only in 1994 because Norway was busy with the Olympic games:

> [They] said "No, we don't have time, everything, all the energy [is used for] the Olympics. Wait." So practically . . . we had to wait until they remade the connection for us . . . only after the Olympics. In 1994, they started that satellite channel with that real Internet Protocol, then, already, we had full, normal Internet. We could normally open text-based websites with that Gopher.[81]

In an email, Romas clarified that from the first day

> it was TCP/IP over X.25. Cisco AGS router that MII [the Institute for Mathematics and Informatics] received was connected to the satellite-based X.25 line in the Parliament. The connections to VU [Vilnius University] [and] KTU [Kaunas University of Technology] was set up with HDLC synchronous communication on copper by Zenonas Bedalis from KTU and other staff from MII and VU.[82]

Admittedly, Scandinavian countries substantially assisted Lithuania's telecom networks internationalization process. For example, Romas and colleagues helped establish a sustainable hardware donation process for Lithuania (March 1991), Lithuania's first broader technological connection to the world (October 1991), as well as the subsequent internal telecommunications connectivity between various Lithuanian scientific institutions (Lithuanian Academy of Science, Institute of Mathematics and Informatics, and Kaunas University of Technology). Romas worked alongside many telecom experts from Lithuania and Norway in order to connect different academic institutions to a Lithuanian-language network and establish international Internet connectivity. Certainly, not only Romas, but also various workers and institutions from Scandinavian countries, assisted Lithuania's telecom network development through financial support, hardware, and labor, but he played an important role. As previously mentioned by cybernetician Gediminas in an interview, this help was described as "invaluable," because Lithuania had ruptured its relations with the Soviet Union and needed new partners as well as material resources to develop its industries, which Scandinavian countries provided. Importantly, this assistance transpired through the collaboration of national and transna-

80 Interview with Jonas, 28 March 2017.

81 Interview with Jonas, 28 March 2017.

82 Romas, e-mail message to author, 13 May 2019.

tional institutions, such as the Nordic Council, as well as many engineers, politicians and translators who transported telecom hardware from Scandinavia through Soviet-controlled borders and worked together to connect "Western" and "Eastern" telecom networks. Thus, Lithuania's first Internet connectivity was based on Scandinavian help.

In this story, it is difficult to weigh in on the balance between strategic calculation, power transfer, and altruism. Despite this, it is important to consider that such help, and the (self) description of others as helpful is not only based on the assumption of unconditional altruism, but also evolved in a post-Cold War context. Professor Gediminas claimed that Scandinavian countries (Norway, Sweden, and Finland) did not support the Baltic countries in a random manner, but rather coordinated their cooperation. He stated that was "because Scandinavians have distributed: Norwegians guided Lithuania, Sweden—Latvia, while Finland—Estonia. Because Estonia even today is a factual colony of Finland. I am joking."[83] He could not tell the exact reason for such geographic distribution of cooperation, but mentioned that "now I know that this happened, I found out later, after we befriended all those Swedes and Finns . . . No one told us, that it is distributed in this way, but I can tell you only so much."[84] In an interview, Romas also agreed that Scandinavian countries cooperated on technology-related issues through the Nordic University Network and did jointly, although without any predefined strategy, help the Baltic countries. He stated, "We did, we had joint meetings, but we Norwegians in the beginning, focused our eyes over Lithuania. Swedes, they focused their eyes on Latvia, and Suomija, Finland, they focused on Estonia. . . . It was no rule, it just happened like this."[85] In contrast, political scientist Kazimierz Musial contends that Nordic countries played the role of "the West" in the post-socialist Baltics through the transmission of capital and values. Moreover, Musial cites political scientist Mare Kukk's research, which details a situation similar to the one I found in the telecom field. Musial posits, "Mare Kukk mentions Finland and Sweden's assumed 'responsibility' for Estonia, while Denmark and Norway focused more on Latvia and Lithuania, though there was not any fixed pattern of bilateral cooperation."[86] I was told in the field that when the Nordic countries distributed their support, the Baltic states willingly accepted the forms it took in terms of both resources and values: telecom equipment enabled communication that was seen as democratic because it was both international and not routed through Moscow. Musial refers to the Baltic states as a case in point: during processes of socio-political and economic transformation, these countries searched for new options and used the Scandinavian model as a symbol of "the West."[87] Conversely, Scandinavian interaction with the Baltics could be framed against the backdrop of Scandinavian value-based international relations that emerged

83 Interview with Gediminas, 14 March 2017.

84 Interview with Gediminas, 14 March 2017.

85 Interview with Romas, 5 February 2018.

86 Kazimierz Musial, "Benevolent Assistance and Cognitive Colonisation: Nordic Involvement with the Baltic States since the 1990s," In *Histories of Public Diplomacy and Nation Branding in the Nordic and Baltic Countries: Representing the Periphery*, Louis Clerc, Nikolas Glover, and Paul Jordan, eds. (Leiden: Brill Nijhoff, 2015), p. 265.

87 Kazimierz Musial, "Benevolent Assistance and Cognitive Colonisation," pp. 266–267.

after the Cold War, which were based on new international cooperation and solidarity with the Baltic countries.[88]

Romas agreed that Norway's interests were political. His perspective was that help from Norway was based on both values and geographical location: it is close to Lithuania, and it values freedom. Norway "was one of the first countries [that] accepted Lithuania as a country. Iceland was number one, I think Norway, maybe, number two. Lithuania is not so far away from Norway, it was in time. We remember what freedom means."[89] Nordhagen, who supported Romas's initiative to donate computers to Lithuania, also discussed the Internet development in other countries such as Hungary and Iceland at international congresses. He stated that it conveyed an idea that networks equal cooperation in the following formula: "Networks are communication, communication is cooperation, networks are cooperation."[90] Nordhagen believed that access to the Internet carried a potential to improve cooperation between international scientific projects as well as foster education, democratic development, and peace. He praised the 1991 networking project in Lithuania as one of such examples of "networks for peace and understanding".[91] I do not aim to develop unfounded correlations in order to dramatize the narrative of Scandinavia's post-Soviet Baltic support, but it is important to remember that Nordhagen was also a member of NATO's Advisory Panel on Computer Networking.[92] Since 1958, NATO has developed a program called Science for Peace and Security, that "promotes security-related practical cooperation based on scientific research, innovation and knowledge exchange within NATO's wide network of partner countries."[93] NATO's Advisory Panel on Computer Networking, which counted Nordhagen as a member, advised NATO's Science for Peace and Security program. In short, one of the persons who supported Norway's telecommunications internationalization assistance to Lithuania also worked for NATO, meaning that this aid was not fully exclusive of international security concerns. In this context, it is important to consider that in post-Cold War 1994, Swedish Minister of Foreign Affairs Baroness Margaretha af Ugglas published an article in *NATO Review* in which she lays out how help and cooperation is linked to Sweden's security concerns. In this article, af Ugglas describes changes in Sweden's security policy from neutrality to active cooperation with Europe due to new security concerns:

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88 Mart Kuldkepp, "Swedish Political Attitudes Towards Baltic Independence in the Short Twentieth Century," *Ajalooline Ajakiri. The Estonian Historical Journal*, no. 3/4 (2016), pp. 397–430; Annika Bergman, "Adjacent Internationalism: The Concept of Solidarity and Post-Cold War Nordic–Baltic Relations," *Cooperation and Conflict* 41, no. 1 (2006), pp. 73–97; Christine Ingebritsen, "Norm Entrepreneurs: Scandinavia's Role in World Politics," *Cooperation and Conflict* 37, no. 1 (2002), pp. 11–23.

89 Interview with Romas, 5 February 2018.

90 Document (power point presentation) produced by Prof. R. Nordhagen was kindly shared with me by Romas; Romas, e-mail message to author, 12 February 2018.

91 Romas, e-mail message to author, 12 February 2018.

92 "Internet Hall of Fame Pioneer: Rolf Nordhagen," *Internet Hall of Fame*, accessed 17 June 2019, https://www.internethalloffame.org//inductees/rolf-nordhagen.

93 "Science for Peace and Security," *NATO*, updated 17 March 2020, accessed 4 February 2020, https://www.nato.int/cps/en/natohq/topics_85373.htm.

> To build and secure democracy, to facilitate the rule of law, to promote human and minority rights, to create market economies to the east and south-east of Sweden, are now some of the major objectives of our foreign policy. Our involvement in efforts to assure stability and peace corresponds to a security concept that is broader than the Cold War concept of military security alone. As the pace of history accelerates and our involvement with the rest of Europe deepens, the policy we pursue could no longer be labelled neutrality. With the implosion of the USSR and the disappearance of the Warsaw Pact, there are no longer two alliances to be neutral between.[94]

In this context, the information I was told in the field comprises geopolitical imaginaries of help in which assistance is possibly entangled in geopolitical European internationalization and eventual Lithuania's desecuritization. This includes antecedent assistance from Scandinavian countries regarding how they helped develop Lithuania's first Internet connection, their part in the subsequent networking of Lithuania's academic institutions and the fact that Lithuania's biggest telecom company, Lietuvos Telekomas, was initially privatized to TeliaSonera, a partially Swedish-Finnish-owned corporation in 1998.

3.1.2.2 Help from the US

In addition to the telecom network assistance from Scandinavian countries, aid from the US comprised another "imaginary-of-others" I encountered in the field. American-Lithuanian businessman Juozas Kazickas's activities are an important case in point. According to long-term telecom industry expert Donata and former Litkomas/Omnitel employee, Kazickas founded a company called Litkomas in 1992 and began to provide satellite communications from Nemenčinė, a station close to Vilnius.[95] Litkomas was the first company that connected Lithuania to the US directly via telephone.[96] Donata mentioned that the phone connection to the US was developed to surpass the requirement to call through Moscow, the only existing possibility to call abroad at that time, which could have also been surveilled.[97] Litkomas, which changed its name to Omnitel in 1994, emerged in this context of Lithuania's relative international isolation. According to former Omnitel employee Lukas, the company eventually became one of the biggest data transmission providers with an independent core network in Lithuania.[98] Omnitel expanded with the help of a partner company, the US-based Motorola, and started to provide the first GSM mobile communication services in Lithuania on 16 March 1995. Before moving to the Internet industry, Omnitel implemented a Sprintnet X.25 protocol-based service, which since 1994 was usually used by Lithuanian tourist agencies and banks. While in 1995, two companies—Omnitel and Taidė—introduced wholesale Internet services, an interviewee Donata contended that Omnitel also offered Internet for individual consumers. The first Internet for individual consumers ran through a dial-

94 Baroness Margaretha af Ugglas, "Sweden's Security Policy in Post-Cold War Europe," *NATO Review* 42, no. 2 (1994), p. 11.

95 Interview with Donata, 27 March 2018.

96 Interview with Donata, 27 March 2018.

97 Interview with Donata, 27 March 2018.

98 Interview with Lukas, 21 March 2018.

up connection via Lietuvos Telekomas cables. Former Omnitel employee Donata argued that in 1998, when Internet and mobile phone usage in Lithuania grew profoundly, Omnitel retreated from offering fixed-line Internet because privatized Lietuvos Telekomas owned most of cable infrastructure required for fixed Internet connections.[99] While Omnitel began as a family business, it first sold part of its shares to Motorola, then sold all of its shares to the privatized Lietuvos Telekomas (in 2006 renamed to Teo) in 1998 and 2004. In 2017, Omnitel and Teo were consolidated into Telia Lietuva.[100]

Omnitel's founder, Kazickas, was a successful Lithuanian-American entrepreneur. Donata told me that he was "a very bright human being, who, well, did not save time, money, and himself, and who was in truth trying to bring to Lithuania the newest opportunities and newest technologies."[101] She remembered that working at Omnitel was interesting, because the company was curious for innovations and cared for its workers. Donata stated that "Omnitel was a company that really provided all the time to get to know and touch the newest technologies. You had the opportunity to develop them, these services . . . especially in Kazickas's times, until the company was sold to Telia . . . it was fun to work."[102] She further claimed that the company's atmosphere was supportive and that workers were highly motivated.

Although this story about Omnitel seems positive, Donata remembers her consequent work at Teo as an uninspiring, limiting, and draining activity in which workers' capacity to innovate was neither used, nor fostered:

> There are general principles, what I have to do, plans, and I have to execute those plans. If there is a policy of advertisement, then I have to comply . . . I will probably not create services by myself . . . in practice, you became a component of that big mechanism, where you could not really show your own initiative. . . . I perhaps don't think that everything was going on well, because that big company imposes, drains. We were joking that these plans are from the beginning so, that you know, that you will not [manage to] do them.[103]

According to Donata, the privatized Lietuvos Telekomas followed only commercial interests, while Kazickas had both commercial and altruistic concerns regarding the development of the telecom industry:

> Everyone's interest is, first of all, business. The only one who truly had the desire to not only do business, but, let's say, introduce particular services in Lithuania, I would think, was purely the Kazickas family. Maybe an altruistic interest, to help Lithuania

99 Interview with Donata, 27 March 2018.

100 Commission of the European Communities, *Case No. Iv/Jv.9 Telia/Sonera/Motorola/Omnitel: Regulation (Eec) No 4064/89 Merger Procedure*, (Luxembourg: Office for Official Publications of the European Communities, 1998), https://ec.europa.eu/competition/mergers/cases/decisions/jv9_en.pdf; "Teliasonera to Step Up Ownership in Omnitel," *Telia Company*, published 26 August 2003, accessed 18 January 2020, https://www.teliacompany.com/en/news/press-releases/2003/8/teliasonera-to-step-up-ownership-in-omnitel-80477; "'Teo' ir 'Omnitel' tampa 'Telia,'" *Telia.lt*.

101 Interview with Donata, 27 March 2018.

102 Interview with Donata, 27 March 2018.

103 Interview with Donata, 27 March 2018.

> primarily . . . he had these businesses also in America and so on, but wanted to connect with Lithuania due to that, so to say, nostalgia for Lithuania and desire to help. . . . Of course, everywhere was a particular commercial interest. Nobody was providing charity. I think, that everywhere here is pure commerce, just so that precisely Kazickas managed to create such company, gather people, who supported his idea, and would do more than possible.[104]

Thus, an American émigré's support for Lithuania's telecom industry in this illustration was perceived as pragmatic but also underlined by an altruistic desire to help Lithuania. In his memoirs, Juozas Kazickas explains his involvement in independent Lithuania's telecommunications business. He states, "I became obsessed with the notion that something had to be done to overcome this reliance on Moscow for our phone lines. An idea was forming in my mind to find a way to lay a wireless channel of communications between Lithuania and the West."[105] After he asked the CIA and FBI for help and was declined, Kazickas was introduced to Aligmantas Prekeris, an American-Lithuanian telecom specialist who had worked with the Soviet Union to establish a telephone connection between Washington and Moscow.[106] Kazickas contended that "it became clear that telecommunications service was not merely a political necessity but a serious business with high demand in Lithuania."[107]

On the one hand, one could criticize such an affirmative description of Kazickas's business ventures, especially from former employee Donata, as positive past representations. On the other hand, Omnitel was one of the first private telecommunications companies and came to post-Soviet Lithuania's telecom industry very early, during a time when the private industry was still emerging. Thus it is possible to contextualize the description of Kazickas's company as actively fostering the local telecom industry's technical and high employee working conditions development alongside expected profit as pragmatic help.

A long-term worker at the Lithuanian Parliament's IT Department, Algirdas, stated that the support from the US congress, and its congressman Frost,[108] for Lithuania's Parliament networking began in 1992, and was evaluated as more substantial than Scandinavian aid. "First, especially Frost, you can't compare the money, 100 times more than Danes, Swedes, perhaps Norwegians. The Norwegians were helping again with LITNET."[109] Algirdas claimed that this help came from the US because they aimed to foster Lithuanian democracy. He stated, "Well you ask, why the Americans? Why did they help? An important thing next to all others, next to the increase of productivity, exchange of information, and all the rest, there also is a very important condition—that democracy exists in a country."[110]

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104 Interview with Donata, 27 March 2018.

105 Kazickas, *Odyssey of Hope*, p. 347.

106 Kazickas, *Odyssey of Hope*, pp. 347–348.

107 Kazickas, *Odyssey of Hope*, p. 351.

108 I was not provided with Frost's first name, could not reach the interviewee for a second interview, and could not find the first name in other sources.

109 Interview with Algirdas, 9 November 2017.

110 Interview with Algirdas, 9 November 2017.

These perceptions of "Others" concerning the actors from the US and Scandinavian countries as helping Lithuania's telecom industry were particularized through examples in which "the Others" helped develop the local telecommunication industry and its international connectivity. Support from Scandinavian countries was illustrated by examples of how they helped the Lithuanian Parliament and multiple academic institutions develop international and local data transmission and Internet connectivity. Support from the US was exemplified by US congressional aid to the Lithuanian Parliament in order to develop governmental IT networks as well as the role of Omnitel, a local pro-profit data transmission provider owned by American-Lithuanian Kazickas, in establishing new Lithuanian telecom companies and services. I argue that value-based interests of the respective involved parties can and should be questioned. In the 1990s, the Soviet Union suddenly disintegrated and multiple new, independent post-Soviet countries emerged. Previous assumed enemies suddenly became respected assistants and friends. International help thus played a role in changing the post-Cold War telecommunications environment in Eastern Europe. It can be argued that this help was not only built on altruistic labor alongside hardware and financial transfers, but also involved a particular form of public diplomacy in post-Cold War Eastern Europe in which Nordic aid to the Baltic states was a mix of values, interests, technologies, and telecom ownership regimes. Based on the statements from the field on distributed Scandinavian support to the Baltics and thus Lithuania, it is plausible to conclude that assistance from Nordic countries was closely aligned with the new post-Cold War security situation in Europe, and was compliant with NATO security strategies of fostering cooperation between the West and the East. Nevertheless, notwithstanding this possible contextualization of help as geopolitically charged due to a changing international order, descriptions of others as helping comprise yet another everyday geopolitical imaginary of "Others" in the field. I further explore how such involvement was not only perceived in the field as help, which I unpack further in the upcoming sub-chapter, "Patronizing."

3.1.3 Patronizing

3.1.3.1 Underestimating

The following text illustrates that local telecom industry participants not only praised foreign actors for being more modern or helping build up Lithuania's telecom sector, but also described how "the Others" mistrusted and underestimated the development of post-socialist Lithuania's society and telecom industry. In the following section, I thus explore how local telecom industry stakeholders negatively judged "the Others" based on condescending statements and acts by framing these judgments within patronizing geopolitical imaginaries. Admittedly, the excerpts not only criticize but also strive for an understanding and empathize with the foreign actors by normalizing this mistrust. In this context, it is relevant to quote a note of encouragement from one my interviewees, who hoped that my dissertation might serve an educational purpose, bring Lithuania closer to the West and "show to the Other world, the western world, which does not fully understand us,"[111] as if century-long telecommunications industry developments

111 Interview with Gediminas, 14 March 2017.

were based on misunderstandings and false judgments from "the western world" that could be solved solely with education and interest.

According to Miniotaitė, the contemporary outlook of Lithuanian foreign policy can be expressed with the metaphor of "coming back to Europe," which implies an act of distancing from the East (Russia and Poland), as well as from other Baltic countries (Latvia and Estonia). Lithuania's cultural alliance could be used for the same cause of return to Europe,[112] when the country is, for instance, proud to be part of the Central Europe or belong to Northern Europe.[113] Although the previously explored everyday geopolitical imaginary of "Modernizing" expresses trust in progress abroad, the following imaginary looks at the perceived faults of "the Others." Thus, positive perceptions of "the Others" as altruistic, modernizing, and progressive helpers are complicated by local acts of everyday critique that negatively judge these same "Others" as distrustful and under-appreciative of Lithuania's telecom industry development.

According to some telecom industry practitioners with experience in representative politics, there was not a great international interest in Lithuania at the beginning of the 1990s. This was because as a new country its eventual geopolitical orientation was unclear, especially if it could not disentangle itself fully from the disintegrating, but still looming, Soviet Union. In words of one politician active in the 1990s, "it was not clear whether Lithuania is independent or not."[114] Although Lithuania's Communist Party officially left the Soviet Union's Communist Party in 1989,[115] in 1990 the Sąjūdis Reform Movement of Lithuania gained the majority of votes in the first competitive Supreme Soviet elections. This new governmental body, otherwise known as the Supreme Council, declared Lithuania's independence on 11 March 1990, and served until the election of a new Parliament in 1992.[116] After the establishment of the new 1992 Parliament, the majority of the votes went to the parties within the left political spectrum.[117] Moreover, according to the data from Lithuania's Ministry of National Defense, the Soviet army was still located in Lithuania until 1993; before it started to withdraw, around 34600 Soviet soldiers were still located in Lithuania.[118] Additionally in 1993, Algirdas Brazauskas—head of the Communist Party of Lithuania, which cooperated with the reformist Sąjūdis movement—declared the Lithuanian Communist Party independent from CPSU in 1989, co-signed Lithuania's independence document in 1990, and was elected the first President of post-Soviet Lithuania. Thus, while Lithuania's foreign rela-

112 However, there is wide debate about the kind of Europe to which Lithuania is returning (Gražina Miniotaitė, "Convergent Geography and Divergent Identities," pp. 211–214).

113 "Mes nebe 'rytų europiečiai': Lietuva priskirta Šiaurės Europai," *Kaunodiena*.lt.

114 Interview with Vidas, 8 November 2017.

115 Saulius A. Sužiedėlis, *Historical Dictionary of Lithuania* (Lanham, MD: Scarecrow Press, 2011), p. 118.

116 Sužiedėlis, *Historical Dictionary of Lithuania*, p. 68.

117 Sužiedėlis, *Historical Dictionary of Lithuania*, p. 217.

118 "Rusijos kariuomenės išvedimas," *Lietuvos kariuomenė*, updated 14 April 2009, accessed 20 April 2019, https://kariuomene.kam.lt/kariuomene/lt/kariuomenes_atributika/karo_istorija/rusijos_kariuomenes_isvedimas.

tions were re-orientated toward Europe and the US,[119] the political events on the ground were convoluted.

Gediminas, a professor who helped develop the Internet networks at Lithuanian universities, remembered that in 1992 he was invited by the University of Hamburg to work on a project that explored potential futures of mobile network development in the European Union. In this context, he was asked to write a forecast regarding mobile network development. He stated that his positive prognosis about speedy post-Soviet telecom industry recovery in Lithuania was not received well by academics from the University of Hamburg. Gediminas said:

> [He] says, 'This will not happen.' I explained to him, 'I understand that in 1992 the Soviet industry is collapsed, economy: horrible, but'—I tell him—'I know what condition we are in, I know our mentality, we will not sit in this hole for long.' He anyway told me to lower these perspectives. I tell him, 'If you attempt to lower them, I am taking back my [paper].' Then he gave up: 'Well, okay, whatever.' The book was then published, I have it here now, where I mistakenly guessed 28 times lower.[120]

In this example, "the Other" starts to emerge through the voice of a local telecom industry actor. In this context, Gediminas not only remembered an interaction, but also produced an image of "the Other" as prone to negatively judge, and eventually misjudge, the development of Lithuania's telecom industry.

In the field, "the Others" were also said to have been cautious in establishing new relations with Lithuania's telecommunications sector. One example is participation in international academic telecom network, GEANT. In 2004, the Lithuanian Research and Education Network (LITNET), which has provided data transmission services for the Lithuanian research and education sector since 1991,[121] was accepted into the European research and education data network community, GEANT. GEANT provides digital infrastructure services for research and education communities, such as LITNET, and thus constitutes a pan-European, non-commercial data transmission operator. According to one LITNET associate, Linas, Lithuania could have been accepted to GEANT earlier than 2004, but a member from the Netherlands vetoed the decision due to Lithuania's size and alleged weakness. Linas stated that "their attitude was that it is impossible to balance geographical expansion and qualitative expansion. This means that having connected to a line of weak and small, it will be impossible to lead the world. . . . in that area of computer networks for science and studies."[122] Linas recalled how one of two people responsible for the veto later regretted his decision. According to Linas, they argued:

> 'We emerged out of a small club and everything must happen in a small club. We don't need any Eastern Europeans here.' Well, one remained hostile, while the other one was coming to our countries and conducting meetings, saying, 'I am also sorry, I

119 Sužiedėlis, *Historical Dictionary of Lithuania*, p. 68; Gražina Miniotaitė, "Convergent Geography and Divergent Identities," pp. 211–212.

120 Interview with Gediminas, 14 March 2017.

121 "Apie mus," *LITNET*.

122 Interview with Linas, 17 March 2017.

> was vetoing, and I want now to get to know you, because it appears that my decision was wrong.' He was travelling here, saying, 'It is my pilgrimage.' But he retired.[123]

These two quotes of Gediminas and Linas narrate the perception that Lithuania's public telecom sector stakeholders were mistrusted and had to cross geopolitically reasoned obstacles that hindered their integration into international public telecommunications community. Although Lithuania was accepted into GEANT—which presents itself as "a positive example of European integration and collaboration"[124]—in 2004, namely the year when Lithuania also officially became "European" via EU and NATO membership, the quote above demonstrates how this acceptance into this European telecommunications organization was initially met with caution.

Similarly, Aloyzas, a Minister from the dissolved Ministry for Communication and Networks, related that Lithuania's position in international meetings on telecommunication issues corresponded little with those of countries from "the western" world. Aloyzas recalled that once he was a member at an International Telecommunication Union (ITU) expert group, which consisted of approximately 25 people from different countries and met for a week to discuss particular telecommunications industry issues. During one such discussion about telecommunications market development and equal participation rights, Aloyzas claimed to understand the misleading nature of a statement regarding equal market participation for small, and thus less powerful countries, through a comment made by representatives from the US. He remembers their remarks as:

> 'Lithuania, in general, the budget does not have any money, and [Lithuanian] company more so.' And they [participants in a discussion] are laughing, saying, 'Yes, but if Lietuvos Telekomas would come to the US, it will also have the same rights.' You understand, the statement 'same rights' is very deceiving.[125]

Accordingly, in another example the Minister contented that the US's involvement in Lithuania's telecom industry illustrated that large and economically wealthy countries obviously have different power capacities. He stated, "the first day the Americans came here [to Lithuania], while we were speaking, drinking wine, they are saying 'What does it mean, Lithuania? The entire country of Lithuania has a budget smaller than an average American city. A contract,' they say."[126] Notwithstanding this patronizing tone, the interviewee claimed to understand such statements, because international cooperation and foreign investments should benefit all participating sides:

> But from the other side, you understand . . . there has to be some benefit. . . . America, what was it doing. . . . in the beginning, in 1993, a stack of American emissaries were coming to Kaunas, picking up our best students, and taking them away. We were trying to say 'Let's organize here,' they were telling, 'Well, we can do it here too, but . . .

123 Interview with Linas, 17 March 2017.

124 "GÉANT – at the Heart of Research and Education Networking," *GEANT*, accessed 29 March 2019, https://www.geant.org/About.

125 Interview with Aloyzas, 7 November 2017.

126 Interview with Aloyzas, 7 November 2017.

> why?' They gather such an international team, 20, 30 people, bring them to Malaysia to do a project . . . After the project is finished, they throw them across to another country . . .[127]

On the one hand, this perspective acknowledges that project-based, short-term investments are practiced in the globalized economy. On the other hand, this illustrative perspective of international patronizing attitudes contributes to an image that actors from powerful nation-states, such as the US, have means to control the less powerful ones, such as Lithuania or Malaysia, which are dependent on the decisions made beyond their participation.

In all of the examples above, foreign countries and transnational organizations, such as members of GEANT network from the Netherlands and international participants at ITU meetings, especially from the US, were described as perceiving post-socialist Lithuania as a small and weak state in relation to its telecommunications development and international cooperation. These examples in the field established a geopolitical imaginary of "the Others" as acting in a condescending manner toward smaller countries such as Lithuania through judgments that assumed a patronizing tone and practices of exclusion. However, while some GEANT members may initially have declined Lithuania's accession, academic network LITNET is currently a full member. Thus, notwithstanding the present accuracy of these statements, such geopolitical imaginaries still exist in the field of key telecom stakeholders as critical remembrances that follow a canonical binary that comprises powerful patronizing "Others" as western and deficient Lithuanians as local. According to this everyday geopolitical imaginary, the world is divided into West and East, big and small countries, and unequal distributions of power. Yet in these cases, "the Others" are not praised as modernizing or helpful agents, but rather are described as ignorant, arrogant and patronizing.

3.1.3.2 Help from Norway?

In addition to descriptions of "the Others" as patronizing and condescending, I use the following section to illustrate examples of Soviet, local academia, and business critique of Norwegian involvement in telecom development. These illustrations from the field thus question the previous positive description of Norway as helpful.

Norway's initial involvement in helping Lithuania establish international connectivity did not pass unnoticed by the Soviet Union, which still operated in the region in the beginning of the 1990s; as mentioned earlier, the last Soviet soldiers left Lithuania in 1993. Norwegian Romas recalled how during his first trip to Lithuania the Soviets did not allow him to leave Lithuania and instead sent him to a psychiatric hospital. The lack of, and thus need to establish, international communication networks in Lithuania emerges beautifully through his experience, as he is the person who actually helped internationalize Lithuania's telecommunications, but also had difficulties communicating his arrest to Norway. Romas stated that the Soviets thought that he was working against the Soviet system and wanted to make him an example for others. The prison he was sent to was actually a psychiatric hospital in the city of Klaipėda where instead of

127 Interview with Aloyzas, 7 November 2017.

treatment he received local support. He remembered that "the doctor said, 'I don't know what to do, but you cannot be here, so you will be my guest, you will be living in my house.'" Locals, including the local police, helped him get in touch with the Norwegian embassy:

> They saw that in my car . . . I [had] a mobile phone, not what we have today, but this NMT [Nordic Mobile Telephone] system . . . They managed to take a cable and to connect [it] . . . Then we got a signal to this island in Baltic sea, Gotland, and I was able to call the foreign ministry in Oslo and say that I am stuck in Klaipėda. Then foreign ministry in Norway called the Norwegian embassy in Moscow and the Norwegian embassy started to negotiate with Moscow, to let me out. . . . one evening . . . they got my number, and said, 'Tonight, till 12, midnight, you need to get out.'

Romas left Klaipėda on the Mokran ferry, which he claimed was used to transport military equipment from Eastern Germany to the Soviet Union. Romas stated, "[The] staff was Lithuanian on this ship, the captain was very friendly, was drinking cognac, we had nice journey, sailing over. . . . But after that, I came back here many times and . . . never [had] any problems."[128]

This narrative of the Soviet attempt to imprison Romas as he came from Norway in the early 1990s illustrates an instance of the somewhat expected, albeit unsuccessful, Soviet attempt to stop foreign influence in the region that it still, in a way, controlled. The Soviet Union thus did not perceive Norway's involvement as help, but rather as an anti-Soviet activity, which they did not manage to stop because technologies, investments as well as people from the West continued their interactions with post-Soviet countries as the Soviet Union disintegrated. Through this example, the Soviet critique of Norway's involvement in Lithuania's telecommunication development focuses on this involvement as an attempt to control telecom-related activities in Lithuania.

Another criticism of Norway's help in the 1990s—due to Lithuania's dependencies on Norway—was expressed by local academics. Gediminas, who earlier positively described Scandinavian involvement as "invaluable," differentiated his statement through an example from his view and views shared by a few other stakeholders in the field: problematic hardware donations from Norway.[129] He stated that Norwegians wanted

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128 Interview with Romas, 5 February 2018.

129 An article in one of the most visited Lithuanian news websites "15min.lt" titled "Lithuania's Internet History: From the First Signal to the Fiber Web" describes some moments in Lithuania's telecommunication history. It is based on an interview with the professor Laimutis Telksnys and mentions some very similar stories he told me as well. In the article, which starts and continues with a highly positive evaluation of Lithuania's Internet development that is worth quoting: "From an orphan waiting for technical allowances to the global Internet leader—such a way Lithuania has galloped in 21 years," the journalist Gediminas Gasiulis also mentions Telksnys's critical position toward the extensive usage of Norway-donated Norskdata computers. Lithuanian Research and Education Network (LITNET) used Norskdata computers in the beginning of the 1990s. Gasiulis quotes Telksnys as stating that Norwegian computers were sufficiently modern, however, did not support the Internet connection. Understanding that these computers would soon become outdated, Telksnys was thankful for the donations, but criticized the attempt to "stuff" Lithuania with outdated technology." (Gasiulis, "Lietuvos interneto istorija.")

to donate their old Norskdata computers to Lithuania on a massive scale. Even though Gediminas was grateful for their help in establishing the first Moscow-independent international data transmission channel in Lithuania, he was critical of the integration of a possibly outdated technology into Lithuania's economy. He asserted, "I say, if we stuff Lithuania's economy with outdated computers—what will happen? Because we are [then] moving not forward, but backward."[130] He further claimed that the Norwegian ministry lodged a complaint against his refusal to accept the computers at Lithuania's Foreign Ministry, that "I was, later, brought 'on the carpet,' I explained my motives by saying—what, we want to stuff ourselves with old things [*užsichlamint*]? Well, around five sessions in Norway were needed . . . It succeeded [to not receive the old computers]."[131]

Similarly, Jonas, a professor from Kaunas Technical University, contended while Norwegians brought the Internet to Lithuania, their help could be considered as a "double-sided coin." Jonas stated that in the beginning of 1990s, Norwegian-produced Norskdata computers were not much better than Soviet minicomputers.[132] He posited:

> Mini machines, they were already retreating . . . The Norwegians were massively exchanging them to newer ones, Western, IBM, or others. Not to their own construction. And the production of these machines [Norskdata] was terminated. They had many of these machines, and they were bringing them [here]. . . . For free.[133]

After some time, Lithuanians said,

> 'Thank you, but we do not need them anymore, do not bring them [here].' Because we had really stuffed our basement with terminals and later threw them out, because . . . it was not a miracle, the qualitative difference [between them and] the Russian machines [was not high] and it was already visible, that it was the past, because the Norwegians are throwing them away.[134]

Romas also agreed that while at some point the Norskdata computers became outdated, but disagreed that they were useless in Lithuania:

> From 1995 personal computers arrived and arrived to stay. It was cheaper, they came with a hard disk, they came with [an] operative system, they came with applications, [a] network card that you are able to connect. So this was all fine. You can say in 1991 there [were] no real alternatives. 1992, [there were] no real alternatives. 1993, [the PCs] started to come . . . This is wrong, if they think, 'Ah, we are sitting with a lot of garbage.' But it was not garbage when it came. But in 1996, I agree, then this [became] outdated.[135]

130 Interview with Gediminas, 14 March 2017.
131 Interview with Gediminas, 14 March 2017.
132 Soviet dupes of Western superminicomputers of IBM or HP.
133 Interview with Jonas, 28 March 2017.
134 Interview with Jonas, 28 March 2017.
135 Interview with Romas, 5 February 2018.

At times, Norway's and others involvement in the field was also described as a business undertaking in the context of a new emerging market. Although Lithuania's political orientation in the early 1990s was still developing, some international telecommunications companies were interested in establishing their presence, such as Alcatel, AEG, Ericsson, NKT Electronic, and others.[136] According to Vidas, a politician in the telecommunications field, Scandinavian countries aimed to both expand their markets and political influence by investing in the Baltics, while Germany, on the other hand, showed no interest in the local market because it was afraid of repercussions in the Soviet Union in relation to Germany's unification. He posited, "I think because they really wanted to unite Germany and were afraid to bother Gorbachev."[137] Lithuania's telecom market was liberalized on 1 January 2003. Today, the main Internet service providers in the country are Telia Lietuva, Tele 2, Bitė Lietuva, LRTC, Cgates, and Init, which are part of 88 ISP providers in the country.[138] Yet as Lithuanian telecom operator Mindaugas—and his perspective is both illustrative and has been shared by other stakeholders—complained, today the main actors in the Lithuanian telecom scene belong to foreign owners, are only interested in their business' success, and could not be bothered to provide Internet access to the entire population. He stated:

> The problem is the following: all of these actors, who act and do something, they are non-Lithuanian. This is, that none of the [telecom] operators, except for LRTC, which in that scale is very weak and has a minimal influence in those villages. There is thus Telia which belongs to Swedish-Finnish operators, there is Tele2 and Bitė, which belong to the Americans. They all are foreign.[139]

Despite this rhetoric, Mindaugas later softened his nationalistic argument, especially after I tried to question his previous statement, by contending that each telecom business seeks profits notwithstanding their territorial and national origins, which demands stronger government involvement:

> *Mindaugas:* Roughly all of the social responsibility of operators in Lithuania equals zero. . . . because it is their business interest, nothing more.
> *Author:* But it is not, how to say, if it was a Swedish owner, or Lithuanian business.
> *M:* There is no difference, none, it is purely such a business concept, that we will do there, where it is useful for us. We will not do there, where it is not useful . . .
> *A:* Do you think it is problematic, or?
> *M:* . . . it calls for state intervention. . . . I wouldn't say that it is problematic. It is normal . . . there were plenty ideas that . . . we will make the Internet into a universal service, [meaning], that it is an obligation of bigger operators in such [low density, rural] areas [to provide access]. Well, they said, 'No problem, we will provide a bill, because it is

136 Interview with Vidas, 8 November 2017.
137 Interview with Vidas, 8 November 2017.
138 Numeracija.RRT, "Duomenų perdavimo paslaugų teikėjai," *Numeracija.RRT.lt*, accessed 20 March 2020, https://numeracija.rrt.lt/savitarna/user/#/internetActivities.
139 Interview with Mindaugas, 7 February 2018.

> not worth for us.' Although their overall profitability is infernally huge, total sum, but this thing for them is not worth it. In such a case, that state intervention . . . [140]

In summation, while foreign actors were praised and admired by local telecommunications stakeholders as modern and helpful, their actual involvement in developing Lithuania's first data transmission channels and emergent liberalized telecom industry was also criticized as patronizing through geopolitical imaginaries that were built on long forgone remembrances of foreign telecom industry practitioners. This critique transpired among the lines of "the Others" patronizing: under-evaluating, excluding local participation, and pursuing business interests in Lithuania's telecom industry, which was expressed by multiple telecom industry stakeholders on the ground. While the imaginary of "the Others" as patronizing continues to support binary geopolitical imaginaries of foreign involvement in local telecom industry, it departs from unconditional acceptance and praise of "the West" as explored in the "Modernizing" sub-chapter, and from a less unconditional, but still positive imaginary of the helpful "Others." According to artist collective There There, Eastern Europeans are often presented in a patronizing and condescending manner as a unified group of people who are likely to rob, prostitute, work for less money, and eventually take one's job.[141] They claim that this perspective has survived and thrived due to the fragmented nature of Eastern European societies: "The reason is simple: while Eastern Europeans are constructed and treated as a nation externally, the individuals belonging to this imagined community are not actually organized into a palpable community internally."[142] I am not convinced that societal fragmentation and the lack of one voice is the sole reason for these stereotypical representations. In this context I also wonder about the genre of movies produced in Eastern Europe by Eastern Europeans that celebrates and internationally popularizes unified image of societal demise, such as those made by Šarūnas Bartas or Sergey Loznitsa. However, in such a context, an imaginary of underdeveloped Eastern Europe is not only maintained by the locals—which I will explore in a later chapter, "Lagging"—but also emerges in local remembrances regarding patronizing "Others," those who supposedly distance themselves from, criticize and undervalue Lithuania's telecom industry.

The "Modernizing" geopolitical imaginary aligns closely with a realist geopolitical narrative of hierarchically diverse regions and nation-states by describing foreign telecom market players in general, and Sweden and Estonia in particular, as more advanced than Lithuania's telecom industry in social, organizational, technological, and even marketing areas. The "Helping" imaginary describes foreign telecommunications industry actors, such as Scandinavian countries and the US, as helping Lithuania's telecommunications industry to develop and thrive, although this imaginary can be also contextualized in the changing post-Cold War political arena with an aim of the western part of Europe and the US to befriend and desecuritize post-Soviet Eastern Europe. The "Patronizing" imaginary, in contrary to the first two, transpired among the lines of "the

140 Interview with Mindaugas, 7 February 2018.

141 There There, "Eastern Europeans for Dummies," *Kajet*, updated 24 November 2019, accessed 12 January 2020, http://kajetjournal.com/2019/11/24/there-there-eastern-europeans-for-dummies/.

142 There There, "Eastern Europeans for Dummies."

Others" as undervaluing, excluding, and pursuing solely business interests in Lithuania's telecom industry, which was expressed by multiple telecom industry stakeholders on the ground. I now move on to the other part of the binary to explore imaginaries that were maintained in the field by many stakeholders about themselves, which I frame under self-descriptive imaginaries, or "the Self" as "Competing," "Transforming," and "Lagging."

3.2 The Self

3.2.1 Competing

3.2.1.1 The Competitive Market

Internet service belongs to a data transmission market that as of 2020 comprised 88 data transmission service providers in Lithuania, a country with less than 3 million inhabitants.[143] The main source of income for data transmission services from 2012 to 2017 came from Internet retail access (89.3 percent).[144] According to the Communications Regulatory Authority, Internet access is a data transmission service that belongs to the electronic communications market and is categorized into services including: fixed (FTTx, DSL, wireless, KTV networks, and others); mobile (services based on technologies, such as UMTS and LTE); retail; wholesale Internet; and other data transmission services.[145] In 2019, the leading Lithuanian earner from fixed retail Internet services was Telia Lietuva, while Tele2 and Bitė Lietuva have led the mobile retail Internet access market since 2018.[146] Telia Lietuva led the 2019 Wholesale Internet access market, although its position within this department has fluctuated over the years.[147] Thus, while retail Internet access services are highly important for Lithuania's telecom market, the notion that Lithuania has a large number of data transmission service providers is rather deceptive, because not all of the providers work in the entire country. As Mindaugas, a wholesale operator employee, contended during an interview, most of the

143 Numeracija.RRT, "Duomenų perdavimo paslaugų teikėjai."

144 Lietuvos Respublikos ryšių reguliavimo tarnyba,*Lietuvos ryšių sektorius, 2017, Nr. ND-11*, (Vilnius: Lietuvos Respublikos ryšių reguliavimo tarnyba, 2018), p. 37, https://www.rrt.lt/wp-content/uploads/2018/08/Lietuvos_rysiu_sektorius_2017_20180819.pdf.

145 Lietuvos Respublikos ryšių reguliavimo tarnybos strategijos departamento ekonominės analizės skyrius, *2018 m. IV ketvirtį vykdytos elektroninių ryšių veiklos ataskaita pagal elektroninių ryšių tinklų ir (arba) paslaugų teikėjų pateiktą informaciją, Nr. LD-880*, (Vilnius: Lietuvos Respublikos ryšių reguliavimo tarnyba, 2019), pp. 21–32, https://www.rrt.lt/wp-content/uploads/2019/03/Ataskaita_2018_IV_ketvirtis-03.28.pdf.

146 Lietuvos Respublikos ryšių reguliavimo tarnybos strategijos departamento ekonominės analizės skyrius, *2019 m. II ketvirtį vykdytos elektroninių ryšių veiklos ataskaita pagal elektroninių ryšių tinklų ir (arba) paslaugų teikėjų pateiktą informaciją, Nr. LD-2314* (Vilnius: Lietuvos Respublikos ryšių reguliavimo tarnyba, 2019), pp. 25, 31, https://www.rrt.lt/wp-content/uploads/2019/09/Ataskaita_2019_II_ketvirtis.pdf.

147 Lietuvos Respublikos ryšių reguliavimo tarnybos strategijos departamento ekonominės analizės skyrius, *2019 m.*, p. 22.

data transmission providers are not relevant on a national scale, because they comprise "family business, which work in some *Laižuvos* village. Well, he has connected his twenty houses, one street, buys a stream from another provider, 'formalizes' himself as a provider."[148] Telia Lietuva employee Povilas claimed that due to the few substantial market participants, competition in Lithuania's telecom sector is weak and reminiscent of oligopoly.[149] In short, there are many data transmission providers in Lithuania, but the main telecom operators in diverse areas of Lithuania's data transmission and Internet access market are Telia Lietuva, and other market leaders including Tele 2, Bitė Lietuva, Lietuvos radijo ir televizijos centras, and Cgates.[150]

Although these examples speak to the limited number of leading companies that are influential in Lithuania's telecom market, many stakeholders in the field described the local telecom market as highly competitive.

In capitalist market economies in particular, competition is said to be a crucial force that disciplines companies and individuals to expand their revenues at the expense of their market rivals.[151] Traditional neoclassic economists argue that perfect competition conditions comprise multiple small companies that produce similar products and compete anonymously in a capitalist market. In contrast, economist Jim Stanford claims that while in "real-world competition" some industries require high initial investments that limit the number of companies that compete,[152] the intensity of competition can still be fierce.[153]

Regardless, it should not be forgotten that the usage of this concept is socioeconomically and historically contingent. In his book *The Limits of Neoliberalism*, William Davies defines capitalist neoliberalism as an ubiquitous system that values economic worth above all else. He states that "economic valuation [is] the 'ultimate' test of validity across all realms of governance and decision making that is maintained by specific language of 'competitiveness' and 'efficiency'."[154] While competition as a concept is praised in current capitalist market economies, in post-socialist countries it only became a regular term after the disintegration of the Soviet Union. For example, psychologist Márta Fülöp argues that in Hungary the term was banned during socialist times and has become highly popular since the 1990s.[155] In the case of the European Union, policies that serve to foster competition have been in place for over 60 years, since the 1957 Treaty of

148 Interview with Mindaugas, 7 February 2018.

149 Fieldwork report, Bareikytė, 19 February 2018.

150 Lietuvos Respublikos ryšių reguliavimo tarnyba,*Lietuvos ryšių sektorius, 2017, Nr. ND-11*, pp. 37–38.

151 Jim Stanford, *Economics for Everyone: A Short Guide to the Economics of Capitalism* (London: Pluto Press, 2008), pp. 129–130.

152 Stanford, *Economics for Everyone: A Short Guide to the Economics of Capitalism*, p. 131.

153 Stanford, *Economics for Everyone: A Short Guide to the Economics of Capitalism*, pp. 131–135.

154 William Davies, *The Limits of Neoliberalism: Authority, Sovereignty and the Logic of Competition* (London: Sage, 2014), p. 194.

155 Márta Fülöp, "Competition as a Culturally Constructed Concept," in *Travelling Facts: The Social Construction, Distribution, and Accumulation of Knowledge*, Caroline Baillie and Elizabeth C. Dunn, eds. (Frankfurt: Campus Verlag, 2004), pp. 130, 144.

Rome.[156] While the usage and exact meaning of the concept of competition is culturally and historically contingent, in market economies it is rooted in the current vocabulary of capitalism. The drive for economic success thus does not only comprise visible effects but is also represented through language and laws that define competition as a valuable in current market economies.[157] It is thus consequential to assume that the current self-description of "competitive" not only corresponds to a real capacity to outperform others, but also shows oneself as able to function and even thrive under capitalist market conditions.

Competition also has a place in memories regarding the first steps of the development of post-socialist Lithuania's telecom industry. Romas regarded Lithuanian academics with whom he had contact while developing this first Internet connectivity as secretive and highly competitive. He remembered:

> 'If you get the book, don't copy this book, don't share it, because I have the book, this information. As long as I had this information only for myself, I am the king.' . . . People wanted to have jobs, they wanted to secure jobs. They wanted to have control over their domain . . . But this is normal in all countries.[158]

Vytenis, a leading manager of one wholesale Internet provider, told me that currently Lithuania's telecom market competition is very intense. He stated that "in other countries the Internet competition is lower, both in the West and in the East. In Lithuania, the competition is much higher. Due to this, conditions for customers are better."[159]

Vilius, who leads an IT department in a mid-size telecom company, contended that Lithuania's current telecom market is so competitive in terms of high speed and technology that it works against its own profit premises. He stated that

> there is no mass psychosis about the speed [in Latvia or Estonia]. Such as here. We win the question of psychosis 6:0 against everyone. Well, we are the first in the world, aren't we? Lithuania. Imagine. After such mass psychosis someone is still capable of doing business.[160]

Vilius's statement exemplifies the frenzied desire of telecom operators to sell fast Internet service for a low price that can be expressed through the metaphor of the "new rich," which is used to describe people in post-socialist regions who aim to convince others of their wealth by flaunting it through expensive clothing or luxurious cars, even if they are otherwise poor. Vilius stated, "We immediately had to start from a BMW. . . . when you sell a lot and very cheaply, then no one makes a profit."[161] According to Vilius, this craze was caused by competition and piracy. He stated that

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156 OECD, *Annual Report on Competition Policy Developments in the EU, 2017*, in DAF/COMP/AR(2018)49, ed. OECD (2018), p. 5, https://one.oecd.org/document/DAF/COMP/AR(2018)49/en/pdf.

157 Davies, *The Limits of Neoliberalism*, p. 199.

158 Interview with Romas, 5 February 2018.

159 Interview with Vytenis, 16 January 2017.

160 Interview with Vilius, 16 March 2017.

161 Interview with Vilius, 16 March 2017.

> The desire to be a provider which sells the biggest plan. That 'war of 100 megabits,' if you remember. Everybody wanted that 100 megabits, notwithstanding the price. . . . Oh, and the reason why is piracy. . . . [People] use, all Lithuania is using, was watching many films. Movies were stolen and saved in particular servers: Torrents, 'Linkomanija' . . . Now it is getting less of those, but now there is another problem: now, the IP television has appeared . . .[162]

Vilius also described how this competition regarding Internet speed in Lithuania was irrational because the high quality of technology investments and cheap price of services resulted in reduced income for telecom operators. It was claimed that the desire to have a fast Internet connection originated not only from operators, but was also fostered by a locally flourishing piracy culture—a phenomenon that was widespread during my own experience of growing up in Lithuania. In the 1990s, it was unusual to buy legal content, such as CDs or even cassettes, because it was too expensive. I remember wandering in Vilnius' bazaars and searching for interesting CDs, the illegality of which did not concern me. There was widespread usage of illegal content, also in private, academic, and political realms. With the spread of the Internet, people started using Kazaa, Soulseek, and other similar online peer-to-peer content sharing services. Even at public places such as universities, illegal content—or what is currently perceived as illegal, although in the context of Lithuania it was understood as a substantial way to access information—sharing among teachers and students was common. Accordingly, the desire to gain access to information notwithstanding its legal status and inability to buy it on the market resulted in high levels of peer-to-peer sharing practices in Lithuania, but also developed a culture in which illegal content downloads have become, and are currently considered, mundane. Accordingly, irrational competition—"to be a provider who sells the biggest plan"—through fast and cheap Internet services combined with a lack of data sharing policies contributed to the emergence and maintenance of peer-to-peer practices, which were maintained by cheap and robust Internet access, known as the "BMW Internet." A 2017 European Commission report found that Lithuania was among the four cheapest countries (together with Latvia, Hungary, and Romania) in the European Union for fixed broadband Internet.[163] For example, in 2019 Telia Lietuva offered fiber Internet (up to 100 Mb/s) for 10 euro and 90 cent. This irrationally competitive self-perception against the backdrop of free—or illegal—information exchange maintenance is one imaginary common amongst local telecom industry stakeholders.

Many infrastructure builders, managers, and product developers from the field stated that other industry participants are highly competitive. Most of the time, they spoke of competitive telecom industry's producers and clients, but sometimes they exemplified telecom industry workers' attitudes toward society in general. For example, among telecom stakeholders I heard statements such as "people are wolves, they fight for their existence."[164] Although in previous examples competition was presented

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162 Interview with Vilius, 16 March 2017.

163 European Commission, Directorate-General of Communications Networks, Content & Technology, *Fixed Broadband Prices in Europe 2017* (European Union: European Commission, Directorate-General of Communications Networks, Content & Technology, 2018).

164 Fieldwork report, Miglė Bareikytė, 16 June 2017.

through stories regarding local telecom operators as striving to be the best and win in the telecom market at any cost, the insistence upon the market as competitive also implies the desire to take telecom market participants seriously. It not only presents a self-description of competition, but also suggests that the local telecom industry has managed to adapt and became proper competitive capitalists.

3.2.1.2 Maintaining Competition

How did the local telecom industry become as competitive as suggested by its participants? Some fieldwork explanations describe the aggressive marketing of services as well as management culture, new networking technologies such as LAN as an alternative to ADSL in the 1990s, and the emergence of the Communications Regulatory Authority regulatory body, which all foster and help maintain a competitive market environment.

Telecom company employee Tomas described the telecom market's competition through the term "price wars." "Price wars" is an industry tactic that is used to attract more clients by offering them lower than usual market prices for a high-quality service.[165] "Price wars" were perceived as a big problem for Lithuania's telecom operators because they reduce potential telecom profit, as illustrated by Tomas:

> Oh, the biggest of Lithuania's Internet problems . . . We, Lithuanians, try to sell a service or any good thing in a simplest way: we do not want to earn from it, we, instead of providing something or explaining to a person what [they are] getting, very simply [we] look, 'Aha, the neighbor sells it for five 'litas' [Lithuania's currency prior to euro], well, I will sell for four.' . . . And this sometimes leads to despair and collapse of the markets, as it was in the time of GSM, which is not recovering even now, and until this day the GSM prices in Europe are cheapest here, and due to these price wars, concretely, Tele2 [mobile operator, a competitor] came and said, 'Everything will anyway be cheaper at ours.' . . . and thus it was practically the same with data transmission.[166]

Tomas links these price wars with the irrational competitive mentality of the telecom industry or even the people itself (as in "we, Lithuanians"), because it "leads to despair and collapse of the markets." Moreover, Tomas claimed that lying about the actual quality of the provided service also helps win the competitive fight. He stated:

> For example, I will tell you, I am selling 200 Mb for 10 euro, and TEO comes with, 'And I will sell you 300 for the same 10 [euro].' And we both do not risk anything, because, for example, if you are a normal customer, you have a normal device . . . we both know that even with the best intentions your computer will not physically process more than 50 Mb. I can offer you 1000, you will not eat that anyway. I risk nothing. This is a bluff, it is selling of, well, how to say, of glitter.[167]

165 Interview with Vytautas, 5 July 2017.

166 Interview with Tomas, 27 March 2017.

167 Interview with Tomas, 27 March 2017.

According to Tomas, either you exaggerate the quality of your service or you will ultimately lose the competitive fight.[168] While tactics such as price wars and bluffing, but also intense advertising campaigns, help telecom companies take over each other's clients, the whole industry loses profit due to the resulting lower service prices. Povilas from Telia Lietuva said that "If you want income, do nothing."[169] In fact, companies also conserve some of their product rhetoric for future use. Povilas argued that the industry trains consumers to limit their desires so that they can fulfill them later, and that furthermore they are "not-giving-as-much-as-they-could. They could open the taps—be it 1 GB or 2 GB essentially does not cost—but then you fully close future income and perspective of growth."[170]

Physical infrastructure also aids competition. This includes part of the physical communication channels known as "canalization," or the underground telecommunications channel system that is a legacy infrastructure in the current telecom industry, most of which belongs to Telia Lietuva. The Communications Regulatory Authority states that since network cable channels comprise a passive part of electronic communication infrastructure, and additionally due to Telia Lietuva's big influence in the wholesale fixed market, the company is required to provide other market players[171] access to their infrastructure.[172] Some telecom industry participants in the field complained that privatized Lietuvos Telekomas (now Telia Lietuva) at first used high wholesale service maintenance costs to obstruct access to their physical underground infrastructure to other service providers. According to Vytenis, a leader of one small wholesale Internet provider, "formally—they [competitors] could [rent], but practically—no."[173] Regardless of whether Telia Lietuva resisted renting their infrastructure to smaller Internet service providers and the breadth of the resistance to these practices, the point is that access to Telia Lietuva's physical network infrastructure was described by practitioners as yet another way to compete in the local telecom market.

Technologies were also argued as central for the emergence of Lithuania's competitive telecom industry. Linas, an expert from the Lithuanian Research and Education Network LITNET, stated that in the 1990s the Internet in Lithuania was accessible and used by limited groups of people such as academics, politicians, and government employees. He claimed that at first, the recently privatized Lietuvos Telekomas failed to fully monopolize the Internet service market because the low key emergence of LAN networks, developed against the backdrop of Lietuvos Telekomas DSL Internet service, fostered the development of alternative data transmission providers. Linas said that this led to the mushrooming of small data providers in Lithuania:

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168 Interview with Tomas, 27 March 2017.

169 Fieldwork report, Bareikytė, 14 February 2018.

170 Fieldwork report, Bareikytė, 14 February 2018.

171 I observed how the company carries out this obligation in the chapter "Wholesaling."

172 Lietuvos Respublikos ryšių reguliavimo tarnyba,*Įsakymas dėl elektroninių ryšių infrastruktūros įrengimo, Nr. 1V-978*; Lietuvos Respublikos ryšių reguliavimo tarnyba, *Dėl ūkio subjekto Teo Lt, Ab, Nr. 1V-629;* RRT, e-mail message to author, 11 April 2019.

173 Interview with Vytenis, 16 January 2017.

> Through this, such a nuance appeared, that in the apartments 'neighbor gangs' [*chebra*] started to set off, who, it means, purchases this one ADSL from Teo, shares the costs and lays fiber-optic [cable] in between. The copper is used as much as it carries between the computers, somewhere copper is overfilled, so they started laying [fiber-] optic. And in this way a few companies in Kaunas, such as Doketa, LTK, perhaps that same Init, started moving, other cable TV operators. In Vilnius, Skynetas moved in this way. And this thing started to develop, and suddenly from these homegrown ADSL users, who became small Internet service providers out of five, six, ten, twenty [users], who started to buy not ADSL anymore, but normal Internet connection from the same Telecom and simply to share it, and accumulate part of the *content* . . . this blossoming around plus [or] minus [the year] 2000 was very strong and had a very big influence on competition, competitive conditions, which, let's say, enabled ordinary resident to buy. . . . And from that time Lithuania is a country with one of the cheapest and best connectivity for its residents, because Teo only after some time woke up with its all mass and whole procedures, [and saw] that this segment is already almost bought out in the cities.[174]

Tadas, head of the Network Department at Telia Lietuva seemed to agree that there was indeed a time when Lietuvos Telekomas missed out on 1990s developing data transmission technologies. He stated that "Lietuvos Telekomas at that time, it, how to say, was not moving that rapidly—if [we] speak about the 1990s, 1995, 1997—which allowed other market players to take its place, how to say, to be sporty and become stronger in the market."[175]

Local small ISP providers and Internet access sharing between neighbors, mostly in cities, not only increased the usage of the early Internet, but also created a competitive base of Internet Service Providers that Lietuvos Telekomas had to compete with upon initiating its own Internet services.[176]

Most of the Lithuanian telecom market participants I encountered described the local telecom market as highly competitive, an adjective that described themselves as well as their working conditions, colleagues, and clients. Such a competitive imaginary resulted through common stories about specific tactics such as price wars, bluffing, and the implementation of and access to technological solutions, such as a communication channels and mushrooming LAN networks, which were intensively used to win over the customers. Correspondingly, this self-imaginary of a competitive Lithuanian telecom market can be interpreted not only as a representation of the actual character of the industry and relations between its participants. It can also be understood as a term that indirectly stresses various ways that post-Soviet Lithuania's telecom market used to catch up to, and finally became full-fledged members of, capitalist market economies, which require its members to maintain competition. It seems that in Lithuania's context, this self-description as competitive connotes not only an actual stressful and convoluted telecom industry environment, but also emphasizes how the

174 Interview with Linas, 17 March 2017.

175 Interview with Tadas, 13 March 2018.

176 Interview with Linas, 17 March 2017.

local telecom field finally withdrew from its post-Soviet space of state-led socialism and emerged as proper capitalists. This self-description relates to what author Petrică Mogoș describes as "utopian capitalism"—an imaginary that embraces its subjects and provides them with hope for a better future if they manage to compete within the context of capitalist market economies. He posits that

> Its subjects are guided by daily rituals and performances delineated by the reward and assurances of capital: look ahead, work hard and set money aside, your house with white picket fence awaits. The future—the apparently attainable future that came after the fall—becomes just another way of justifying this utopian capitalism and of giving purpose to a life tied to the grid. . . . The process of imagining, mediated by desire—just like the one experienced decades earlier—has become a practice of self-making and self-purposing, only that this time it's here to stay, as no alternative seems to emerge on the horizon.[177]

Why utopian capitalism? While the telecommunications sector has often been equated with intensive competition, but also with economic prosperity, and Lithuania's telecom industry's conditions of access and quality in a competitive market have progressed over the recent decade, the country has also suffered from massive emigration. Since 1990, the number of inhabitants sank by almost 24 percent; 75 percent of émigrés were 15 to 44 years old.[178] Thus the local telecommunications industry's geopolitical imaginaries of competitive, and thus successfully capitalist, represent only one geopolitical imaginary of the self.

3.2.2 Transforming

3.2.2.1 Past Transformation

Multiple telecom industry stakeholders contended that Lithuanian telecom market participants are not only capable of accepting the telecommunications industry's ubiquitous changes, but also manage to skillfully readjust themselves to new state of affairs due to their historical legacy of societal flexibility. Lithuania's turbulent post-socialist transformation has been shaped by a socioeconomic environment of opportunism and corruption coupled with one of Europe's highest poverty levels.[179] Telecom company employee Tomas contextualized the emergence of private telecommunication networks in the 1990s as a time of capital accumulation that was characterized by privatization and suspicious business practices.[180] In the 1990s, it was necessary to nurture one's capacity to adapt to economic, political, and cultural changes in order to survive. In successful cases one could even develop a business, for instance, by importing valuable technologies and selling them for outlandish prices:

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177 Mogoș, "Performing the West," p. 89.

178 "Migracija skaičiais." *Europos migracijos centras*, accessed 15 January 2020, https://123.emn.lt/.

179 Nacionalinis skurdo mažinimo organizacijų tinklas, *Skurdas ir socialinė atskirtis Lietuvoje, 2018* (Vilnius: Nacionalinis skurdo mažinimo organizacijų tinklas, 2018), p. 6, https://www.eapn.eu/wp-content/uploads/2018/10/EAPN-PW2018-Lithuania-LT-FINAL.pdf.

180 Interview with Tomas, 27 March 2017.

> There were the fiery 90s: there was both the capital accumulation, and . . . let's say, there wasn't even talk about the Internet in those days. Privatization took place. . . . A vision existed, that we will produce some, well, how to say, high technologies. But the very beginning was quite diverse. . . . Well, yes, in those times survival was important. There is no need to think that the first 200 clients, for example, would have enabled us to survive and develop further. . . . We have built local network in several companies, which was wonderful and strange in those times, and in general not heard of . . . This gave [us] some, well, how to say, basis, an experience, which had not existed. No academic institution taught that. . . . before the collapse of the Soviet Union, first personal computers were already arriving from the US. The differences in prices were so [high] that those, who had relatives, having brought the personal computer—I don't know if it is crucial to say that . . . from the profit, a little masonry house in Garliava could [be built].[181]

The capacity to adapt under difficult circumstances of transformation in the 1990s was not only described in the field as a new post-Soviet societal skill, but rather one that was already practiced during the Soviet Union. Professor Gediminas told me about do-it-yourself practices of technology development and hacking as widely spread methods of accessing information. Gediminas claims that one of the reasons he was accepted into the Institute of Automation and Telemechanics in Moscow was his do-it-yourself skills, which were widely spread as a practice among Soviet youth. These young people often hacked radio signals to listen to western radio stations or unfiltered the Soviet-made noise that aimed to disturb access to such foreign radio stations, such as the American Voice. He stated:

> What problems were there during those times? They did not allow us to listen to Western music. Then it was needed to build such receivers and antennas, which could receive [foreign stations]. For example, I had made such antennas, which could receive all the German stations, because they were closer. Exceptionally good was the station close to Luxembourg, which provided the most modern music. . . . So here I read antenna-theory and made such a receiver, so that Luxembourg was playing at my place as well.[182]

Gediminas claims that in those days, radio receivers were necessary to perform male identity and were thus mainstream. He remembered that "in those times, a lad, who couldn't make a radio receiver—make [it], not buy—was not considered to be a lad, thus, I made it."[183] Lukas, another crucial actor in developing telecommunications networks in the Soviet Union as well as post-socialist Lithuania's first Internet networks, used to personally fly to Leningrad (now Saint Petersburg) to handpick micro-schemes for his projects, because of the lack of resources and their distribution in the Soviet Union.[184] Such and similar memories hint to the idea that creative tinkering was not only a result of exceptional, harsh transformation conditions, but also was part of the Soviet male

181 Interview with Tomas, 27 March 2017.

182 Interview with Gediminas, 14 March 2017.

183 Interview with Gediminas, 14 March 2017.

184 Interview with Lukas, 9 February 2018.

gender experience. Vakaris, a Telia Lietuva employee, contended that "in Lithuania it is a matter of honor to make things by oneself—people arrange their technology by themselves, wire the cables, place their satellites on the roofs, share the Internet."[185]

Telia Lietuva employee Kristijonas contended that the capacity to not only endure, but also to adapt to ongoing socioeconomic changes in Lithuania, raised the societally accepted standard of flexibility. He stated that "Lithuania underwent hard times, people needed to adapt a lot, and now they expect others to be flexible too."[186] In this self-imaginary, those who were flexible could adapt and thus survived and flourished in the context of Soviet and post-Soviet transformation.

3.2.2.2 Ongoing Transformation

Key stakeholders described their industry as also currently transforming. In 2017, 75 percent of Lithuanian households had Internet access.[187] Lithuania's Internet in 2020 was of exceptional quality and its public Wi-Fi was one of the fastest in the world.[188] Thus, key stakeholders argued that the telecom industry has been constantly transforming (in the Soviet, early post-socialist and current times): undergoing structural and technological changes, which demand employee flexibility, namely the capacity to endure and adapt to changes and keep the industry evolving.

I was told that one such example of current market transformation is the ongoing telecom market structural change. According to Andrius, a leading manager at Telia Lietuva:

> The telecom industry of the operators is not growing. In my view, it is even falling. . . . Actors are consolidating, the smaller are being bought by the bigger ones, and this tendency goes on for a few years, but this fall is more related to, let's say, when fragmenting into services [for instance] voice telephony, as an industry which was very powerful, has certainly fallen. The Internet industry, it is growing.[189]

Due to the fact that new investments must be constantly made in order to remain competitive, some operators either go bankrupt, sell out, or consolidate.[190] Vytenis, the leading manager at a smaller telecom operator, was of a similar opinion. He stated that it was just a matter of time before small telecom companies like the one in which he worked would go bankrupt or be bought by stronger ones:

> it is only a question of time, in that sense. The only nuance is that, on which side of barricades will you find yourself, you know. If you are, will be working for profit and you will have your own users, then you will be bought. If others see that you are

185 Fieldwork report, Bareikytė, 26 June 2017.

186 Fieldwork report, Bareikytė, 23 June 2017.

187 "Lietuva pagal interneto naudojimą namų ūkiuose vis dar atsilieka nuo ES vidurkio," *Informacinės visuomenės plėtros komitetas*.

188 Helen, "Top 10 Countries with the Fastest Public WiFi," *RottenWifi*, published 13 March 2020, accessed 10 April 2020, http://blog.rottenwifi.com/top-20-countries-fastest-public-wifi-2016-infographic/.

189 Interview with Andrius, 2 February 2018.

190 Interview with Andrius, 2 February 2018.

> profitable, but losing your users and they can take over those users from you, then they will and it is only a question of time. . . . Some networks [service providers] are working on almost a principle of enthusiasm . . .[191]

Tadas, a long-term Telia Lietuva industry employee, similarly shared that one of the biggest challenges in his work is the constant transformation of the telecom market. He compared the telecom business to a constantly moving escalator in which successful companies have to run to move forward. He posited "the example of an escalator: if you stand, you are going down. If you are climbing up, you remain at your place. If you are running, then you are somewhat going ahead. In *telco* you have to run . . . I think it is a given."[192] At the same time, Tadas claimed that current changes in the telecom market have intensified due to the need for, among other factors, more efficiency in times of mobile Internet, because this also conveys the decline of certain aspects of the telecom industry, especially fixed telephone service:

> The problem is that *telco* has always lived very well, and with the emergence of mobile data and all the other things, their good life is declining. Declining all the time. . . . I think that the *telco* domain, which was developing for the last 20 years, so to say, its development will slow down in the future.[193]

The decline of fixed telephone service profit is not only a problem in Lithuania's telecommunications industry. The 2019 European Telecommunications Network Associations report found that revenue in Western Europe's telecom industry has been falling due to a decline in purchased voice services, while in Eastern and Central Europe its growth is maintained by mobile data and fixed broadband services.[194] While the telecom market has been described as undergoing constant changes through both structural and technological changes, such as consolidation and the decline of fixed telephone usage due to the spread of mobile Internet, the question of where this transformation will lead is still open. Vakaris, a Telia Lietuva industry practitioner, contended that user boredom could eventually become a problem in the future telecom industry. The new industry's product "IPTV[195] offers a new type of content with feedback, but it is almost boring already".[196] While the transforming telecom industry attempts to attract more clients with new technologies, it also needs to always find and offer new services in order to grow.

These stories about the current local telecom industry's transformation were told in the midst of utterances about flexibility—i.e., worker capacity to adapt to ongoing labor market and work organization changes—and reminded me that the capacity to adapt is not only a Soviet or an early post-Soviet phenomenon. It also fits within the context

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191 Interview with Vytenis, 21 March 2017.

192 Interview with Tadas, 13 March 2018.

193 Interview with Tadas, 13 March 2018.

194 Analysis Mason, *The State of Digital Communications 2019* (European Telecommunications Network Operators' Association: 2019), p. 30, https://etno.eu/datas/publications/annual-reports/ETNO%20Annual%20Economic%20Report%202019%20final%20web.pdf.

195 IPTV – television over Internet Protocol networks.

196 Fieldwork report, Bareikytė, 26 June 2017.

of a new kind of imaginary produced within capitalist economies described as "post-Fordist," "creative," and "immaterial," which combines intellectual, communicative, and relation-fostering skills in producing new ideas and services and generally hopes for ongoing creative flexibility to increase production.[197]

Telecom market practitioners stressed the need to creatively adapt to ongoing industry changes in their everyday labor practices. Accordingly, current telecom market participants emphasized the importance of flexibility and malleable work organization. One example of this flexibility is the outsourcing of physical network constructors (i.e., workers from outsourced companies, who dig the earth and lay cables). I participated in Telia Lietuva meetings in which outsourced physical network builders and telecom company managers gathered to discuss their common telecom network development projects and was told that the process of building physical networks requires all stakeholders to be prepared to adapt to ongoing changes due to the unforeseen actions of various involved stakeholders, such as building constructors or clients. Additionally, telecom workers who are responsible for user connectivity shared that it is very difficult to plan their weekly work schedules due to unforeseeable causes of broken network connections that need to be repaired, different architectural arrangements in user residences that enable or hinder cable repairs, and even different client personalities that make the possibility to plan and control daily tasks difficult. The industry stakeholders not only underlined the pragmatic need to adapt to everyday challenges in order to keep clients, but also a particular expectation of flexible learning. Experienced industry worker Aurelijus is a case in point. He argued that workers' flexibility crucially comprises openness, the ability to acknowledge one's faults, the desire to search for solutions and the ability to learn. Aurelijus emphasized the importance of developing a mentality that aims to evolve and change:

> to not close oneself in thinking that it is possible to work only in one way, as if there is no other way. Constantly search for something. . . . what does it mean, 'I cannot do it'? But some [companies] . . . expand, other companies are built . . . Why can't we do that? It means, I do something not so well. What do I need? Competence—I have. Let's search for solutions, what can we do, how can we do it. We have to find. . . . Knowledge can be gained. As I said, I did not know what this data center was, from where to start, what can it be eaten with. In the beginning it looked scary: new people, new workers, quite a new team brought together from other departments. . . . And we did [it].[198]

This flexible mentality was not only described as desired, but also as practiced by telecom operators in their daily labor practices through dynamic and adaptive work organizational practices. Matas from Telia Lietuva's Technology Department described how their access to co-workers is optimized through multiple technologies in order to reach them in real time and carry out everyday work problems:

197 Maurizio Lazzarato, "Immaterial Labour."

198 Interview with Aurelijus, 7 March 2018.

> organization does everything to suck from us the last drop of energy [laughs]. In that sense, well, Microsoft products, the business of Skype, Outlook—everything is integrated, you always see people's *presence*. In that sense, you pick up the telephone to call, then you see if he is in a meeting, if he is *busy*, i.e., does a job he planned, if he is *available*, in that sense, he is in that moment at his work place. . . . [it] helps, but sometimes it . . . well, in reality it increases efficiency. But also . . . if something malfunctions a little bit, then the brain does not do the planning anymore . . . But planning your own and others' time, it helps very much. It is not common in general in the organization to conduct, well, some *blitz* meetings out of nothing, you know. Although sometimes, well, what concerns purely telephone conversations . . . new generation in general likes for everything [to use] emails, messages, but in most cases, it is not as effective and plus it sometimes forms not a really good culture: 'I wrote and that's it, my responsibility with this, you know, ended.' So most of the time, anyway, if you seek an end result . . . you pick up the phone, find out to the end. Plus, technologies allow you to do that sufficiently effectively. That person says, that something else is needed, so you in one click throw this person already in a conference call, if you need, throw another one. Herewith that *presence* is also visible. Can you disturb that person? No, you cannot. And thus you solve it.[199]

Matas's example illustrates how software and equipment solutions are used to optimize the company's internal communication and help organize daily labor practices. The imaginary of the enduring, flexible employee and company are maintained through stories how telecom industry workers adapt to a dynamic work environment. Flexibility in Matas, Pijus, and Aurelijus's examples is narrated as the capacity to constantly adapt to a quickly changing labor environment and needy clients, and was thus characterized among telecom industry workers as an unavoidable daily reality.

At the end of my participatory observation at Telia Lietuva's Technology Department, I learned that this department was going to be dissolved. This obviously brought into question the meticulous schemes that I had previously prepared with the help of employees and which outlined the general structure, responsibilities, and communication patterns in the Technology-related departments. Instead of perceiving the defeat of my goal to capture the complexity of company's structure in writing, I attempted to also adapt to these changes. As my internship mentor told me, "Tasks [at the company] are organized; without organization everything would collapse."[200] Yet notwithstanding those labor practices that keep the company in shape, this self-imaginary of both employees and myself in the field as constantly transforming and flexible prevailed. After the dissolution of the department, employee Matas was not surprised and contended that it is common for management standards at the company to change "twice a year".[201] Nerijus from B2B also contented that that telecom industry finds itself "in constant transformation,"[202] which he clarified through examples of the decreasing

199 Interview with Matas, 22 February 2018.

200 Fieldwork report, Miglė Bareikytė, 18 February 2018.

201 Interview with Matas, 12 March 2018; Interview with Matas, 22 February 2018.

202 Fieldwork report, Bareikytė, 14 February 2018.

number of workers, mechanization of labor processes, and the constant renewal of technologies, all of which are necessary for the survival of the telecom company.

This imaginary of a constantly transforming telecom industry, which consists of changes, requires employee flexibility and the capacity to adapt, also touches upon the limits of this transformation; the telecom market's continuous transformation in developing new network solutions seems to have possibly encountered a dead end. A new, interesting service is needed, but its actuality is still vague. Consequently, Telia Lietuva, the main telecom operator in Lithuania, describes itself as a "new generation telco"—a company that searches for new directions in the telecom business. If old telecom companies gained much of their revenue from fixed telephone services and, later, from broadband data transmission services, the future for this industry might also mean developing more value-added services.[203] Andrius, a Telia Lietuva employee, stated that a new generation telco can have multiple meanings:

> There are as many people as descriptions. We sometimes have internal discussions: 'Ok, what does *new generation telco* mean?' Because this concept came from our group—*new generation telco*—it is a term which means that we are transforming into something new. Now, what this new is, could be understood in a variety of ways. For some, it is a next technology, technological leap, i.e., an investment into something, which will foster better quality of services. . . . For some, it is an offer of new services. . . . I.e., the passage to other industries, integration of things, which were not integrated earlier.[204]

Multiple fieldwork stakeholders painted a self-imaginary of a constantly transforming local telecom industry that not only adapts but also attempts to thrive under current conditions of the ongoing market request for creative flexibility, not least due to its ongoing transformation and Soviet and early post-socialist legacies that trained people to adapt to difficult circumstances. This imaginary is geopolitical because it illustrates how the local telecom industry perceives itself as intensively needing to quickly change and adapt to new socio-political environments that it depends upon (Soviet socialism and the capacity to adapt under controlled conditions with DIY-tinkering as well as the fast shift to post-socialist capitalism with its concurrent demands for flexibility, technological and organizational changes, and demand for growth). As philosopher Miroslav Petříček writes, "'Transformation' has the character of a verb. Just like 'imagination', for example. Its product is change, not the state of things, for transformation signifies alteration."[205] The imaginary of a changing, transforming, flexible telecom industry is therefore twofold. It not only celebrates the local industry's capacity to adapt to the new conditions of, and endure, post-socialist capitalism, but it also stresses change as ongoing and imposed on local telecom industry through market requirements of new

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203 "The Future of Telecom Operators in Europe," *Kearney*, accessed 12 August 2019, https://www.kearney.com/communications-media-technology/article?/a/the-future-of-telecom-operators-in-europe

204 Interview with Andrius, 2 February 2018.

205 Miroslav Petříček, "Transformation," *Atlas of Transformation*, 2011, accessed 27 February 2019, http://monumenttotransformation.org/atlas-of-transformation/html/t/transformation/transformation-miroslav-petricek.html

services and the constant modernization of equipment without a possibility to slow down.

3.2.3 Lagging

3.2.3.1 Lagging Market, Small Country

The last prevalent geopolitical imaginary regarding the self-perception of telecom industry stakeholders concerned the issue of lagging behind. In the context of Eastern Europe, the term "lag" was used by the World Bank to describe Eastern and Southern European regions. According to World Bank, the latter were designated "low-growth" and the former were named "lagging regions" and characterized by inequalities of wealth, opportunity, and productivity, that can also be interpreted as failing to keep up with the progress of others. In the field I also encountered a local telecom stakeholder self-imaginary as lagging behind the others in terms of size and innovation legacies.

Lithuania's territory comprise 65286 square kilometers and in 2015 was inhabited by 2.9 million people. Lithuania is not the biggest European Union country, but also not the smallest; smaller territories include Belgium, Cyprus, Denmark, Estonia, Latvia, Luxembourg, Malta, the Netherlands, Slovakia, and Slovenia, while six countries in the EU have less inhabitants than Lithuania.[206] Notwithstanding these statistics, a prevalent self-perception as lacking in size and, thus, agency appeared as another geopolitical imaginary directed to the incapacities of the self. This imaginary of lacking in size was rooted in ideas of Lithuania's telecom industry as too small and globally insignificant to dictate global conditions, which ultimately left it to observe history from the sidelines. As literary critic Violeta Kelertas claims in her book *Baltic Postcolonialism*, before 1991, the US delayed Lithuania's recognition and some politicians presented it as a country that was too small to exist as an independent state.[207] Similarly, many field participants in both private and governmental sectors expressed the imaginary of the Lithuanian telecom industry as lacking in size, agency, and thus related international influence.

Lithuania's small size was used as an argument for one of the crucial events in the telecommunications development in Lithuania, the privatization of main telecom operator Lietuvos Telekomas in 1998 to TeliaSonera. For example, Donata, an industry expert with experience in both academic and private telecom sectors, claimed that Lithuania is too small to autonomously develop its infrastructure. She stated:

> I doubt it, we are a little bit too small, it is the same as with banks. All say, 'Maybe it would have been good, that it would have been Lithuanian banks here, and now all are Scandinavian or so.' But [we] have to put up with it, we are in the European Union and I don't think there really were those alternatives.[208]

At Telia Lietuva's department responsible for infrastructure building, I learned about the practice of outsourcing that is used to temporarily employ physical telecom in-

206 "The European Union and Countries in the EU," *Schengenvisainfo.com*, updated 24 November 2020, accessed 21 January 2021, https://www.schengenvisainfo.com/eu-countries/.

207 Violeta Kelertas, *Baltic Postcolonialism* (Amsterdam: Brill | Rodopi, 2006), p. 2.

208 Interview with Donata, 27 March 2018.

frastructure constructors. Some of the contractors build telecommunications network infrastructure not only for telecom companies in Lithuania, but also abroad, such as in Sweden, Germany, and Norway. Industry employees told me that companies from other European countries would not come to Lithuania to build their networks due to the country's small market size and low paying power.[209] Similarly, at Telia Lietuva I was told that Lithuania and its telecom industry consist of a small market with an unsubstantial global contribution because development trends in the global market are dictated by big players and the TIER 1 level of telecom operators,[210] which have access to the entire Internet network.[211] Also, Telia Lietuva employee Andrius stated that in discussions in which over-the-top (OTT) service providers and telecom operators argue about telecommunications infrastructure usage, Lithuania's telecom operators have no direct influence:

> Telia Lietuva . . . when they are developing their Internet networks, they are not in any way influencing Google, Amazon, YouTube. That is why there are no discussions. We can only understand that it is happening and search for our own particular solutions on how to do it here. But what it means for Lithuania is that it fostered investments, and our company every year is investing many millions into the networks for the users to receive quality service.[212]

Through these illustrative examples, Lithuania's telecom market emerged as lacking agency, influence, and relevance in the global market due to its size. Several industry stakeholders contended that the local telecom industry provides little global contribution and is dependent on decisions made by big players, such as OTT companies and equipment producers. Lithuania's telecom market observes but cannot set trends, because it is too small. Such views that small countries with small markets have little agency in shaping global media economies are widespread. Even in the introduction

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209 Fieldwork report, Bareikytė, 19 June 2017.

210 According to Andrius from Telia Lietuva, "Of course, the dream of an operator is to create a Facebook, offer something similar to Youtube, but . . . sorry, but operators will not make it so easy, because for it perhaps other competences are needed" (Interview with Andrius, 2 February 2018). Data transmission technologies are usually grouped according to the carriers—material communication lines. In order to transmit the data, there has to be a sender, receiver, and data carrier. The traditional function of an operator is to carry information and mediate between the source and user: his function is that of the tube. So-called OTT (over-the-top) content and application providers, such as Facebook, Google, Amazon, etc., save user's data, but they are usually not building their own data transmission infrastructure and use that of the operator's. This situation raises conflicts between the OTTs and the operators because the OTT companies do not share the profits despite using data transmission channels. On the other hand, currently the operators—and there are many different strategies—search additional income due to changes in market profit structure (the rise of the Internet and TV, the fall of the fixed telephone), and are also trying to offer OTT services and save data, which earlier was not the case. Since the competition in Lithuania is described as high, operators need to continuously invest to sustain high quality and speedy network connections. In the fight between the OTT and operators, according to Andrius, OTT will always win, because the consumer will support the OTT (Interview with Andrius, 2 February 2018).

211 Fieldwork report, Bareikytė, 23 June 2017.

212 Interview with Andrius, 2 February 2018.

to the stimulating *The Political Economy of Media*, media scholar Dwayne Winseck contends that in researching global media economies, it is sensible to focus on the top ten media and Internet companies in terms of their capitalization and revenue, most of which come from the US.[213] While such a perspective is reasonable, it also implicitly creates conditions in which small markets and countries are not given attention in global scholarly debates on media technology development.

The self-imaginary of the local Lithuanian telecom industry as lagging is based on a general feeling of historically unavoidable lack of size and global contribution, which was only occasionally countered with arguments such as the proposition that even small countries and markets can claim global contribution by providing, for instance, transit roles for data transmission. For example, notwithstanding the claims of Lithuania's unsubstantial global telecom industry contribution, some acknowledged local agency in maintaining global telecom networks. Telia Lietuva employee Lina claimed that Lithuania's telecom industry plays an important role as a site of transit. She stated that "we are that transit between Europe and Scandinavia, everything happens through us. We are in fact very important and our role, what concerns the Internet, is very, very important. For Lithuania itself and for our neighbors, and in general Europe."[214] On a similar note regarding Lithuania's telecom market contributions, in 2019 Lithuanian President Gitanas Nausėda expressed pride in the fivefold increase of the number of fin-tech start-ups over the past five years.[215] The Invest in Lithuania governmental organization reported that over 200 fin-tech companies and thousands of highly motivated IT specialists worked in Lithuania.[216] Technology journalist Andrii Degeler noted Baltic countries' leadership in technology development in the Soviet Union and post-Soviet independence as well:

> The three countries still have a powerful presence within the avant-garde of the post-Soviet republics in terms of technology entrepreneurship and government support of innovation. Estonia, for example, is well known as the country where Skype was born, as well as its e-Residency program. Another Baltic state, Lithuania, has recently approved an official startup visa program, which will allow founders from outside the EU to easily open business in the country.[217]

Despite these representative claims, Degeler quotes several Lithuania's start-up scene actors, who argue that while start up scene in the country is developing, emigration of

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213 Dwayne Winseck, "Introductory Essay: The Political Economies of Media and the Transformation of the Global Media Industries," in *The Political Economies of Media: The Transformation of the Global Media Industries*, Dwayne Winseck and Dal Yong Jin, eds. (London: Bloomsbury Publishing, 2011), p. 6.

214 Interview with Lina, 12 March 2018.

215 "The President Opened the Financial Technologies Conference," *President of the Republic of Lithuania*, updated 27 November 2019, accessed 13 January 2020, https://www.lrp.lt/en/media-center/news/the-president-opened-the-financial-technologies-conference/33478.

216 "Lithuania's Fintech Sector at a Glance," *InvestLithuania*, accessed 15 March 2020, https://investlithuania.com/fintech-report-2019/.

217 Andrii Degeler, "Lithuania: Up-and-Coming Startup Ecosystem with Talent and Ideas," *Thenextweb.com*, published 28 November 2016, accessed 15 January 2019, https://thenextweb.com/news/lithuania-up-and-coming-startup-ecosystem-with-talent-and-ideas.

talents and the lack of an existing financial support environment for entrepreneurial experiments is still a problem in Lithuania.[218]

When I discussed Lithuania's telecom market with Aloyzas, one of the former Ministers from the now-dissolved Ministry for Networks and Informatics, he contradicted the positive official governmental position that promotes a vibrant and innovative Lithuanian telecom and IT sector. Aloyzas, akin to the imaginary of Lithuania as small and non-influential in the aforementioned examples, specified why Lithuania is lagging through highly self-critical examples. I chose to further the self-imaginary of Lithuania as lagging through Aloyzas's statements because they disclose an inherent contradiction that I often encountered in the field: the need for dignity alongside ubiquitous self-criticism.

In the context of a discussion regarding Lithuania's telecom market, Aloyzas argued that Lithuania lacks innovative developments in the realm of technology not only due to its size, but also because it allegedly has no legacy to innovate and its inhabitants lack applicable skills. According to Aloyzas, Lithuanians have long idealized themselves for being intelligent despite lacking practical skills:

> Therefore, all the time we have been claiming two major things: that Lithuania is a transit country in a very comfortable geographical location, connections [between] East [and] West; second thing, we have so many educated people that we are capable of doing anything in any way. Well, good. It appeared, that we indeed have educated people—that was in order, all good. Not as many, as we here thought we have. Second thing, it appeared, that [they are] educated not quite rightly. That 'he [reads] many books,' means nothing. Well, [he reads] all those books, so what? He does not know how to work.[219]

Although physical telecom infrastructure has been successfully developed in Lithuania, he argued that the country is too small and financially weak to develop innovative technology. Aloyzas stated, "This is a prerogative of big states. Even today in the electronics industry in some areas, for instance, *some* England and France, cooperate and build one common factory, because it is too expensive and irrational to do it alone. Thus, there is no need to talk about Lithuania."[220] Aloyzas related Lithuania's size—its smallness—to the country's inability to self-develop big high-tech projects. He expressed the idea that technologies belong to the "chosen ones."[221] While Lithuania was a leader in the Soviet Union and later became one of the global leaders in physical telecommunications infrastructure, substantial innovations could not be developed here due to country's small size and lack of funds:

> We developed infrastructure, this is a different thing. And while using that infrastructure, for example, we can produce software products . . . we have those possibilities and we can do that on the contemporary level and nothing in this situation, nothing

218 Degeler, "Lithuania: Up-and-Coming Startup Ecosystem with Talent and Ideas."

219 Interview with Aloyzas, 9 November 2017.

220 Interview with Aloyzas, 9 November 2017.

221 Interview with Aloyzas, 9 November 2017.

> will be worse than in any other state. But then again, these are one-timers, which really find niches there . . . but wanting [to change] something in the global production, well . . . There is Apple, there is, for instance, Motorola . . . or something else, which produces and wants to join this on that level, well, how? How? How can you make something [substantial], if, let's say, a factory of micro-schemes, microprocessors, its installation, its cleanliness, there might be one speck of dust in a cubic meter, it costs a billion. What is Lithuania's budget? So what are we talking about.[222]

Aloyzas also reasoned that not only a country's size, but also its respective absence of innovation culture causes its lack of future innovations:

> Such are the perspectives, that Africa lives by growing bananas. But here is and cannot be any big perspectives. . . . Simple example, you take out of your pocket a Swiss knife, which are common in the world. Because a conversation has started, that Switzerland is such a small country . . . why can't we [do] similarly? . . . To get into that market in this way today, these [Swiss have] centuries of traditions, and where are those centuries of traditions here? What, right, we can [make] cheese? We can, right. It is good, no doubt. What else [is] Lithuanian? We did not do anything like this a hundred years ago . . . there was that Soviet Union, we produced [parts] for all those antique tractors in the Soviet Union, you understand, there was such specialization. Fuel pumps were produced in Lithuania, wheels—somewhere else . . . As soon as the Soviet Union discontinued producing those tractors . . . well, so where should we put them? In a scrap-iron pile, and they are not needed anymore. And there are many such things.[223]

Aloyzas argued that Lithuania is a small country that lacks the legacy to innovate. He reasoned that Lithuania's dim future regarding technology development was due to its past participation in an unprogressive "antique tractor producing" Soviet Union economy based on territorial division of labor and lack of funds. Despite this, in contrast to his own statements of lagging behind, Aloyzas also contended that Lithuania's telecommunications infrastructure has been always successfully developed, both in current and Soviet times. In other words, Aloyzas's stories are prime examples of a contradictory description of Lithuania's technology development: small, poor, lacking a legacy of innovation, yet capable of developing the telecom industry both in the Soviet Union and in the post-Soviet realm. Experienced politician and telecom industry practitioner Aloyzas's paradoxical perspective reminded me of philosopher Boris Groys's argument regarding the everyday societal practice of dialectical materialism in the Soviet Union, where internal contradictions and paradoxes were not only theorized, but also practiced as apparent contradictions in daily life.[224] This contradictory perspective of success and lack combined with a country's small size and absence of a legacy of innovation (condescendingly expressed through the racist comparison of "Africa lives by growing bananas") sits alongside local agency to operate under difficult conditions, develop robust

222 Interview with Aloyzas, 9 November 2017.

223 Interview with Aloyzas, 9 November 2017.

224 Boris Groys, *The Communist Postscript* (New York: Verso Books, 2009), p. 35.

telecommunications infrastructure, and—as argued by some—provide an important transit service to transmit the data.

In summation, several fieldwork participants narrated a geopolitical imaginary of Lithuania—as both a country and a market—as lagging and furthermore failing to keep up with and lead telecommunications development due to its size and lack of legacy and skills regarding innovation; thus Lithuania's telecom industry was narrated as lacking the agency to influence and impact global telecommunications industry developments that was guided by large equipment producers and big ICT companies. Despite these positions, the geopolitical imaginary of lagging is contradictory. It is based on stories from the field that present Lithuania as irrelevant both as a country and a market due to its unavoidable lack in territorial size and innovation-debilitating historical legacies. It simultaneously argues that Lithuania also has a highly developed telecommunications infrastructure, a skilled IT sector, and plays an important role in geographic transit. Thus, the geopolitical self-imaginary as lagging is based on a contradiction between intense self-criticism and the quest for dignity.

3.3 The Cooperating Telecommunications Industry

> How we buy gas from Kazakhstan . . . information also walks very similarly. . . . we need a gas flow from Kazakhstan. For example, we buy 10 billion cubes, but we agree . . . that the Russian infrastructure, roughly speaking, will be used, the one which comes to us. . . . So do not imagine, that somehow they are marked with flags: 'The first billion is Lithuania's, the last remains,' no. No, they give that 10 billion to the Russian gas network, and we take 10 billion from the Russians. Because the gas is the same.
> *Interview with Tomas, 27 March 2017*

"The Cooperating Telecommunications Industry" comprises a part of everyday telecom geopolitical imaginaries that I call transnational, because they refuse to divide the telecom industry into local and foreign sections and instead describe globally located industry stakeholders as constantly interacting entities that exchange ideas and equipment.

Before delving into this topic, I would like to reflect on my own experiences in the field. Many people from the industry explored its complexities with me because I wanted to learn from them and use their knowledge in my research. I do not idealize the people that I met, because most of them knew that I wanted to speak about their industry in order to gain research-relevant information and that furthermore I would benefit from stories told from their perspectives. Notwithstanding such utilitarian framing, most of my direct, field-based experiences with telecom industry practitioners contrasted the aforementioned hierarchical binary of geopolitical imaginaries

described as "the Self" and "the Others." At times, I remember silently comparing my own academic work environment with that of private telecom companies. I wondered if it could really be true that precarious academic conditions foster development of a less cooperative subjectivity than a stable office job in a corporate, private, profit-oriented telecom sector. Simultaneously, my fieldwork also revealed deeply engrained and prevailing self-criticisms in the industry that are not visible in the self-conscious official rhetoric of technological innovation and development. In their self-descriptions as competitive and lagging alongside "Others" as powerful, modernizing, and patronizing—by developing binary imaginaries of themselves and Others—various field participants illustrated how openly they judge themselves and others as well as the often self-depreciating nature of these judgments. Despite this, in the field where cables are laid, in apartments where the equipment is installed, in offices where production is managed, and even online, via e-mail, most of the field participants answered my never-ending questions and encouraged my research. During those moments, it seemed that binary everyday geopolitics of "us versus them" dissolved in actually visible acts of cooperation. When I linger on this information, it seems only obvious that telecom industry participants are used to cooperating. Equipment used for globally accessible services such as the Internet, the telephone, or the earlier telegraph, had and has to be interconnected; these interconnections must be standardized and maintained in order to carry international data transmission signals. As mentioned in the introductory quote in which an industry expert compares information to gas that flows from one place to another through international physical infrastructure networks, cooperation between international telecom industry stakeholders was also often described as a practical and international daily necessity.

As early as the nineteenth century, the German Siemens Halske company built an electrical telegraph line between St. Petersburg and Warsaw that went through current Lithuanian territory, which at that time was part of the Russian Empire. Later, Siemens also actively supplied equipment to independent inter-war Lithuania's (1918–1940) factories, cinemas, and other institutions. The *Universal Lithuanian Encyclopedia* states that after the Soviet and subsequent Nazi German occupations, Siemens finished its activity in Lithuania in 1941, which it only renewed in 1995.[225] Despite this gap, there are many examples of the Soviet Union's continued cooperation with private telecom companies based in capitalist countries. For example, in 1926 the Soviet Union signed a technical assistance contract for automatic telephony with the Swedish company Ericsson. Historians Kristin Roth-Ey and Larissa Zakharova state that the Soviet Union later questioned this decision and ultimately switched to an automatic, step-by-step Siemens telephone system.[226] Similarly, historians Thomas Haigh and Petri Paju's research about the history of IBM illustrates how IBM maintained its presence in Hungary even after the

225 Mokslo ir enciklopedijų leidybos centras, "Siemens Ag," in *Visuotinė lietuvių enciklopedija*, https://www.vle.lt/Straipsnis/Siemens-AG-86173.

226 Kristin Roth-Ey and Larissa Zakharova, "Communications and Media in the USSR and Eastern Europe," *Cahiers du monde russe. Russie-Empire russe-Union soviétique et États indépendants* 56, no. 2–3 (2015), pp. 273–89, https://journals.openedition.org/monderusse/8182#tocto1n1.

country's pro-Soviet turn and the emergence of the Iron Curtain.[227] Sociologist of technology Eglė Rindzevičiūtė's book *The Power of Systems* explores the International Institute of Applied Systems Analysis in Austria, which during the Cold War served as an international collaborative scientific think tank established by the US and Soviet governments.[228] Additionally, during my own fieldwork, cybernetician Gediminas told me that while studying in Moscow he met renowned scientists Norbert Wiener and Claude Shannon at Moscow University, where they gave lectures and participated in conferences.[229] Gediminas stated that Soviet and American academic cooperation continued because cooperation had been always important for scientists, but one should not forget the essential role of intelligence.[230] Politician and academic Aloyzas also exemplified the Soviet Union's internal, inter-republic collaboration through a condescending description of Central Asian Soviet republics. He stated that Lithuania was one of the leading Republics in the Soviet Union because of its telecommunications development and also due to Lithuania's good relationships with the right people in the Soviet Union.[231] He additionally asserted that Lithuanians were trusted with the testing of new telecommunication technologies due to their work quality. Aloyzas posited that "they knew that Lithuanians, if they take the job, they will do it. If they [Soviet Union's government] brought it to somewhere in Central Asia, there [people in Central Asia] would drink it away and break it, and here the job was done—thus, [they] trusted [us]."[232] These signs of telecom market cooperation through business consolidation are also present in today's post-socialist Lithuanian telecommunications market. In 2017, the largest telecom operator, Telia Lietuva, merged with Omnitel, one of the largest telecom providers. This is not unique, but rather fits within a broader trend of the reported consolidation of the European telecommunications industry.[233] Thus, international capitalist, communist, and post-socialist capitalist cooperation has always been part of the global telecom sector.

In contemporary Lithuania, the Communications Regulatory Authority (CRA), a regulatory organ that coordinates national telecommunications network development and international compatibility, secures a seamless flow of information through international workshops and conferences. In these meetings, network regulatory organizations from the European Union as well as representatives from other countries beyond the borders of EU, such as Belarus, Russia, Ukraine, and Georgia, discuss future telecom developments that require neighborly cooperation. Rimas, an employee from CRA, told me that coordination between different nation states in the EU and beyond for radio frequency range allocation is a case in point:

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227 Petri Paju and Thomas Haigh, "IBM Rebuilds Europe: The Curious Case of the Transnational Typewriter," *Enterprise & Society* 17, no. 2 (2016), pp. 265–300.

228 Eglė Rindzevičiūtė, *The Power of Systems* (Ithaca, NY: Cornell University Press, 2016).

229 Interview with Gediminas, 14 March 2017.

230 Interview with Gediminas, 14 March 2017.

231 Interview with Aloyzas, 7 November 2017.

232 Interview with Aloyzas, 7 November 2017.

233 Živilė Barkauskaitė and Rūta Slušnytė, "Europos telekomunikacijų bendrovės toliau konsoliduojasi," *Verslo Žinios*, updated 16 March 2014, accessed 12 February 2019, https://www.vz.lt/archive/article/2014/3/16/europos-telekomunikaciju-bendroves-toliau-konsoliduojasi.

> [You] drive to Latvia, drive for ten kilometers and you can still talk, it means, in Lithuanian tariffs. It means, the signal passes through. Well, a signal does not recognize borders. . . . it is such an important and difficult job to coordinate station parameters with our neighbors. It happens, coordination takes places, let's say both with Latvians and Belarusians. Also, we have a border with the Polish, and we have a border with the Russians in Kaliningrad Oblast. They have their own systems, thus if we—we would say, Lithuania, Latvia, Estonia—we all are members of one, now the European Union . . . then the European Union requirements for Russia, without a doubt, are not valid, because it is not a member of the European Union.[234]

Both regulatory bodies and private telecom operators have to cooperate with equipment providers and Internet companies to develop and upkeep the industry. For example, telecommunications equipment, such as switches or transmission lines, is not produced in Lithuania, thus local telecom companies need to purchase it abroad.[235] According to Aloyzas, during the Soviet period, telecom equipment was usually purchased from friendly states, but an international equipment supply emerged after Lithuania gained independence.[236] In the field I was told that suppliers provide telecom companies not only with equipment, but also with forecasts regarding new technological developments, which are exchanged during conferences and meetings. Lithuania's telecom industry currently buys telecom equipment from Western (Jupiter, Cisco, Ericsson) and East Asian (such as Huawei) companies, although western equipment is more expensive than that from East Asia.[237] In one fieldwork conversation with Telia Lietuva employees, they shared that China attempts to draw in creative western equipment developers and, thus western thinking, into the equipment development process. I provocatively asked how Telia Lietuva workers feel about the fact that their physical telecom network equipment is produced in China, while the owners of their company come from Sweden. Employees seemed agitated, confused, and, perhaps, a bit angry about this question. They stressed the importance of international cooperation:

> The industry is international, and we all cooperate. The Internet is a seedbed of globalization, and we feel that. Equipment is global and high-tech equipment also comes from China. The Chinese have the know-how of production, while programming skills come from the West. Technology is global, in China it costs less to produce it, but it is not 'Chinese' or 'American.' Both telecom industry suppliers and operators take part in the equipment standardization process.[238]

In addition to global cooperation among telecom operators and equipment suppliers, I was told that telecom operators and over-the-top (OTT) service providers also collaborate. One OTT, Google, cooperates with multiple telecom providers worldwide—via locally placed servers, which are located close to the users are also available in Lithuania's cities of Kaunas, Klaipėda, and Vilnius—and in this way cooperate with local tele-

234 Interview with Rimas, 22 March 2017.
235 Fieldwork report, Bareikytė, 26 June 2017.
236 Interview with Aloyzas, 7 November 2017.
237 Fieldwork report, Bareikytė, 23 June 2017.
238 Fieldwork report, Bareikytė, 23 June 2017.

com operators to quickly deliver popular content to Google users.[239] For this reason OTTs and telecom operators work together, although Vakaris from Telia Lietuva told me during my fieldwork that Google protects their image by not naming their specific international telecom operator cooperators.[240]

Not only telecom operators coordinate their work with the OTT providers, but in such an increasingly consolidated industry they also need to coordinate work between their own merged companies. In Telia Lietuva's case, this results in frequent internal debates among Telia Lietuva and their mother company, Telia Company, which is a multinational company located in Sweden. This cooperation transpires during face-to-face meetings and tele-conferences to coordinate international company systems and the development of long-term solutions for tasks, such as organized equipment purchasing or software development.[241] At Telia Lietuva, the company also exchanges information about its situation and plans with Telia Company's daughter companies in other countries, such as Estonia, Finland, Denmark, and others.[242] Employee Gabrielius said, "Now we try strategies which lead to that Telia Company, the whole Telia group, to concentrate around the Baltic Sea, and all the countries and solutions should be as common and useful for all the group around the Baltic Sea as possible."[243] In the field, company workers seemed to enjoy this cooperation. Also Povilas from Telia Lietuva stated:

> It is effective. It is very interesting to learn what other countries in our group—Denmark, Estonia—what they did, how they are doing, what they implemented, that we could take and use it. This is perhaps the most interesting part. Where do the limits of usefulness appear: they [Swedes] are far from our market, used to richer clients and does not see who this Lithuanian client is.[244]

Not only governments and diverse groups of private corporations develop telecom networks together, but many people from various social and ethnic backgrounds have contributed to Lithuania's telecom development. Although Lithuania as a nation state is often conflated with Lithuanian ethnicity, it is important to remember that the development of telecom networks in such a culturally and socially complex environment as Lithuania involves contribution from diverse social and cultural groups. For instance, historian Jonas Rudokas writes about the diversity of workers in 1968 in the computer development department known as *Skaičiavimo mašinų specialus konstravimo biuras* (The Special Department for Computing Machine Construction) at the Soviet Union era Vilnius Computer Factory, whose workers were 63 percent ethnic Lithuanian, 16 percent Russian, 11 percent Jewish, and 10 percent Polish.[245] They produced multiple punch machines and electronic computing machines, such as minicomputers including SM 1700,

239 "Introduction to Ggc," Google, 2020, accessed 17 March 2019, https://support.google.com/interconnect/answer/9058809?hl=en.

240 Fieldwork report, Bareikytė, 26 June 2017.

241 Fieldwork report, Miglė Bareikytė, 8 March 2018.

242 Fieldwork report, Bareikytė, 21 February 2018.

243 Interview with Gabrielius, 5 March 2018.

244 Fieldwork report, Bareikytė, 21 February 2018.

245 Jonas Rudokas, *Istorija, kuria galime didžiuotis: Lietuvos liaudies ūkio taryba, 1957–1965* (Vilnius: Gairės, 2002), p. 261.

M500, M5010, M5100, SM1600,[246] and Lithuania's first computer, known as *Rūta*, in 1964.[247] Also, different social groups participated in Lithuania's telecom and Internet development processes, especially students. According to a telecom industry worker, there was a time in the 1990s when the Lithuanian Research and Education Network (LITNET)—which also established the first Internet connections in the country—was highly important to students because it provided their dormitories with an Internet connection and diversified their information access. LITNET was built upon cooperation between people from diverse countries and roles (Lithuanians, Norwegians, professors, and students, among others) from different institutions (universities, governmental institutions, and even commercial telecom operators which rented cables to LITNET). In order to get early access to the Internet through LITNET, students literally used shovels to physically install cables in their dormitories. Vytenis, a telecom company employee, told me a story about the so-called "second barakas," a dormitory at the Kaunas University of Technologies that was famous for its association with Ričardas Baltaduonis, the future director of popular news website Lrytas.lt. Vytenis stated that "with his own hands, and a shovel, he was digging the first fiber-optic cable,"[248] and thus connected university buildings with the university dormitory campus in order to provide students with an Internet connection. Students thus organized and laid data transmission networks from LITNET in their dormitories. Vytenis related that, "a student initiative is always welcome. And that, what is provided by the government, always takes time. Not everyone wanted to wait for so long, and it could have been a couple years of waiting."[249] Since the cables were made of copper, he said that "every autumn or spring, the lightning would start, and . . . each spring everything would burn . . . After a few years of exploitation of the old cable, the government and everyone else decided, that the barracks need to get fiber-optic cable . . ."[250] Vytenis further added that there was a lack of knowledge and funds for establishing the student dormitory Internet connection:

> We needed to build everything from zero then, we did not know what equipment to use. We would buy the *switches* that were very cheap . . . or else there was no money. And Cisco equipment would not have been bought for many more years, so we would buy some Chinese ones, which were burning constantly, and we needed to exchange them constantly . . . It was a hassle, but all of it was a pleasant hassle.[251]

Before the establishment of this connection, most of the student's information came from Russia, but afterwards students suddenly were able to access many new films,

246 Pakštas and Pakštienė, "Networking in Baltic Countries: Current Developments" p. 461; Laimutis Telksnys and Antanas Zilinskas, "Computers in Lithuania," *IEEE Annals of the History of Computing* 21, no. 3 (1999), p. 35.

247 Albertas Čaplinskas and Gintautas Grigas, "Skaičiavimo technika ir programavimas Lietuvoje," in *Visuotinė lietuvių enciklopedija*, https://www.vle.lt/Straipsnis/skaiciavimo-technika-ir-programavimas-Lietuvoje-118078.

248 Interview with Vytenis, 21 March 2017.

249 Interview with Vytenis, 21 March 2017.

250 Interview with Vytenis, 21 March 2017.

251 Interview with Vytenis, 21 March 2017.

games, and other content from more sources via file-sharing communities on networks such as IRC or Kobraktu.lt.[252] LITNET thus emerged through cooperative labor between formal academic institutions and their employees, but was also as a network maintained by informal student work. Additionally, when I spent time at Telia Lietuva, I could hear employees speaking English, Lithuanian, Russian, Polish, and Swedish. Often people in hierarchically higher positions, such as managers, would include English buzzwords in their daily communication, but I also heard Lithuanian, Polish, and Russian on a daily basis. This is not to say that such diverse cooperation took place without any internal conflicts,[253] but it is important to emphasize that in the local Lithuanian context, telecommunications networks resulted from the labor practices of a complex socio-cultural group of people.

In short, public and private companies and multiple diverse groups of people cooperate to secure the transnational flow of signals. Illustrations above exemplify that this cooperation between telecom industry stakeholders is a well-established historical practice that has comprised states, private companies, academia, and individuals in order to form an imaginary of Lithuania's local telecom industry as transnational and part of global interactions. Accordingly, a part of local telecom industry stakeholders in the field did not describe their activities through the framework of binary imaginaries ("we versus the Others" as modernizing, competing, etc.), but worked against sharp identification through the notion of transnational cooperation. In such transnational geopolitical imaginaries, divisions between "we" and "the Others" shrank, while territorially unbounded imaginaries of cooperation rose. By and large, telecom industry geopolitical imaginaries of cooperation complicate narratives of starkly divided local and foreign telecom industries. This chapter illustrates that local telecom industry participants not only imagine geopolitics through binary categories in their descriptions of the roles of foreign actors and themselves in developing and maintaining the telecom industry; the examples above bring about the plausible conclusion that some local industry stakeholders—private companies, academia, governmental institutions—also perceive themselves as cooperating with each other in order to maintain an international flow of data, share resources, and explore and develop new networking technologies. Such imaginaries of cooperation include laborers from various cultural and social backgrounds, yet it is important not to forget that today such borderless cooperation takes place in a capitalist market economy—although this does not mean that all media technologies are driven by the market. As media scholar Dwayne Winseck argues in an essay on global media industries, media technology development also depends on nonmarket logics that are eventually integrated into their development:

> In other words, digital network media are immersed within the market, but they also enable and depend upon forms of expression that are not market driven. These ideas

252 Interview with Vytenis, 21 March 2017.

253 E.g., historian Justan Stončius has studied and shown that antisemitism existed in the Soviet Union and Lithuanian Soviet Socialist Republic as an everyday phenomenon and through the Soviet statist critique of Zionism (Justas Stončius, "Antisemitizmo raida sovietinėje Lietuvoje," *Darbai ir dienos*, no. 68 (2017); Justas Stončius, "Anti-semitism in Soviet Lithuania in the Period 1944–1990," (PhD diss. summary, Klaipėda University, 2018).)

> line up well with Benkler's concept of the 'social production of information' and what others call 'gift culture', the 'digital commons', and 'mass self-expression' (Andrejevic 2007; Castells 2009)—an amalgamation of which I call the 'social ecology of information' . . . These ideas also fit well with the cultural industries school's emphasis on how the uncertainty and habits of people's lives and patterns of media use erect strong barriers to the complete commodification of media and culture.[254]

This fits well with interviewee Donata's argument that the telecom industry is competitive, yet its sense of competition has always been interwoven with cooperation.[255] Thus, this cooperation served to help consumers and prospective employees get interested in and connected to media technology products.

In the transnational geopolitical imaginaries, the telecom industry emerges as a space that could not endure in an ever-changing geopolitical world without transnational cooperation. Without this cooperation, data flow would stop, radio transmissions would break down, and new technological developments would recede. However, imaginaries of cooperation do not exclude daily, binary, identity-based geopolitics; sometimes the same people made statements regarding both transnational and binary-based imaginaries. Thus, all of the shared imaginaries mutually frame the field of Internet as infrastructure, but imaginaries of cooperating telecom industry stakeholders constitute an important part of the field utterances. These geopolitical imaginaries narrate telecom industry stakeholders' actions as a result of a seamless network of cooperation, border-crossing, international, and local collaboration amongst different social groups that all work for the main goal: to secure international telecommunications operations. Cooperation thus does not erase experienced and imagined cultural and geographic differences, but it stresses an imaginary that is built upon the importance of local and global interactions crucial to maintaining global telecom industry networks.

254 Dwayne Winseck, "Introductory Essay: The Political Economies of Media and the Transformation of the Global Media Industries," p. 4.

255 Interview with Donata, 27 March 2018.

3.4 Chapter Conclusions: Geopolitical Imaginaries

> [F]or Eastern Europeans, the end of the Soviet Empire has only reinforced, as we have seen, a suspicion of all forms of systematic thought that had originated in Europe and had served to legitimate the totalitarian system of which they were the victims.
> *Karlis Račevskis, "Toward a Postcolonial Perspective on the Baltic States"*[256]

Sociologist Zygmunt Bauman once explored the concept of the stranger. Bauman states that strangers "are, in principle, undecidables. They are that 'third element' which should not be. The true hybrids, the monsters: not just unclassified, but unclassifiable. They therefore do not question this open opposition here and now: they question oppositions as such, the very principle of the opposition."[257] In this quote from Bauman's 1990 "Modernity and Ambivalence," the concept of the stranger is positively connoted via the implication that complex grey zones of strange ambivalence belong to and construct modernity. In this context, geopolitical imaginaries of telecom industry stakeholders create an overall imaginary of what I call "strange geopolitics." In this chapter, I map situated geopolitical imaginaries through the frequent reoccurrence of fieldwork-based stories, beliefs, and perceptions, which expressed various geopolitically charged roles of multiple actors, and thus implied dependencies and tensions regarding their roles in developing the Internet in Lithuania. I title these fieldwork-based geopolitical imaginaries "strange," because akin to Bauman's "strangers," they go beyond a realist geopolitical narrative of territorially distributed friend and enemy politics (which I explore in-depth in "Internet as Infrastructure: Conceptual Openings") by conveying complex contradictory geopolitical imaginaries on the ground that do not result in a cohesive, logical, rational narratives about oneself or "Others." In particular, strange geopolitical imaginaries concerned with the telecommunications industry, and thus Internet development, question clear oppositions between "us" and "the Others" through the creation of a third category: "cooperation." Even if binary categories of "us" and "the Others" were considered in isolation, they would still comprise internal contradictions in which "us" and "the Others" are simultaneously praised and criticized. Thus, the Internet as infrastructure in Lithuania is framed by strange geopolitics on the ground that question conceptual boundaries of realist geopolitics, according to which one state follows one geopolitical narrative, and present perspectives on the ground that tickle the boundaries of realist geopolitical narratives.

I focus on strange geopolitical imaginaries shared during my 2017 to 2018 fieldwork by multiple telecom industry stakeholders. I do not argue that these views represent official state policies or media reproductions, because that was not the focus of my field-

256 Karlis Račevskis, "Toward a Postcolonial Perspective on the Baltic States," in *Baltic Postcolonialism*, ed. Violeta Kelertas (Amsterdam: Brill | Rodopi, 2006), p. 172.

257 Bauman, "Modernity and Ambivalence," p. 148.

work. I focus on one community of practice comprised of public and private telecom industry-related stakeholders: government officials, academics, and private telecom industry workers. I thus do not discern their perspectives according to their position in the telecom industry, but rather perceive them as members of a key community of practice in the realm of Internet infrastructure.

Internet as infrastructure in Lithuania is thus framed by specific geopolitical imaginaries produced by telecommunications industry stakeholders, which I explore as "Modernizing," "Helping," "Patronizing," "Competing," "Transforming," "Lagging," and "Cooperating." I ordered these imaginaries under the terms "the Others," "the Self," and "The Cooperating Telecommunications Industry," and posit them as means to learn about how specific imaginaries frame the Internet as infrastructure development on the ground. In particular, these groupings provide insight into how local telecom industry stakeholders see foreign telecom industry actors as more advanced, helping and concomitantly looking down on the Lithuanian telecom industry. They also illustrate how the local telecom industry perceives itself as proper capitalist competitors in constant transformation and adaptation although lacking in global impact. Despite these imaginaries and their tensions, they also exemplify how the local telecom industry also perceives the telecommunications business as a transnational undertaking upheld by the cooperation of various political, business, and civil society actors.

Thus, this focus on geopolitical imaginaries allows an exploration of Lithuania's particular case and addresses the broader complexity of infrastructure. In short, Internet as infrastructure encompasses not only everyday labor practices that uphold its maintenance, but also the input from key stakeholders that serves to geopoliticize its development.

I use the term "strange geopolitical imaginaries" to describe a telecom field made up of fragmented narratives of identity-based and transnational imaginaries that result in conflicting evaluations of the roles and type of interactions between foreign and local telecom stakeholders. These imaginaries circulate around different historical phases of Lithuania's Internet development, such as the early post-socialist emergence of international data transmission networks in the 1990s, the liberalization of the telecom sector in 2003, Lithuania's accession to the EU and NATO in 2004, and the development of the current telecom industry.

According to an identity-based imaginaries, "the Others"—business companies, governments, and nongovernmental organizations—were described by locals as more advanced, profit-seeking, and exploitative, but also as actors who helped develop the local telecom industry. Locals described themselves as competitive, small, and underdeveloped, yet flexible and capable of enduring hardships. These imaginaries thus comprise an image of contradictory everyday geopolitics, a strange geopolitics, in which it is not clear if the mainly Western European and US based telecom industry participants involved in past telecommunications developments are currently perceived as friends or foes and whether the local telecom industry sees itself as irrelevant and weak, or flexible and strong.

In contrast to identity-based imaginaries, the imaginary of "cooperation" comprises an alternative telecom geopolitical imaginary of transnationalism. According to this narrative, there are no binaries, no "us" or "the Others," because telecom market partic-

ipants were told to have always cooperated. Similarly, in his treatment of cosmopolitan risk society as a result of globalization, sociologist Ulrich Beck argues that global risks generate "'compulsory cosmopolitanism', a 'glue' for diversity and plurality in a world whose boundaries are as porous as a Swiss cheese . . ."[258] Moreover, Beck claims that this new cosmopolitan transnational risk society "dissolves the identity of subject and reflection."[259] This second, transnational geopolitical imaginary aims to dissolve borders between "us" and "the Others" and stands in contrast to identity-based modernist geopolitical narratives. In this imaginary, local actors and their foreign industry stakeholder counterparts dissolve into a seamless network of global cooperation in which binary identities are exchanged for transnational interactions.

What results from these examples? They comprise the coexistence of strange, contradictory geopolitical imaginaries: of binary-identity and non-identity geopolitics of telecommunications, of a modernist "East-West slope,"[260] and transnationalist imaginaries. In short, such geopolitical imaginaries are not statist. They do not designate one clear national geopolitical imaginary within Lithuania's telecom industry, a categorization that is usually undertaken in realist geopolitical debates through the claim that Lithuania is either a buffer state between the West and Russia, a pro-western European Union periphery or a site of a telecom market that thrives as a result of either western imperialism or national achievement. When observed from the perspective of fieldwork, the geopolitical imaginaries produced by key local telecom industry stakeholders include more actors than usual: they were not only comprised of the local Lithuanian state or Google and Facebook's control of Lithuania's Internet development, but also include different European states, various actors, and contradictory evaluations of their involvement. Thus in Lithuania, universal and specific, modernist and cosmopolitan logics mix and maintain strange geopolitical imaginaries. Strange geopolitical imaginaries paint an image similar to that of 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.[261] They also question any stable realist statist geopolitical imaginary: imaginaries on the ground are messier, queerer, and thus more democratic than any one narrative could convey.

Although all of these examples are from my field research, there is still the question of the relation between these imaginaries and practice of infrastructuring. I posit that such complex imaginaries frame the Internet maintenance field of practice and convey another aspect of the Internet as infrastructure. These geopolitical imaginaries thus expand the perspective of Internet as infrastructure as a sole result of infrastructuring, or its maintenance through complex everyday labor practices. The Internet as infrastructure has to be produced and maintained, but in the field it is also framed by multiple geopolitical imaginaries that explain its various roles and tensions and also possibly shape its development. Lithuanian telecom industry's situated geopolitics is strange; it

258 Ulrich Beck, "Critical Theory of World Risk Society: a Cosmopolitan Vision," *Constellations* 16, no. 1 (2009), p. 4.

259 Beck, "Critical Theory of World Risk Society," p. 12.

260 Melegh, *On the East-West Slope*, p. 39.

261 Laurinavičius, Motieka, and Statkus, *Baltijos valstybių geopolitikos bruožai. XX amžius*, p. 25.

comprises a site where transnational and binary logics co-exist in the field but cannot be assimilated. Such an ambiguous imaginary of strange geopolitics thus shows how a post-socialist country continues to live through internal geopolitical contradictions in which where "the West" is longed for and criticized, the self is praised and despised, and "the East" or the Soviet Union is dissociated, but emerges unexpectedly in the present.

Strange geopolitical imaginaries are a means of distancing this research from understanding media technology development as the sole result of nationalist or foreign imperialist activity. A focus on particular everyday geopolitics allows this research to question the geopolitical assumption that one nation state has only one geopolitical identity as well as the assumption that technology development and maintenance only comprise situated practices. In this context, the question may arise as to why one should care about all of post-socialist Lithuania's complexities. I argue that these complexities are relevant because they contribute new conceptualizations, such as strange geopolitical imaginaries, to the field of infrastructure studies by exploring situated specificities of media technology development not only from a position of ahistorical universality or a sole "Western" experience, but also by "looking elsewhere,"[262] in this case to Lithuania's telecom industry. In this chapter I thus explore how a particular form of modernistic and cosmopolitan imaginaries merge in Lithuania's telecom sector, and how geopolitical imaginaries situate the Internet as infrastructure through common geopolitical stories on the ground. In the upcoming and last empirical chapter, "Critical Negotiations," I illustrate how the Internet as infrastructure is not only infrastructured through everyday labor practices, nor only framed through geopolitical imaginaries, but how it is also immersed in ongoing critical negotiations that become explicit during crucial changes in the industry.

262 By looking elsewhere, I mean quite literally looking into neglected places, but also exploring them with a situated and thus specific focus (e.g., Jason Hughes, "Looking Elsewhere," pp. 769–787).

4. Critical Negotiations

> I went to a sports club in the morning. I then arrived at the office before my appointment and ate my lunch at an upscale business lunch canteen. Afterwards, while I waited for my meeting at a coffee place, I observed the shining sun and people, who were walking and chatting at the plaza, around the skyscraper and the mall.
> *Fieldwork report, Bareikytė, 19 February 2018*

I wrote this excerpt during my participatory observation at Telia Lietuva's Head Office. When I read this text now, I think of an advertisement for a modern corporate life, preferably filmed using a drone that glides over a shiny plaza of skyscrapers in Vilnius from an invisible location in the sky. In the next shot, a camera zooms into a vivid business cafe, its tables filled with Caesar salads and the air thick with the loud conversations of corporate workers. Then I see an image from a meeting room with glass walls, white tables, and business managers seriously using pens to underscore statistical data on a white board power point slide.

At one point during my fieldwork, in particular when I spent time at Telia Lietuva's Head Office, I felt almost like I belonged to the corporate world. I drove a car every day and went to the gym frequently, drank a lot of take-out coffee, ate at business restaurants and coffee shops, sat in on various meetings, and conversed with telecom industry managers on a daily basis. For a short time, it felt as if I was formally living the aesthetic life of a corporate manager, yet without their salary and actual work goals. While much of my fieldwork was a positive experience, such a glossy description of both the research process and of corporate life is simplistic, because it avoids mentioning the disputes and negotiations that I encountered in the field of telecom industry producers.

Work at Telia Lietuva is energetic and future-oriented, while both the past and self-criticism is meant to swiftly sink into oblivion in the aim to persevere, evolve and attain profit. Some IT-related Telia Lietuva employees, including Matas from the Technology group of departments, contended that in focusing on future action, flexible work or-

ganization is key.[1] In the context of present and future focus, it is illustrative that the former Telia Lietuva (then-TEO) decided to sell its premises as well as close down The Network History Museum, which was the only museum explicitly concerned with the history of telecommunications in Lithuania.

In this chapter, I stay away from such polished descriptions of the Internet as infrastructure development, but also from general, non-situated critique of the Internet. In the following section, I explore particular critical negotiations regarding the Internet as infrastructure that I found on the ground during my fieldwork. This part of research is inspired by sociologists Luc Boltanski and Laurent Thévenot, who perceive critique as a highly diversified capacity of ordinary people, who use this criticism in order to "justify the views, beliefs and attitudes they have about specific issues with reference to some notion of a common good or a principle of a shared interest."[2] Thus, Boltanski and Thévenot link critical justifications with the notion of generality: "To criticize or to justify, the persons have to extract themselves from the immediate situation and rise to a level of generality."[3] To criticize thus means to judge situations with the help of justifications and defend their causes with specific generalizations.[4] It means the ability to transcend the presence of the here and now in which critique is expressed toward the particular generality that critique aims to achieve. My understanding of critical negotiations is inspired by Boltanski and Thévenot's conceptualizations, which contend that critique is not reserved for the elaborated theoretical negotiations of a few, such as academics, but is expressed by multiple actors on a variety of topics that they simultaneously judge and transcend. My use of the term "critical negotiations" focuses on particular critical justifications and concomitant future visions that are implied in these justifications.

First, I argue that it is important to explore critical negotiations in the field of telecom industry because they are prevalent and constitute the present Internet as infrastructure development and maintenance.[5] In fact, many actors were criticized during my fieldwork, including Telia Lietuva, the main telecom operator in Lithuania; other telecom operators; the Lithuanian state; the telecom industry; RAIN, a rural infrastructure project; telecommunications industry clients; the Communications Regulatory Authority; telecom infrastructure constructors; telecom industry workers; the privatization of Lietuvos Telekomas; the Internet as a media technology and its respective effects; and

1 Interview with Matas, 22 February 2018.

2 Delanty, "Varieties of Critique in Sociological Theory and Their Methodological Implications for Social Research," pp. 85–86.

3 Boltanski and Thévenot, "The Reality of Moral Expectations," p. 213.

4 Boltanski and Thévenot, "The Sociology of Critical Capacity," p. 360.

5 The sociology of expectations in science and technology studies somewhat similarly argues for the attention in studying technology change to particular expectations that are said to drive activities, help mobilize resources, attract interest, foster investment, and refer to future visions. (Mads Borup, Nik Brown, Kornelia Konrad, and Harro van Lente, "The sociology of expectations in science and technology," *Technology Analysis & Strategic Management* 27, no.3–4 (2006), p. 286.) Critical negotiations rather stress the convoluted and incompatible justifications and visions that guide infrastructure developments everyday, and that are in particular concentrated during crucial events of change.

even my PhD topic. Secondly, in addition to often occurring daily criticisms in the telecom industry, I also argue that during moments of crucial industry changes, critical negotiations are not uttered only to swiftly disappear, but that they eventually become more concentrated, intensified, and thus visible. Building upon the first and second argument, I lastly contend that intensive critical negotiations expressed during crucial industry changes not only judge, but also present specific future visions that comprise infrastructural developments. The Internet development and maintenance is not an unproblematic objective, but always embedded in societal struggles and their respective visions of the future. Accordingly, in the following chapter I explore one crucial event for the industry and the critical negotiations around it, namely the privatization of telecom operator Lietuvos Telekomas, because it changed the industry in terms of ownership, labor relations, and technical conditions. I particularly focus on critical negotiations surrounding Lietuvos Telekomas's privatization that were expressed by different stakeholders such as trade unions, private citizens, politicians, academics, and industry employees during and after privatization process. I accessed these negotiations in the field predominantly through archival material and unedited memoirs, but also through fieldwork interviews. This is made up of predominantly archival documents from the Lithuanian State Modern Archives, *Jie kūrė Lietuvos ryšius*'s memoirs of telecom industry workers,[6] and fieldwork interviews with telecom industry stakeholders. It also includes scholarly literature that serves to introduce readers to the case of privatization in Lithuania. I evaluated my fieldwork sources according to an analysis of how different stakeholders describe privatization process; what negative, positive, or neutral aspects they prescribe to privatization; and what outcomes they expect from privatization.

I analyze Lietuvos Telekomas's privatization because it was a crucial undertaking for Lithuania's Internet development, the development of the local telecom industry and Lithuania's broader transformation into a capitalist and European market economy. This privatization led to the modernization of Lithuania's main telecom provider's physical telecommunications infrastructure and the expansion of Lietuvos Telekomas clients' previously insufficient telephone and Internet access. According to a letter from Henrikas Varnas, the Vice Minister of the Ministry of Communications and Informatics, the privatization of a national telecommunications provider was also one of the main competitive and liberalized telecommunications market measures that Lithuania had to develop in order to become an EU member.[7] Moreover, shortly before Lietuvos Telekomas's privatization, the 1998 Telecommunications Law granted an almost four-year fixed market monopoly to Lietuvos Telekomas. Practically, this meant that the privatized Lietuvos Telekomas had a privileged position in Lithuania's telecom market for several consecutive years. During privatization, Lietuvos Telekomas's ownership in 1998 shifted from the Lithuanian state to Amber Teleholding, a subsidiary of the Finnish

6 *Jie kūrė Lietuvos ryšius*, Basevičius, Kuzma, and Žintelis, eds.

7 Henrikas Varnas, "Dėl išskirtinių teisių suteikimo AB 'Lietuvos Telekomas': aiškinamasis raštas," 1997, Lietuvos Respublikos Europos reikalų ministerija (LVNA), 16, Tvarkomosios organizacinės veiklos bylų apyrašas: 1, 21: Viešo konkurso komisijos ryšių įmonėms privatizuoti dokumentai (susirašinėjimas su užsienio firmomis, privatizuojamų objektų dokumentai ir kt.), 1 t., p 90, Lietuvos valstybės naujasis archyvas (LVNA).

Sonera and Swedish Telia companies. In 1998, both Telia and Sonera were completely owned by the Swedish and Finnish states respectively,[8] although state ownership continued to decline in the coming years.[9] Privatization also led to resource optimization and the subsequent firing of most of Lietuvos Telekomas's labor force.[10] Thus, Lietuvos Telekomas's privatization changed and shaped the current formation of Lithuania's telecommunication industry as well as the means of a new mode of governance (from public to private), ownership (from state-owned to owned by TeliaSonera), labor relations (the firing of most employees), and regulatory structure of Lithuania's telecom industry (the regulatory authority gained more power a few years after privatization).

Critical negotiations regarding Lietuvos Telekomas's privatization among its key stakeholders were widely spread. I use field material to illustrate how the Internet as infrastructure's development and change has been critically negotiated from a bottom up perspective, meaning that in the particular event of privatization, media technology development and its changes were not taken for granted. In this context, diverse stakeholders—academics, private citizens, politicians, businesses, and trade unions—attempted to criticize and influence this process as well as provide their visions into potential post-privatization futures. Thus, by exploring critical negotiations regarding Lietuvos Telekomas's privatization, I not only explore particular critical justifications and their future visions, but also illustrate a broader argument that infrastructure is not a large immutable object but that its development is immersed in struggles that become especially visible and intense during events that are crucial to their respective industry. I turn to Lietuvos Telekomas's privatization because it is not only a significant event in telecommunications and Internet development, but also

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8 Commission of the European Communities, *Case No. Iv/Jv.9 Telia/Sonera/Motorola/Omnitel: Regulation (Eec) No 4064/89 Merger Procedure* (Luxembourg: Office for Official Publications of the European Communities, 1998), pp. 1–2.

9 By 2000, Telia was listed on Stockholm Stock Exchange (Anders Edwardsson, "Telia+Sonera=Teliasonera," *Telia Company*, accessed 16 January 2020, https://www.teliacompany.com/en/about-the-company/history/telia-sonera-and-teliasonera/). In 2002, 70 percent of Telia was owned by the Swedish government before the upcoming merger when Telia and Sonera merged into a company TeliaSonera (Commission of the European Communities. *Case No Comp/M.2803 -Telia / Sonera: Regulation (Eec) No 4064/89 Merger Procedure* (Luxembourg: Office for Official Publications of the European Communities, 2002), p. 2, https://ec.europa.eu/competition/mergers/cases/decisions/m2803_en.pdf). During the merger, Telia bought Sonera with the Swedish state acquiring 46 percent of the new TeliaSonera and the Finnish state more than 19 percent (Edwardsson, "Telia+Sonera=Teliasonera."). In 2020, Swedish government owned over 37 percent of the shares of the Telia Company, telecom giant in the Eastern and Norther parts of Europe after its name change in 2016. (Anders Edwardsson, "Teliasonera Proposes to Change Its Name To Telia Company," *Telia Company*, published 7 March 2016, accessed 15 January 2020, https://www.teliacompany.com/en/news/news-articles/2016/teliasonera-proposes-to-change-its-name-to-telia-company/); Thereupon, "Lietuvos Telekomas" was privatized by Swedish and Finnish government owned telecom companies Sonera and Telia, but government ownership in these companies declined in the course of years, and two companies merged into one, Telia Company, in 2002.

10 Elta, "'Lietuvos Telekomas' atleidžia dešimtadalį darbuotojų," *Delfi.lt*, published 19 February 2004, accessed 14 July 2020, https://www.delfi.lt/mokslas/technologijos/lietuvos-telekomas-atleidzia-desimtadali-darbuotoju.d?id=3771569.

because it was not a monolithic event that simply transpired, as the upcoming critical negotiations will illustrate.

It is important to mention the effects of these critical negotiations. In the case of Lietuvos Telekomas's privatization, critical negotiations did not have solid effects: thousands of workers were fired notwithstanding their objections and the remembrances of past telecom industry workers' contributions have mostly disappeared from public view. On the other hand, market regulation has improved, although this was not the sole result of local critical negotiations—EU directives played a substantial, if not decisive, role for the establishment of the Communications Regulatory Authority, the main industry regulator. Notwithstanding their ineffectiveness in this particular case, critical negotiations illustrate that infrastructure developments are never smooth. They furthermore shed light on what is actually at stake, namely what future visions are embedded in infrastructural developments, and imply that these futures might be different.

4.1 Privatization in Lithuania

Critique of Lietuvos Telekomas's privatization falls into the category of the many post-socialist transformation experiences that have framed societal life in Lithuania since the disintegration of the Soviet Union. In this context, I rely on scholarly work that describes these experiences as "transformation," because this term is interested in different post-socialist experiences,[11] and thereby differs from the concept of "transition,"[12] which tends to use a universal experience point of view to narrate a shift from a socialist system to a capitalist system in post-Soviet territories.

Before I concentrate on the case of Lietuvos Telekomas's privatization, I would like to briefly turn to scholarly debates around the issue of privatization in Lithuania in order to understand what comprises the academic treatment of privatization in Lithuania. The main goal of this review is to understand how the privatization process is presented in scholarly work in Lithuania and to introduce readers to the basics of Lithuania's privatization process as well as Lietuvos Telekomas's privatization.

There is abundant scholarly literature on Lithuania's privatization process. Most authors investigate this issue from a social science perspective, particularly from an economic viewpoint, which analyses privatization through the lenses of social and economic transformation.

In this literature, privatization in Lithuania— and other Central and Eastern European (CEE) countries—is said to differ from privatization in capitalist economies due to its radical character. Privatization in post-socialist CEE countries corresponds to a sequence of events that sought to create a completely different economic and judicial system than that of the Soviet Union, which was based on a centralized socio-political eco-

11 Srećko Horvat and Igor Štiks, *Welcome to the Desert of Post-Socialism* (New York: Verso, 2014); Katherine Verdery, *What Was Socialism, and What Comes Next?* (Princeton: Princeton University Press, 1996).

12 Aleksandr V. Gevorkyan, *Transition Economies: Transformation, Development, and Society in Eastern Europe and the Former Soviet Union* (Abingdon: Routledge, 2018).

nomic arrangement that was controlled for decades by one party. Accordingly, two main types of privatization can be discerned: privatization in market economies and privatization in post-socialist states. While intensified privatization has also taken place in western economies since the 1970s, it was inherent in these existing market economies, while it was not yet established in emerging post-Soviet countries. Economist Eglė Mitalauskienė debates different types of privatization in countries where markets were only partially regulated by the state, and post-Soviet economies that long consisted of specialized territorial production and centralized economic regulation. Mitalauskienė argues that while privatization is usually understood as the transition from state to private owners, seen in market economies as the aim to increase efficiency by separating business decisions from politics, post-Soviet transformation economies not only aimed for this separation, but they also needed to first radically restructure their economic and political systems toward market economies, and then establish a capital-based market and its corresponding privatization process.[13]

Privatization in Lithuania thus belongs to the category of radical societal transformation events after the disintegration of the Soviet Union, although it was not initially clear to where this transformation would lead. According to Mitalauskienė, while there were plenty of transformation supporters on the eve of reforms in Lithuania, there was a lack of market economy experts and lawyers who could actually do the necessary work required to institute these reforms. In 1988, a reform group in Lithuania prepared a first document to gain partial autonomy from the Soviet Union titled the "Conception of Lithuanian SSR (Soviet Socialist Republic) Economic Independence." This document outlined a plan to de-couple Lithuania's economy from that of the Soviet Union, but it did not aim for country's political independence or the establishment of a private market economy.[14] As social scientists Virginija Jurėnienė and Skaistė Jurėnė argue:

> The conception did not describe a transition into the free market economy as it was limited to Lithuanian economic independence as a part of the SSSR. The conception of economic independence stood for refusal of the main attribute of a social state, i.e., a centralized planning system. For the first time it was declared that dependence of the Lithuanian government on the central government of the SSSR was cancelled, and that the property in the territory of Lithuania now belonged to Lithuania.[15]

Lithuania declared its independence from the Soviet Union two years later, on 11 March 1990. This transformation was a difficult socio-political, economic process of change due to recession, inflation, and radical societal changes. Hardships included societal and economic extremities, such as enormous inflation rate from 1990 to 1993, which economist Raimondas Kuodis states as comprising a 383 percent inflation rate in 1991 and a 1163 percent rate in 1992. According to Kuodis, there was no inflation in the Soviet

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13 Eglė Mitalauskienė, "Privatizavimo eiga Lietuvoje po 1990 m. ir rezultatų įvertinimas," (M.A. thesis, Mykolo Romerio Universitetas, 2005), pp. 3–4, 8, 16.

14 Mitalauskienė, "Privatizavimo eiga Lietuvoje po 1990 m. ir rezultatų įvertinimas," pp. 10–11.

15 Virginija Jurėnienė and Skaistė Jurėnė, "Political, Economic, and Social Issues of Lithuania," in *Lithuania: Political, Economic and Social Issues*, ed. Bronus Kazlauskas (Hauppauge, NY: Nova Science Publishers, 2018), p. 5.

Union because it was tamed by the state, which regulated prices.[16] Jurėnienė and Jurėnė argue that in these initial years of transformation with its extreme effects caused different aspects of life—people's behavior as well as social and economic structures—to radically change:

> But the volume of the real recession cannot be precisely calculated as legal acts were totally changed; moreover, people's behaviour altered dramatically. Until 1990, factories found it convenient to declare more production than they really produced. After 1990, people found it useful to hide information about their production and sales so that they could pay less taxes.[17]

Another difficulty was that until the Russian financial crisis in 1998, Lithuania exported predominantly to CIS countries, but later it had to look for and shifted its export efforts to western markets.[18] Kuodis posits that there were no historical precedents for post-Soviet countries such as Lithuania in their transformation from Soviet socialism to a market-based democracy.[19] Economist and politician Eugenijus Maldeikis argues that the main goal of Lithuania's transformation was to change ownership relations through the privatization process:

> Lithuania chose one of the most ambitious methods of privatization compared to other countries in Central and Eastern Europe, privatizing two-thirds of state property. The process of privatization is the backbone of the Lithuanian transformation process and has a significant impact on the general economic development of the country, the creation of a competitive business environment, and the development of a system of corporate governance and securities market.[20]

Economists Giedrius Šidlauskas and Stasys Kropas (who worked for the International Monetary Fund at the time of this article's publication) contend that post-Soviet Lithuania's economy found itself in bad shape due to the rupture of economic relations with the Soviet Union, increase of energy prices from Russia, and decrease of societal income. They stated, "Prices have risen sharply, real incomes have decreased and so there could have been no alternative to which adaptation policy to choose: fast or gradual."[21] The authors claimed that transformation had to be fast if Lithuania wanted to maintain its independence, because gradual transformation depended on, for example, access to energy prices below the global average, which would be only available if Lithuania continued to depend on Russia. For this reason, the Lithuanian government and the Lithuanian Bank signed an economic policy memorandum with the IMF to liberalize their

16 Raimondas Kuodis, "Lietuvos ekonomikos transformacija 1990–2008 metais: etapai ir pagrindinės ekonominės politikos klaidos," *Pinigų studijos*, no. 2 (2008), pp. 97–98.

17 Jurėnienė and Jurėnė, "Political, Economic, and Social Issues of Lithuania," p. 10.

18 Kuodis, "Lietuvos ekonomikos transformacija 1990–2008 metais," pp. 100–101.

19 Kuodis, "Lietuvos ekonomikos transformacija 1990–2008 metais," p. 97.

20 Eugenijus Maldeikis, *Privatisation in Lithuania: Expectations, Process, Consequences* (Edinburgh: Centre for Economic Reform and Transformation, Heriot Watt University, 1996), p. 1.

21 Stasys Kropas and Giedrius Šidlauskas, "Tarptautinis Valiutos Fondas ir Lietuva: bendradarbiavimo raidos bruožai bei perspektyvos," *Pinigų studijos*, no. 3 (2002), pp. 65–66.

market, introduce a national currency, privatization, and land reform, to foster competition and reduce governmental control of the economy,[22] which the authors posit as a "logical and unavoidable step."[23] Jurėnienė and Jurėnė position this economic transformation toward a market economy in geopolitical terms as Lithuania's turn from the East to the West:

> When the Soviet Union occupied Lithuania on 15 June 1940, its economy was integrated into a planned economy regulated by the state. On 11 March 1990, Lithuania declared independence and chose the Western way of economic development, i.e., economic relations based on private ownership, competition and free market. Lithuanian economy had to be reoriented from Eastern markets (Russia) to Western, American and Far Eastern. . . . During the transitional period when company privatization, attraction of foreign capital and other economic processes took place, Lithuanian economy underwent a decline in comparison with 1976–1988, and a revival once it became a member of the EU in 2004.[24]

The aforementioned scholarly literature on privatization thus predominantly describes it as a constitutive part of post-socialist Lithuania's transformation toward a western capitalist economy. Privatization in Lithuania aimed to develop capitalist economic structures that were independent from the Soviet Union's military-industrial complex, although Soviet Union interference had the potential to completely suspend Lithuania's socioeconomic life, as exemplified by the Soviet Union's blockage of raw material entering Lithuania in 1990.[25] Over the course of time, Lithuania's government consulted experts from the World Bank and the IMF to implement reforms that were similar to those adopted in South America.[26] Šidlauskas and Kropas acknowledged that the cooperation between the IMF and Lithuania was criticized due to its policies that ignored sociopolitical consequences and specificities of particular places but, according to the authors, "it was the only choice."[27] Šidlauskas and Kropas go so far as to argue that cooperation between Lithuania and the IMF was supported by all main political powers and trade unions because this cooperation would ensure the necessary flow of needed external financing, consultancy and cooperation from abroad.[28] Similarly, Maldeikis claims that privatization has been always supported in Lithuania:

> The necessity of privatisation was never discussed in Lithuania as it was considered the main sphere of the economic reforms. All political parties and society groups in Lithuania supported this approach. The major dispute concerned the method (or

22 Kropas and Šidlauskas, "Tarptautinis Valiutos Fondas ir Lietuva," pp. 65–66.
23 Kropas and Šidlauskas, "Tarptautinis Valiutos Fondas ir Lietuva," pp. 65–66.
24 Jurėnienė and Jurėnė, "Political, Economic, and Social Issues of Lithuania," p. 55.
25 Jurėnienė and Jurėnė, "Political, Economic, and Social Issues of Lithuania," p. 7.
26 Jurėnienė and Jurėnė, "Political, Economic, and Social Issues of Lithuania," pp. 6, 55; Kropas and Šidlauskas, "Tarptautinis Valiutos Fondas ir Lietuva," p. 65.
27 Kropas and Šidlauskas, "Tarptautinis Valiutos Fondas ir Lietuva," p. 66.
28 Kropas and Šidlauskas, "Tarptautinis Valiutos Fondas ir Lietuva," pp. 66, 69.

methods) of privatisation, e.g. whether to implement a commercial or distributional privatisation model.[29]

Mitalauskienė additionally argues that the majority of the political parties, with the exception of non-influential Socialist party, supported privatization. Debates circulated around the issues of the number and kind of properties that should remain under state ownership, but not concerning if the state should actually start the privatization process.[30] Privatization in Lithuania was a long and complicated process that defined new property structure, dismantled the economic legacy of the Soviet Union and reformulated economic policy anew.[31]

In scholarly literature, Lithuania's privatization is often described as consisting of three main phases: voucher-based mass privatization (1991–1995), cash-based privatization (1995–2004), and a "western" type of privatization in an already-established market economy (2004–present).[32] The telecommunications industry, particularly Lietuvos Telekomas's privatization in 1998 during the second privatization stage, played a special role in the privatization process, because it was the biggest privatization deal in Lithuania.[33]

The Law on Privatization of State Property of the Republic of Lithuania established the first privatization phase, which was based on providing investment vouchers to citizens and was valid until 1995.[34] It aimed to develop a new economic system based on private property, corporate governance and the decreased role of government in the economy against the backdrop of the emerging state.[35] All Lithuanian citizens used investment vouchers to privatize enterprises, housing, and land[36]; only 7 percent of vouchers were not used by 1995.[37] This phase of privatization prioritized locals over foreign investors and company workers over other local investors. It was forbidden to sell land to foreign investors, but there was not tremendous interest from foreign investors anyway.[38] While foreign investors could privatize large share packages for convertible currency during this first phase of privatization, foreign investors only privatized four companies until 1995.[39] The first privatization phase thus stands out due to its lack of

29 Maldeikis, *Privatisation in Lithuania*, p. 2.

30 Mitalauskienė, "Privatizavimo eiga Lietuvoje po 1990 m. ir rezultatų įvertinimas," p. 29.

31 Mitalauskienė, "Privatizavimo eiga Lietuvoje po 1990 m. ir rezultatų įvertinimas," p. 4.

32 Jolanta Solnyškinienė, "Nuosavybės struktūros pokyčiai Lietuvos bendrovėse," *Tiltai*, no. 2 (2004), p. 45; Mitalauskienė, "Privatizavimo eiga Lietuvoje po 1990 m. ir rezultatų įvertinimas," p. 23; Jurėnienė and Jurėnė, "Political, Economic, and Social Issues of Lithuania," pp. 13–14.

33 Mitalauskienė, "Privatizavimo eiga Lietuvoje po 1990 m. ir rezultatų įvertinimas," p. 28.

34 Maldeikis, *Privatisation in Lithuania*, p. 3; Mitalauskienė, "Privatizavimo eiga Lietuvoje po 1990 m. ir rezultatų įvertinimas," pp. 14–15.

35 Solnyškinienė, "Nuosavybės struktūros pokyčiai Lietuvos bendrovėse," p. 45; Mitalauskienė, "Privatizavimo eiga Lietuvoje po 1990 m. ir rezultatų įvertinimas," pp. 17–18.

36 Maldeikis, *Privatisation in Lithuania*, p. 5; Mitalauskienė, "Privatizavimo eiga Lietuvoje po 1990 m. ir rezultatų įvertinimas," p. 20.

37 Maldeikis, *Privatisation in Lithuania*, p. 7.

38 Solnyškinienė, "Nuosavybės struktūros pokyčiai Lietuvos bendrovėse," pp. 48–49.

39 Solnyškinienė, "Nuosavybės struktūros pokyčiai Lietuvos bendrovėse," p. 45; Mitalauskienė, "Privatizavimo eiga Lietuvoje po 1990 m. ir rezultatų įvertinimas," p. 23.

foreign investors and majority of joint-stock company capital owned by local, high level company managers, workers, and the state.[40] Maldeikis argues that the first privatization phase was fast-paced and aimed at a general transformation to private ownership, which itself was seen as an efficiency-improving factor.[41] During this phase, a 1994 law, titled "Law for State-owned Enterprises until the Year 2000 Not Intended to be Shared or Privatized,"[42] was issued, which outlined a list of objects that could not be privatized, which included Lietuvos Telekomas.[43] In scholarly literature, the first period of privatization is described as the most chaotic: the country was emerging, a legal framework was being developed, and due to this initial turmoil, privatization transactions were often corrupt or semi-legal. Much of state property was privatized by Lithuanian citizens who had barely any experience in a capitalist market economy, while there were limits to foreign investments that could bring additional capital and experience into the new market.[44]

The second privatization phase began in 1995 (de facto enacted from 1996 to 1997) with the Law on State and Municipal Asset Privatization, which allowed the market price of cash purchases of state-owned property.[45] This privatization phase aimed to further develop the private sector and market economy by laying a greater focus on investments and technology from abroad, increased profitability of state owned companies, and a decreased government role in economy regulation, among other issues.[46] This phase aimed to sell marketable objects in order to decrease the state budget deficit and attract foreign investments by equalizing state property buying conditions for the foreign and local investors and to reorganize and privatize large infrastructural objects and companies not managed by the state.[47] While Lithuanian investors privatized most of the property and foreign investors purchased only eight objects in 1998, since 1998 foreign privatization grew and comprised the largest income shares.[48] The state established the Law of State and Municipal Property Privatization and States Assets Fund in 1998; based on foreign experience, this law sought to manage and create better conditions for foreign investors to participate in the privatization process.[49]

The last phase of privatization is described in scholarly literature as a period of stability that began around 2004, when the state began an ongoing retraction from eco-

40 Solnyškinienė, "Nuosavybės struktūros pokyčiai Lietuvos bendrovėse," pp. 48–49.

41 Maldeikis, *Privatisation in Lithuania*, p. 2.

42 Lietuvos Respublikos Seimas, *Dėl valstybinių įmonių, kurių iki 2000-ųjų metų nenumatoma nei akcionuoti, nei privatizuoti, I-744*, Vilnius: Lietuvos Respublikos Seimas, (1994), https://e-seimas.lrs.lt/portal/legalAct/lt/TAD/TAIS.15176/HXtdPWeMqZ.

43 Solnyškinienė, "Nuosavybės struktūros pokyčiai Lietuvos bendrovėse," pp. 48–49.

44 Mitalauskienė, "Privatizavimo eiga Lietuvoje po 1990 m. ir rezultatų įvertinimas," pp. 20, 61.

45 Mitalauskienė, "Privatizavimo eiga Lietuvoje po 1990 m. ir rezultatų įvertinimas," pp. 14–15; Maldeikis, *Privatisation in Lithuania*, p. 3.

46 Mitalauskienė, "Privatizavimo eiga Lietuvoje po 1990 m. ir rezultatų įvertinimas," pp. 62.

47 Mitalauskienė, "Privatizavimo eiga Lietuvoje po 1990 m. ir rezultatų įvertinimas," pp. 18, 27.

48 Mitalauskienė, "Privatizavimo eiga Lietuvoje po 1990 m. ir rezultatų įvertinimas," p. 27.

49 Mitalauskienė, "Privatizavimo eiga Lietuvoje po 1990 m. ir rezultatų įvertinimas," p. 27.

nomic regulation and privatization became similar to "developed Western countries,"[50] due to decreased mass privatization and increased object-based privatization.[51]

In the first fifteen years of independence, Lithuania developed a functioning market economy against the backdrop of three privatization phases that first focused on locals and then allowed foreign investments in the country. This comprised a small market, a relatively cheap labor force and ongoing emigration alongside EU and NATO membership in 2004.[52] In this context, the key telecom operator in the country, Lietuvos Telekomas, 1998 privatization represents one of the biggest privatization deals in Lithuania's history that majorly shaped the telecommunications industry in terms of ownership, equipment modernization, and labor relations.

4.2 The Privatization of Lietuvos Telekomas

Organizational researchers Raminta Pučėtaitė and Aleksandras Vasiljevas in a uniquely critical scholarly article on Lietuvos Telekomas privatization posit that Lietuvos Telekomas was built upon the telephone network legacy of the former Soviet Union; it became independent from the former Soviet Union Communications Ministry after Lithuania's independence in 1990. On 6 February 1992, it was established as Lietuvos Telekomas, a centralized state enterprise. Telecommunications organizations in Soviet Lithuania did not function efficiently. After Moscow's source of funding was cut due to the disintegration of the Soviet Union, the telecommunication sector's debts reached three hundred million Litas in 1997, which led the cash-strapped 1990s government to undertake the contested privatization of Lietuvos Telekomas.[53] In her M.A. thesis on the management of Lietuvos Telekomas, organizational researcher Jūratė Birutytė-Ivanauskienė argues that the privatized Lietuvos Telekomas invested two billion Litas into network digitalization between 1998 and 2006, and developed ADSL technology. Over the course of time, from 2005, the company started developing 2 Mb/s wireless broadband Internet network in the whole country. Lietuvos Telekomas thus became one of the leaders in Lithuania's Internet access market.[54] On a less positive note, Lietuvos Telekomas's number of employees has drastically sunk since these developments. On 31 December 1997, Lietuvos Telekomas had over ten thousand employees,[55] but only seven thousand

50 Mitalauskienė, "Privatizavimo eiga Lietuvoje po 1990 m. ir rezultatų įvertinimas," p. 32.

51 Jurėnienė and Jurėnė, "Political, Economic, and Social Issues of Lithuania," p. 14.

52 Jurėnienė and Jurėnė, "Political, Economic, and Social Issues of Lithuania," p. 15.

53 Aleksandras Vasiljevas and Raminta Pučėtaitė, "Suinteresuotųjų Grupių Vadybos Problemos Privatizacijos Ir Tarptautinio Verslo Kontekstuose: 'Lietuvos Telekomo'" Atvejis," *Tiltai*, no. 3 (2004), p. 37.

54 Jūratė Birutytė-Ivanauskienė, "Besimokančios organizacijos bruožai akcinėje bendrovėje 'Lietuvos Telekomas,'" (M.A. thesis, Šiaulių universitetas, 2006), p. 29.

55 Vytenis Junevičius and S. Žilėnaitė, "Viešo konkurso komisijos ryšių įmonėms privatizuoti posėdžio protokolas nr. 3-2," 1998, Lietuvos Respublikos Europos reikalų ministerija (LVNA), 16, Tvarkomosios organizacinės veiklos bylų apyrašas: 1, 32: "Viešo konkurso komisijos AB 'Lietuvos Telekomas' įmonei privatizuoti dokumentai (posėdžių protokolai, programos, susirašinėjimas su užsienio firmomis ir kt.)," p. 159, Lietuvos valstybės naujasis archyvas (LVNA).

people worked at the company by late 1999.[56] By the end of 2003 only 3400 employees were expected to work at the company,[57] in 2015 the company employed over 1900 people, and in 2020 they employed over 1600 people.[58]

Vasiljevas and Pučėtaitė contend that before its privatization the Lithuanian government aimed to increase Lietuvos Telekomas's value by legalizing the right for new owners to increase tariffs and issuing the new Telecommunications Law (9 June 1998), which insured temporary exceptional monopoly rights for Lietuvos Telekomas's provision of general fixed telephone communication services until December 31, 2002.[59] The authors state that this monopoly license gave the privatized Lietuvos Telekomas the right to increase tariffs, but their formula was "not economically viable, nor submitted for public discussion."[60] The article outlines many problems related to this privatization and its aftereffects, such as the lack of publicly accessible information on the privatization process, which led to the reliance of broader society on media articles that "spread ideas and beliefs that justice belongs to the powerful."[61] Additionally, they argue that the privatized Lietuvos Telekomas ignored stakeholder interests by continuously increasing prices for telephone rates (seven times between 1999 and 2002).[62] Moreover, they claim that the privatized Lietuvos Telekomas disregarded user, small shareholder, and competitor interests on multiple occasions. For example, the company was accused of installing filters for the analog infrastructure lines that it then rented to other Internet service providers for data transmission service. These filters were said to decrease data transmission capacity and furthermore force clients to rent more expensive digital lines. After protests, the company explained that the installation of these filters was an engineering mistake that was sequentially corrected.[63] Additionally, the article negatively judges the Government for being "interested more in their image in Europe than the well being of the population,"[64] due to its alleged passivity and secret agreements with Lietuvos Telekomas.[65] The article argued that while some telecom clients replied with

56 Vasiljevas and Pučėtaitė, "Suinteresuotųjų grupių vadybos problemos privatizacijos ir tarptautinio verslo kontekstuose," p. 37.

57 Vasiljevas and Pučėtaitė, "Suinteresuotųjų grupių vadybos problemos privatizacijos ir tarptautinio verslo kontekstuose," p. 38.

58 Valstybinio Socialinio Draudimo Fondo Valdyba (Sodra), "Telia Lietuva, AB darbuotojai (apdraustieji)," Rekvizitai, 2020, https://rekvizitai.vz.lt/imone/teo_lt/darbuotoju-skaicius/.

59 Vasiljevas and Pučėtaitė, "Suinteresuotųjų grupių vadybos problemos privatizacijos ir tarptautinio verslo kontekstuose," p. 37.

60 Vasiljevas and Pučėtaitė, "Suinteresuotųjų grupių vadybos problemos privatizacijos ir tarptautinio verslo kontekstuose," p. 37.

61 Vasiljevas and Pučėtaitė, "Suinteresuotųjų grupių vadybos problemos privatizacijos ir tarptautinio verslo kontekstuose," p. 38.

62 Vasiljevas and Pučėtaitė, "Suinteresuotųjų grupių vadybos problemos privatizacijos ir tarptautinio verslo kontekstuose," pp. 37–39.

63 Vasiljevas and Pučėtaitė, "Suinteresuotųjų grupių vadybos problemos privatizacijos ir tarptautinio verslo kontekstuose," pp. 40–41.

64 Vasiljevas and Pučėtaitė, "Suinteresuotųjų grupių vadybos problemos privatizacijos ir tarptautinio verslo kontekstuose," p. 42.

65 Vasiljevas and Pučėtaitė, "Suinteresuotųjų grupių vadybos problemos privatizacijos ir tarptautinio verslo kontekstuose," pp. 40–42.

protests and cancelled their subscription to the company's services, broader Lithuanian society was uninformed and passive.[66] In addition to its many negative critical statements, this article also argued that Lietuvos Telekomas rationally reorganized an employee structure that was previously comprised of many "parasitic structures that artificially created jobs for relatives, friends and acquaintances of those who have held high positions in the company,"[67] and improved its technology and user telephone access. It also undertook other measures to attract clients, such as introducing social well-being as a strategic goal from 2002 onward.[68] These issues hint at the tumultuous nature of Lietuvos Telekomas's privatization process and aftereffects.

While Pučėtaitė and Vasiljevas criticize Lietuvos Telekomas's privatization, many other scholarly sources and governmental documents describe it as the only available option for developing and modernizing Lithuania's telecommunications sector. For example, in 1998 the Social Affairs and Labor Committee of the Lithuania Parliament debated and approved the Law for the Replacement of Telecommunications Services Tariffs issued by the Ministry of Communications and Informatics. Its explanatory writing bluntly states that there is no alternative to Lietuvos Telekomas's privatization:

> There is no alternative to changes in telecommunications services tariffs, taxation of local conversations and joint-stock company Lietuvos Telekomas' privatization. In solving this question, there are three options: 1. Bankruptcy in the future; 2. Investments in billions from the pockets of all taxpayers; 3. Service taxation and privatization of the company. This is why the third option was chosen.[69]

Accordingly, the state-owned Lietuvos Telekomas was reorganized into a joint-stock company on 16 July 1997. In 1998, 60 percent of its shares were privatized to Amber Teleholding, a Telia and Sonera consortium. In 2000, state enterprise State Property Fund further privatized 25 percent of its shares in a public sale.[70] The attitude of "no alternative" in Lietuvos Telekomas's case in particular, and in privatization case in Lithuania in general, is not only reminiscent of Margaret Thatcher's infamous slogan, but also of the perspective expressed in the European Bank for Reconstruction and Development's annual report in 1995 regarding the privatization and liberalization of the telecommunications sector in CEE and the former Soviet Union. This report also argues that the

66 Vasiljevas and Pučėtaitė, "Suinteresuotųjų grupių vadybos problemos privatizacijos ir tarptautinio verslo kontekstuose," p. 42.

67 Vasiljevas and Pučėtaitė, "Suinteresuotųjų grupių vadybos problemos privatizacijos ir tarptautinio verslo kontekstuose," p. 38.

68 Vasiljevas and Pučėtaitė, "Suinteresuotųjų grupių vadybos problemos privatizacijos ir tarptautinio verslo kontekstuose," p. 43.

69 Visokavičienė, B. "Aiškinamasis raštas," 1998, Lietuvos Respublikos Europos reikalų ministerija (LVNA), 16, Tvarkomosios organizacinės veiklos bylų apyrašas: 1, 50: Viešo konkurso komisijos ryšių įmonėms privatizuoti dokumentai (susirašinėjimas su užsienio firmomis, privatizuojamų objektų dokumentai ir kt.), 1 t, p. 133, Lietuvos valstybės naujasis archyvas (LVNA).

70 Lietuvos Telekomas, *Akcinės bendrovės „Lietuvos Telekomas" 2005 metų prospektas-ataskaita* (unpublished, 2005), p. 13, https://nasdaqbaltic.com/market/upload/reports/tel1/2005_yb_lt_ltl_con_ias.pdf.

privatization and liberalization of telecommunications sector was a necessity for reasons of efficiency, and that these processes should be regulated by the government and eventually liberalized in order to increase telecom sector competition, as previously formulated in the 1987 European Union Green Paper.[71]

In Lithuania, Lietuvos Telekomas's complex privatization process was guided by a tender-winning consultancy company, which was commissioned to help the government with financial, technical, and legal privatization issues as well as to develop a privatization program.[72] According to the archival material, the Commission received full applications from seven consultancy companies and consortiums and chose the Union Bank of Switzerland as the winner.[73] Later, six companies were qualified to apply to Lietuvos Telekomas's privatization: France Telecom, OTE, STET International Telecom Italia, Tele Denmark, Telia, and Telecom Finland.[74] Swedish-Finnish Telia and Sonera consortium won. The critical negotiations and their distinct justifications as well as future visions surrounding Lietuvos Telekomas's privatization, which I explore in the following, illustrate how Internet infrastructural developments do not follow a linear, clear path, but are rather embedded in ongoing struggles and potential visions of development.

4.3 Critical Negotiations Regarding Lietuvos Telekomas's Privatization

Lietuvos Telekomas's privatization has not been easily forgotten: during my fieldwork it was still criticized among key telecom industry stakeholders. The critical judgments surrounding Lietuvos Telekomas's privatization are not radical in the sense that they

71 Clell Harral, Jack Colbourne, and Gueorgui Horozov, *Privatisation of the Telecommunications Sector in Central and Eastern Europe and the Former Soviet Union* (European Bank for Reconstruction and Development, Telecommunications Team, 1995), pp. 4–6.

72 Vytenis Junevičius, "Techninė užduotis Lietuvos telekomo privatizavimo programai paruošti," 1997, Lietuvos Respublikos Europos reikalų ministerija (LVNA), 16, Tvarkomosios organizacinės veiklos bylų apyrašas: 1, 18: Viešo konkurso komisijos ryšių įmonėms privatizuoti posėdžių protokolai, techninių vertimų apibendrinimai, 1 t., p. 26, Lietuvos valstybės naujasis archyvas (LVNA).

73 Vytenis Junevičius, Vaidotas Vilutis, "Viešo konkurso komisijos ryšių įmonėms privatizuoti posėdžio protokolas nr. 4," 1997, Lietuvos Respublikos Europos reikalų ministerija (LVNA), 16, Tvarkomosios organizacinės veiklos bylų apyrašas: 1, 18: Viešo konkurso komisijos ryšių įmonėms privatizuoti posėdžių protokolai, techninių vertimų apibendrinimai, 1 t., pp. 49–50, Lietuvos valstybės naujasis archyvas (LVNA). In fact, I appears that there were more companies consulting the government on the privatization of Lietuvos Telekomas: UBS Limited/CIBC Wood Gundy consortium, "Arthur Andersen, "McDermott, Will & Emery" (CIBC Wood Gundy, "Draft Press Release, Government of Lithuania appoints Telecoms Privatisation Advisers," 1997, Lietuvos Respublikos Europos reikalų ministerija (LVNA), 16, Tvarkomosios organizacinės veiklos bylų apyrašas: 1, 21. Viešo konkurso komisijos ryšių įmonėms privatizuoti dokumentai (susirašinėjimas su užsienio firmomis, privatizuojamų objektų dokumentai ir kt.), 1 t., pp. 17–21, Lietuvos valstybės naujasis archyvas (LVNA)).

74 Gareth Thomas to Vytenis Junevičius, "Laiškas," 1997, Lietuvos Respublikos Europos reikalų ministerija (LVNA), 16, Tvarkomosios organizacinės veiklos bylų apyrašas: 1, 35: Susirašinėjimas su užsienio firmomis dalyvavimo viešame konkurse AB "Lietuvos Telekomas" privatizuoti klausimais, p. 45, Lietuvos valstybės naujasis archyvas (LVNA).

do not question the very event of Lietuvos Telekomas's privatization. However, these critical negotiations show how infrastructure developments are always embedded in larger issues at stake. Privatization is still an issue that is criticized amongst current telecom industry stakeholders. In fact, prominent American-Lithuanian businessman Juozas Kazickas, who established Omnitel, one of the first private telecommunications companies in Lithuania, even claimed that he, a wealthy businessman from the US, had not privatized anything in Lithuania due to fear of critique and accusations of societal exploitation or the use of this period of transformation to purchase cheap assets.[75] Due to the fact that Lietuvos Telekomas was such a crucial asset to the telecom industry, its privatization changed the industry and thus critique of this process has been intense, visible and ongoing.

Critiques especially included the privatization of the nation-wide underground communication channel system, which is a crucial means for telecom service providers to provide Internet access. After privatization, this service was controlled by the private Lietuvos Telekomas. Algirdas, an interviewee from the political field, complained, "The bad thing was, the huge bad [thing], even though we told the politicians, but this hasn't been listened to—not only the buildings, not just the computers—the worst thing was that all the tracks were privatized. . . . All so-called canalization."[76] A couple of fieldwork participants posited that the privatized Lietuvos Telekomas hindered competitor access to its underground communications channel system, and thus they had to seek alternative ways to gain access.[77] Vytenis, an employee at one of the smaller telecom operators, stated:

> you start negotiations with them [Lietuvos Telekomas], and they do not take place . . . you cannot establish telephone service without having anything . . . you need to connect your networks. . . . And they did everything for that connection not to happen. It took us more than a year . . . which was already legal . . . we were right, according to the law, for them to give us the connection. But this, in fact, cost us a lot financially, and for many years we were working in the red . . .[78]

Even during the time I undertook my fieldwork, the company for which Vytenis worked rented very few communication channels from Telia Lietuva, because "it would never sell to us, more precisely, it would sell with an outlandish price, which would be many times higher than the retail price . . . In this way the competition was regulated."[79] Skaidula, a private company that started laying, selling, and renting their own communication channel infrastructure, provided one of the first alternatives to Lietuvos Telekomas's underground communication channels. This competitor led Lietuvos Telekomas to decrease their communication channel rental prices. Linas, an employee from Kaunas Technological University, stated:

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75 Juozas Petras Kazickas, "Untitled," in *Jie kūrė Lietuvos ryšius*, Basevičius, Kuzma, and Žintelis, eds., pp. 453–454.

76 Interview with Algirdas, 9 November 2017.

77 Interview with Tomas, 27 March 2017; Interview with Vytenis, 21 March 2017.

78 Interview with Vytenis, 21 March 2017.

79 Interview with Vytenis, 21 March 2017.

> Because they [Skaidula] turned the magisterial network market in Lithuania upside down. Because in the beginning it was a gloomy Belarus, monopoly, that's it. . . . After that also TEO saw, 'Well, what's the difference? I have the cable, but if I tell to rent the stream, then it will run to Skaidula, and buy the cable, and then my cable is on the downtime.' . . . in reality eating money, because it is getting old, and I will not get any money afterwards.[80]

As these examples show, Lietuvos Telekomas's privatization impacted underground communication channel sharing and fostered the emergence of alternative physical infrastructure providers such as Skaidula.

I dug deeper into bottom-up critique of Lietuvos Telekomas's privatization expressed by the key stakeholders before, during, and after the privatization process along the lines of Boltanski and Thévenot's conceptualization of critique as the mundane human crucial capacity to use critical justifications to strive for a vision of a better future.[81]

One of the justifications of Lietuvos Telekomas's privatization that I encountered in the field was a description of it as a necessary, urgent and politically motivated process for Lithuania. In this context, Lithuania represented a country that aimed to attract foreign investments and join "the West" since the fall of the Soviet Union. Other perspectives judged privatization in explicitly negative or positive terms. Negative justifications were particularly concerned with workers rights, tariff policies, the temporary monopoly right backed up by the 1998 Telecommunications Law that allowed the privatized Lietuvos Telekomas to provide fixed telephone services and the uncertain course of physical infrastructure channel sharing practices among telecom operators after Lietuvos Telekomas's privatization, as mentioned above. Positive justifications of privatization depicted it as a socially responsible and technically and institutionally progressive act. In the following section, I present justifications organized under three main categories: privatization as necessary, negative, and positive. Within these designations, I chose illustrative statements from coded primary sources to explore diverse critical negotiations implied thereupon.

The description of privatization as necessary was mainly stated by public officials in the memoir *Jie kūrė Lietuvos ryšius* and archival Ministry of Communications and Informatics documents that I accessed at the New Lithuanian State Archives. One illustrative judgment comes from public official Jonas Ūsas, who contended that the privatization of Lietuvos Telekomas was an act that was necessary for Lithuania to access the EU, modernize Lietuvos Telekomas, and solve local budgetary problems:

> Even now, people sometimes ask whether or not it was necessary to privatize the Telecom. After weighing all the pros and cons, I can say with certainty that it was needed and at least one year earlier. It was necessary both from state and private perspectives. The not yet privatized Telecom did not receive the necessary funds for the modernization and development of telecommunications equipment. Even the Seimas [Lithua-

80 Interview with Vytenis, 21 March 2017.

81 Boltanski and Thévenot, "The Sociology of Critical Capacity," p. 375; Boltanski and Thévenot, "The Reality of Moral Expectations," pp. 208–31.

> nian Parliament] refused to grant permission for a 5 million Litas loan. We also know the attitude of foreign investors towards state-owned enterprises. Also, Lithuania intended to become a member of the European Union. As the head of the Lithuanian 'Telecommunication and Information Technology' Division of the European Union negotiations, I can say that without the privatization of the Telecom, we could not dream of joining the European Union. In privatizing the Telecom, the state first solved the problem of the state budget, receiving over 2 billion Litas for 60 percent of the shares. At that time, the amount received comprised a quarter of the country's budget. It was money that helped solve the problems of the onset of the Russian economic crisis and many other problems.[82]

Ūsas's perspective depicts privatization as necessary to modernize main telecom provider Lietuvos Telekomas, foster foreign involvement in Lithuania's market, solve Lithuania's budgetary issues, and help Lithuania join the EU. Accordingly, privatization is said to solve both local problems and international cooperation issues.

Within my material, I have not found any primary source statement that radically questions privatization, but there were plenty of explicitly negative and positive judgments that either challenged or praised it and went beyond such a pragmatic stance on necessary privatization.

Some stakeholders ambiguously praised privatization while grieving its social costs.[83] One such inconclusive stance came from Minister of the Ministry of Communications and Informatics, Alfredas Antanas Basevičius, who praised privatization due to its effect on telecom equipment modernization, while simultaneously mourning for lost jobs:

> During this period, the technological development of telephone networks changed radically, expansion of digital telephone communication networks, fiber optic cables were further intensified, digital transmission systems and switching stations were established, the AXE-type Ericsson International Telephone Station was built in Vilnius. However, the rapid digitalization of the telephone network and the inadvertent increase of tariffs have led to the dismissal of a large number of workers, many of whom have experienced these changes with great difficulty. . . . Since 1998, over seven thousand employees left Lietuvos Telekomas since its privatization in 1998 and the number of subscribers decreased from 120,0000 to 800,000.[84]

Among the explicitly negative justifications, a few notably stand out. Negative judgments were expressed regarding the privatization process as such, lost respect for the status of telecommunications workers, rising tariffs for telecommunications services, the introduction of the monopoly right for Lietuvos Telekomas, and new methods for sharing physical infrastructure for different industry stakeholders. These negotiations

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82 Ūsas, "Untitled," in *Jie kūrė Lietuvos ryšius*, Basevičius, Kuzma, and Žintelis, eds., p. 229.

83 Alfredas Antanas Basevičius, "Untitled," in *Jie kūrė Lietuvos ryšius*, Basevičius, Kuzma, and Žintelis, eds., p. 178; Egidijus Žilius "Untitled," in *Jie kūrė Lietuvos ryšius*, Basevičius, Kuzma, and Žintelis, eds., pp. 433–434; Romualdas Degutis, "Untitled," in *Jie kūrė Lietuvos ryšius*, Basevičius, Kuzma, and Žintelis, eds., p. 406.

84 Basevičius, "Untitled," p. 178.

exemplify how the privatization of Lietuvos Telekomas was actually immersed in societal, institutional, and technical debates that took place before and after the event of privatization.

First, a few public officials and networks constructors stressed the legacy of telecom workers who helped raise Lietuvos Telekomas's value during Soviet times, but were quickly isolated and discarded during privatization. Vytautas Jonas Kuzma, the Minister of Communications Ministry of the Lithuanian SSR, contends in his memoir that the difficult work done by Lithuanian SSR telecommunications employees helped increase the value of the contemporary Lietuvos Telekomas:

> In 1998, with the privatization of Lithuanian Telecom, in just over five years almost all stations became digital, a large number of fiber-optic cables multiplexed with digital high-throughput systems were laid. It seems there is not much to be proud of if there was more achieved during these five years than the last five decades? But without a good foundation, would this reconstruction be easy and how much would it cost? I think that nobody would have paid 500,000 mln. US dollars for Lietuvos Telekomas. I would like to note that Lietuvos Telekomas was profitable before its sale and profitable after its sale. . . . It is important to note that the development of the telecommunications network took place under conditions of absolute deficit. There was a lack of equipment, cable production, construction materials. . . . When there were no materials, the workers would walk away without work, and when we got materials and equipment, we would also work on days-off, and even then we would not manage on time. What to say about quality here! In order to get cable production, many employees were on permanent business trips. And yet, even under these conditions, the qualification of our staff has improved.[85]

Kuzma not only describes how Lietuvos Telekomas was successful before its privatization due to the hard work of its employees. In this remembrance, he also emphasizes that past (therefore, also Soviet) work laid strong foundations for the current telecom industry, and that he was afraid that this previous work would sink into oblivion due to the allegedly obvious assumption that one should resent the (Soviet) past by claiming, "It seems there is nothing much to be proud of if there was more achieved during these five years than the last five decades."[86] Kuzma posits that many others industry members acknowledge that this past telecom legacy actually enabled the emergence of modern telecom operator in Lithuania, and that it should not be forgotten due to its occurrence during Soviet times. At the start of privatization, Vytautas Kaušpėdas, the architect and head of the Lithuanian SSR Construction Trust, similarly mourned for the lost status of workers who helped build up the national telecom system: "With the abolition of the Ministry for Communications, having privatized Telekomas, we, old telecommunications workers, found ourselves in a vacuum, like extraneous observers,

85 Kuzma, "Untitled," pp. 114–115.

86 Kuzma, "Untitled," pp. 114–115.

we saw as if the reaper of privatization is cutting off the fates of humans and collectives with a scythe."[87]

The Lithuanian Trade Union also sent a resolution concerned with employee working conditions to then-Prime Minister of Lithuania, Gediminas Vagnorius. They demanded social guarantees for employees from privatization funds, the privatization of no more than 49 percent of the company and a slowing down of the privatization process.[88] These topics were also raised in a letter from employees of Lietuvos Telekomas's Kaunas branch to the President of Lithuania, Algirdas Brazauskas, in which employees argued for the acknowledgment of their contribution, criticized the fast pace of the privatization process and expressed dissatisfaction with the company's sale to foreign owners. The narrative of the letter suggests that if Lietuvos Telekomas had remained in state ownership and worker-built infrastructure, telecommunication prices would not rise and employment would eventually increase:

> On January 1991, during difficult days for Lithuania, the Soviet aggressors turned first to the communication objects and to the Supreme Council, fully aware of the importance of strategic objects. Telecommunications workers then did not break down and kept the country's arteries in the hands of Lithuania, informing the world about the emerging threat. Without a means of communication, the state would be miserable in the face of such danger, neither would patriotism of the nation help. Lietuvos Telekomas is a profitable company with one million subscribers, successfully implementing advanced technology. So why do we want to give away those profits abroad instead of creating new jobs for our countrymen? After all, these assets were created over the years by Lithuanian telecommunications workers, who themselves worked selflessly for low wages. Most Lithuanian rural communications infrastructure was developed with funds earned by other Lithuanian companies. We are opposed to the hasty sale of Lietuvos Telekomas and propose to not remove it from the list of non-privatized state companies until 2000, so that we can at least partially prepare for civilized privatization. Let us not give foreigners the opportunity to solve their business problems at our expense. Experience has shown that urgent privatization has brought only poverty to Lithuania. A good farmer first gets his yard together, instead of going to serve there after selling his farm.[89]

The negative justifications above criticize privatization as a process that ignored employee contributions, excluded local employees from decision-making, and removed local control. At the same time, these justifications demanded national control of the

87 Vytautas Kaušpėdas, "Untitled," in *Jie kūrė Lietuvos ryšius*, Basevičius, Kuzma, and Žintelis, eds., p. 512.

88 Arvydas Akstinavičius, Rimantas Dagys, and Algirdas Sysas, "Lietuvos profesinių sąjungų konferencijos 'Skubotas privatizavimas - ar mes turėsime darbą?' Rezoliucija," 1998, Lietuvos Respublikos Europos reikalų ministerija (LVNA), 16, Tvarkomosios organizacinės veiklos bylų apyrašas: 1, 50: Viešo konkurso komisijos ryšių įmonėms privatizuoti dokumentai (susirašinėjimas su užsienio firmomis, privatizuojamų objektų dokumentai ir kt.), 1 t, p. 100, Lietuvos valstybės naujasis archyvas (LVNA).

89 Sigitas Jančius et al. to Algirdas Brazauskas, "Atviras laiškas LR Prezidentui p. A. Brazauskui," presumably 1997–1998, DB-24, 1/1530, Kauno miesto muziejaus archyvai.

telecom operator, a reduced privatization process pace, secured work places for industry employees, and the valuation of their past work. Finally, some of these negative justifications carry an implicit nationalist idea that telecom industry development would be successful and fair for workers only if it remained in local hands. Notwithstanding this demand for the valuation of workers' status and national ownership, Lietuvos Telekomas was privatized by TeliaSonera and the majority of Lietuvos Telekomas workers were fired after its 1998 privatization. In fact, in 1998 the Ministry for European Affairs openly announced to Lithuanian Radio and Television Center (LRTC) trade unions that telecommunications workers would be fired over the course of time due to increasing technology automatization.[90]

Moreover, many negative privatization justifications were not only concerned with the role of workers in terms of employee remembrance and secured employment, but also demanded national ownership or criticized new owners. They spoke of the detrimental effects of privatization on Lithuanian society in general, with particular critique expressed toward the potential owners of Lietuvos Telekomas. Some, such as Kaunas Technology University docent Antanas Pociūnas's proposal to the Prime Minister Vagnorius, further suggested selling the company to the people of Lithuania and using the income from privatization to develop local industry and agriculture.[91] Others protested that Lietuvos Telekomas was sold too quickly as well as to foreign, partially state-owned companies, as was the case with state-owned companies Telia and Sonera.[92] The Lithuanian Cable Television Association complained:

> How are public companies of other countries better than Lithuanian companies if the list of potential buyers includes public companies of other countries, including Swedish State Telecom TELIA? Is it possible to imagine that a state-owned telecom operator of one of the European Union countries would buy, for instance, DEUTSCHE TELEKOM, and that would be called privatization and market liberalization?[93]

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90 Laima Andrikienė to Gediminas Vagnorius, "Laiškas," 1997, Lietuvos Respublikos Europos reikalų ministerija (LVNA), 16, Tvarkomosios organizacinės veiklos bylų apyrašas: 1, 22: Viešo konkurso komisijos ryšių įmonėms privatizuoti dokumentai (susirašinėjimas su užsienio firmomis, privatizuojamų objektų dokumentai ir kt.), 2 t., p. 176, Lietuvos valstybės naujasis archyvas (LVNA).

91 Antanas Pociūnas to Gediminas Vagnorius, "Laiškas," 1998, Lietuvos Respublikos Europos reikalų ministerija (LVNA), 16, Tvarkomosios organizacinės veiklos bylų apyrašas: 1, 51: Viešo konkurso komisijos ryšių įmonėms privatizuoti dokumentai (susirašinėjimas su užsienio firmomis, privatizuojamų objektų dokumentai ir kt.), 2 t., p. 80, Lietuvos valstybės naujasis archyvas (LVNA).

92 Juozas Jurelionis to Vytenis Junevičius, "Laiškas," 1997, Lietuvos Respublikos Europos reikalų ministerija (LVNA), 16, Tvarkomosios organizacinės veiklos bylų apyrašas: 1, 21. Viešo konkurso komisijos ryšių įmonėms privatizuoti dokumentai (susirašinėjimas su užsienio firmomis, privatizuojamų objektų dokumentai ir kt.), 1 t., pp. 12–14, Lietuvos valstybės naujasis archyvas (LVNA).; Jonas Griešius to Lietuvos Respublikos Prezidentui, "E-mail," 1998, Lietuvos Respublikos Europos reikalų ministerija (LVNA), 16, Tvarkomosios organizacinės veiklos bylų apyrašas: 1, 51: Viešo konkurso komisijos ryšių įmonėms privatizuoti dokumentai (susirašinėjimas su užsienio firmomis, privatizuojamų objektų dokumentai ir kt.), 2 t., p. 82, Lietuvos valstybės naujasis archyvas (LVNA).

93 Juozas Jurelionis to Vytenis Junevičius, "Laiškas," 1997, Lietuvos Respublikos Europos reikalų ministerija (LVNA), 16, Tvarkomosios organizacinės veiklos bylų apyrašas: 1, 21. Viešo konkurso komisijos ryšių įmonėms privatizuoti dokumentai (susirašinėjimas su užsienio firmomis, privatizuojamų objektų dokumentai ir kt.), 1 t., p. 12, Lietuvos valstybės naujasis archyvas (LVNA).

In his memoir *Jie kūrė Lietuvos ryšius*, Henrikas Varnas, former Vice Minister of the Ministry of Communications and Informatics and a public official who was involved in privatization process, judged this privatization to foreign companies as having allegedly detrimental societal effects:

> In the early months, having bought a landline telephone network, the Finns removed communication exemptions for people with disabilities, for which the budget generously gave away millions for new hosts. The prices of communication services increased every six months. The poor memory of the citizens of Lithuania about Tapio Paarma [first director of privatized Lietuvos Telekomas] is a case in itself. This Finn did not respect neither our country nor its citizens. Such personality has also contributed to the company's bad image and to the mass inhabitant abandonment of the fixed landline telephone. Telecom estimated millions in profits, and ordinary residents avoided calling a clinic, a shop, a bus station.[94]

In addition to critique of workers conditions and ownership relations, negative critical negotiations also stressed the technological and regulatory drawbacks of privatization. One of these was particularly concerned with tariffs. Many organizations, including the Lithuanian Cable Television Association, the Association for the Physically Disabled of Lithuania and the Kaunas University of Technology Trade Union, issued official complaints against the Ministry for Communication and Informatics's plans to raise telephone tariffs.[95] Additional critiques also included the reduction of network access points in less profitable regions by Lietuvos Telekomas and the temporary (1998 to the end of 2002) monopoly rights provided to Lietuvos Telekomas for general fixed telephone communication services. One industry participant, a former Lietuvos Telekomas employee Mindaugas, complained that Lietuvos Telekomas closed down many network access points because they were not profitable enough. He stated that "what really annoyed me when working for this private company is the [situation] that there

94 Henrikas Varnas, "Untitled," in *Jie kūrė Lietuvos ryšius*, Basevičius, Kuzma, and Žintelis, eds., pp. 220–221.

95 K. Paulauskas, "Kauno Technologijos Universiteto darbuotojų profsąjungos ataskaitinės konferencijos pareiškimas, Dėl numatomų telefono ryšių tarifų," 1998, Lietuvos Respublikos Europos reikalų ministerija (LVNA), 16, Tvarkomosios organizacinės veiklos bylų apyrašas: 1, 50: Viešo konkurso komisijos ryšių įmonėms privatizuoti dokumentai (susirašinėjimas su užsienio firmomis, privatizuojamų objektų dokumentai ir kt.), 1 t, p. 64, Lietuvos valstybės naujasis archyvas (LVNA); S. Vesko to Ryšių-Informatikos ministrui, "Laiškas," 1998, Lietuvos Respublikos Europos reikalų ministerija (LVNA), 16, Tvarkomosios organizacinės veiklos bylų apyrašas: 1, 50: Viešo konkurso komisijos ryšių įmonėms privatizuoti dokumentai (susirašinėjimas su užsienio firmomis, privatizuojamų objektų dokumentai ir kt.), 1 t, p. 63, Lietuvos valstybės naujasis archyvas (LVNA); Juozas Jurelionis to Vytenis Junevičius, "Laiškas," 1997, Lietuvos Respublikos Europos reikalų ministerija (LVNA), 16, Tvarkomosios organizacinės veiklos bylų apyrašas: 1, 21: Viešo konkurso komisijos ryšių įmonėms privatizuoti dokumentai (susirašinėjimas su užsienio firmomis, privatizuojamų objektų dokumentai ir kt.), 1 t., p. 13, Lietuvos valstybės naujasis archyvas (LVNA); Antanas Pociūnas to Gediminas Vagnorius, "Laiškas," 1998, Lietuvos Respublikos Europos reikalų ministerija (LVNA), 16, Tvarkomosios organizacinės veiklos bylų apyrašas: 1, 51: Viešo konkurso komisijos ryšių įmonėms privatizuoti dokumentai (susirašinėjimas su užsienio firmomis, privatizuojamų objektų dokumentai ir kt.), 2 t., p. 80, Lietuvos valstybės naujasis archyvas (LVNA).

is no Lithuania and no Lithuanian interest, there is only business there."[96] While a telecom operator's desire to optimize and profit is not surprising in a profit-oriented market economy, in the Lithuanian SSR it was an exception. According to the memoirs of telecommunications industry worker Algirdas Valiauga: "At those times, telecommunications companies were budget-financed, so there was no need to look at profitability. To make it more convenient for people, [they] attempted to open up telecommunications sections in every larger village. Almost every year, we opened a telecommunications section."[97]

Another technological impediment concerned the unclear fate of nation-wide underground communication channel access, as briefly presented in the beginning of this chapter, because after its privatization Lietuvos Telekomas became the sole owner of the majority of underground communication channels in Lithuania. According to Tomas, a telecom company employee, privatization was painful for them because

> the most valuable thing that existed was sold: the whole infrastructure of Lithuania was sold. It means that all the channels in which the cables are laid fell into the ownership of someone for a symbolic price. And they began to dictate their conditions. . . . now there are more obligations that they have to do, there are reservations as to why they may not do it, and there is a certain amount of hardship going on all the time, all the time we are forced to pay, for example, rent.[98]

According to the 2011 Communications Regulatory Authority report, it is difficult for other telecom operators to lay new underground channels because it is either economically not feasible or physically impossible due to existing dense settlement structures.[99] These conditions leave the privatized Lietuvos Telekomas (currently Telia Lietuva) in charge of huge physical underground communications channels infrastructure that they need to rent to their competitors. This is the reason why emerging telecom operators throughout the 1990s and later wanted access to this underground system, but they were unsure how the now-private main telecom operator would provide this access. In light of this, multiple telecom stakeholders from the fields of business, academia, and politics became explicitly concerned with other market players' access to this underground system after Lietuvos Telekomas's privatization. A letter from the Lithuanian Cable Television Association (LCTA) to the Director of the Privatization Department at the Ministry of European Affairs, Vytenis Junevičius, on 20 August 1997, is illustrative of this critique of future uncertainty. The letter was written for an upcoming interview in LCTA's *Kabelinė Televizija* magazine. In it, the LCTA claims that telecom operators are in a state of complete fear due to the unknown future of underground communications channel sharing policies:

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96 Interview with Mindaugas, 7 February 2018.

97 Algirdas Valiauga, "Untitled," in *Jie kūrė Lietuvos ryšius*, Basevičius, Kuzma, and Žintelis, eds., p. 426.

98 Interview with Tomas, 27 March 2017.

99 Lietuvos Respublikos Ryšių Reguliavimo tarnyba, *Didmeninės (fizinės) tinklo infrastruktūros prieigos (įskaitant iš dalies ir (arba) visiškai atsietą prieigą) fiksuotoje vietoje rinkos tyrimo ataskaita), Nr. (43.4) LD-1087* (Vilnius: Lietuvos Respublikos Ryšių Reguliavimo tarnyba, 2011), p. 39, https://www.rrt.lt/d/didmenines-vietines-prieigos-fiksuotoje-vietoje-rinka-2/.

> Lithuanian cable television (KTV) network companies, so-called operators, have contracts with LIETUVOS TELEKOMAS for the lease of underground telephone canalization. Most of the contracts are signed for an indefinite term—'until the privatization of LIETUVOS TELEKOMAS', thus demonstrating that they do not provide any long-term guarantees. Operators are afraid that after privatization of LIETUVOS TELEKOMAS the conditions and prices of telephone canalization rental may change so that cable TV networks will remain 'overboard', i.e. there will be no new contracts (arguing for canalization cross section filling), and contracts that have been signed can be terminated quickly or operators will have to opt out themselves due to higher rates and will be forced to install their own cable canalization.[100]

A 2011 market report by the Communications Regulatory Authority claimed that TEO (previously Lietuvos Telekomas and currently Telia Lietuva) has a significant market influence, the best funding opportunities to develop a new generation access network, owns the biggest communication cable channel system, and has the biggest amount of fibers for fiber-optic lines.[101] Based on this research, the CRA issued legislation for TEO that includes a provision for other telecom operators to gain access to their infrastructure,[102] although according to Nedas, a Communications Regulatory Authority employee with whom I communicated via email, telecommunications cable channels have theoretically been shared amongst all operators since 2002.[103] Interestingly, Joris from Telia's Head Office stated that while Telia Lietuva has to follow special requirements issued by the CRA due to its significant market influence, other telecommunications operators are not regulated in the same manner:

> So, if that smaller supplier builds some sort of communications infrastructure, and we now have customers suddenly asking us to provide services there, we say, 'We don't have the technical capabilities.' Okay, what do you need to have the technical capabilities? Then we come and say to that supplier: 'I ask you to rent us this inlet, this pipe,' and we are often told 'No, we will not rent to you.'[104]

Thus, while privatization was criticized by other telecom providers in the industry as an event that could cause them to lose access to physical underground communication channels and therefore also their business capacity, this fear has been tamed by the Communications Regulatory Authority's contemporaneous legal demand that Lietuvos Telekomas provide other telecom operators with access to main underground infrastructure channels.

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100 Juozas Jurelionis to Vytenis Junevičius, "Laiškas," 1997, Lietuvos Respublikos Europos reikalų ministerija (LVNA), 16, Tvarkomosios organizacinės veiklos bylų apyrašas: 1, 21: Viešo konkurso komisijos ryšių įmonėms privatizuoti dokumentai (susirašinėjimas su užsienio firmomis, privatizuojamų objektų dokumentai ir kt.), 1 t., p. 13, Lietuvos valstybės naujasis archyvas (LVNA).

101 Lietuvos Respublikos Ryšių Reguliavimo tarnyba, *Didmeninės (fizinės) tinklo infrastruktūros prieigos (įskaitant iš dalies ir (arba) visiškai atsietą prieigą) fiksuotoje vietoje rinkos tyrimo ataskaita), Nr. (43.4) LD-1087* (Vilnius: Lietuvos Respublikos Ryšių Reguliavimo tarnyba, 2011), pp. 40, 49–50, https://www.rrt.lt/d/didmenines-vietines-prieigos-fiksuotoje-vietoje-rinka-2/.

102 Lietuvos Respublikos ryšių reguliavimo tarnyba, *Dėl ūkio subjekto Teo Lt, Ab, Nr. 1V-629*.

103 RRT, e-mail message to author, 11 April 2019.

104 Interview with Joris, 1 March 2018.

In the telecommunications industry stakeholder book of memoirs *Jie kūrė Lietuvos ryšius*, I also found multiple positive critical negotiations regarding privatization. Some of the memoirs describe privatization as a process that resulted in the modernization of physical network infrastructures, improvement of technical standards and employee skills, and expanded private user access to telecom networks.[105] The remembrances of Gintaras Adomaitis, a telecom industry worker, are illustrative of this perspective. Adomaitis claims that changes induced by privatization are part of an ongoing process of evolution: "Tempta mutantur, et nos mutamur in illis—the times are changing . . . so are we. The Company itself changed . . . New technologies, new telecommunication services, new executives, new ways of thinking stormed into the company of TEO LT. . . . Now, working for the Company [means] ongoing challenges, a quest for continuous improvement."[106]

Indeed, with the help of consultants from Telia and Sonera and incoming investments, the company optimized its network, sold its unused real estate, renovated its buildings, digitalized its stations, exchanged and expanded its broadband Internet access data transmission lines.[107] Users additionally received long-lacking private access to a telephone network. Industry practitioner Vilimas Kulbė claims that Lietuvos Telekomas followed the logic of rational optimization and profitability. He states, "The new equipment was not installed . . . on the basis of what can be obtained, but only after making sure it was not unprofitable."[108] Kulbė argues that after privatization, Lietuvos Telekomas decided to abandon an only slightly transformed Soviet accounting and analysis system and raise technical standards. Kulbė remembers how he was responsible for the development of higher standards for fixed asset depreciation rates against the backdrop of norms in the Swedish and Finnish telecommunications industry. He states that, "The old norms predicted that equipment such as cable and overhead lines would be fully depreciated only after 25–30 years. The new ones, demanded by the owners, foresaw only 5–7 years. The aim was to renew the technical economy as soon as possible."[109] Thus, public officials such as Ūsas described the company that emerged after privatization as strong and modern, providing multiple technological solutions and retaining skilled employees.[110] Additionally, the company's respect for local culture was stressed in *Jie kūrė Lietuvos ryšius*, in which Romualdas Degutis writes about worker assemblies at the privatized Lietuvos Telekomas, which summoned "thousands of the company's employees and their family members"[111] to celebrate together. This positive justification of Lietuvos Telekomas's privatization stressed that it was a result of on-

105 Degutis, "Untitled," pp. 409, 404–405; Varnas, "Untitled," p. 230; Vilimas Kulbė, "Untitled," in *Jie kūrė Lietuvos ryšius*, Basevičius, Kuzma, and Žintelis, eds., p. 271; Gintaras Adomaitis, "Untitled," in *Jie kūrė Lietuvos ryšius*, Basevičius, Kuzma, and Žintelis, eds., p. 450; Interview with Mindaugas, 7 February 2018.

106 Adomaitis, "Untitled," pp. 450–451.

107 Degutis, "Untitled," pp. 404–406, 409.

108 Kulbė, "Untitled," p. 271.

109 Kulbė, "Untitled," p. 271.

110 Ūsas, "Untitled," p. 230.

111 Degutis, "Untitled," p. 410.

going progressive change needed by Lithuania's telecom industry in order to grow and evolve.

An exploration of critical negotiations regarding Lietuvos Telekomas's privatization reveals not only how it was criticized, but also how these critical justifications simultaneously complained, praised privatization, and strived for their future vision. Some of the justifications regarding privatization described it as positive due to its quest for the improvement of technological equipment and expanded user access. These statements were built upon an idea that change is immanent, unavoidable, and progressive, as well as the belief that adaptation to change is necessary. The changes were described as positive because they brought about a new type of thinking, new technical standard quality, and new user communities. Statements of privatization as a necessity followed an implicit idea that privatization would solve both immediate budgetary problems but also enable Lithuania to become a member of the European Union. Privatization according to necessity thus followed not only a pragmatic vision of solving burning societal issues such as lacking budgetary funds, but also served as an explanation for how to become European, although only in the future: first privatize, then become European. This justification is reminiscent of the claim of organization scholars Pučėtaitė and Vasiljevas, who state that the government during privatization was not only interested in immediate societal problems, but also beginning to form its pro-European politics, which included market liberalization and privatization.[112] Finally, negative privatization justifications aired multiple problems: forgotten past labor contributions in a constantly changing industry, fired employees, the sale of the main telecom operator to another state under the banner of privatization, the privatized Lietuvos Telekomas's disregard for societal realities in their increase of tariffs during economic hardships, and the potential technological exclusion of competitors. Although these negative critical judgments were diverse, their similarities lay not only in their negative critical perspective toward privatization, but also in how they hint at a vision of societal well-being that was supposedly hindered by this process. According to this critique, societal well being could be reached by fostering a remembrance culture of Soviet era telecommunications workers whose past work contributed to the telecom operator's current value, but was forgotten in Lithuania's attempt to come back to Europe and dissociate from its Soviet past. Additionally, it was stated that involving citizens in the privatization process, informing them about the proceedings, and taking their issues seriously, such as their incapacity to pay for increased tariffs, could help foster this future vision. Moreover, well being could be nurtured by establishing a rigid telecommunications industry regulation system that would manage the equal participation of market members. Some justifications narrated well being in national terms, especially positing that the sale of the main operator to foreign state-owned companies would be detrimental. The diversity of these critical negotiations illustrates how Lietuvos Telekomas's privatization, which caused the state-owned giant to emerge and develop as a privatized business venture, was encapsulated in justifications that not only scolded or praised this process, but also strived for contradicting futures in terms of adaptation, Europeanization, and national

112 Vasiljevas and Pučėtaitė, "Suinteresuotųjų grupių vadybos problemos privatizacijos ir tarptautinio verslo kontekstuose," p. 42.

control, alongside calls for fair privatization that included taking local societal conditions seriously.

4.4 Chapter Conclusions: Critical Negotiations

Via such cases as Lietuvos Telekomas's privatization involving intensive critique, it is possible to see how infrastructure development is not a clear and linear undertaking, but is rather stretched into many different directions due to its inherent future visions, which are both implicit to justifications and imply that developments could be done differently. These justifications are multiple, contradictory, and illustrate how critique has the possibility to not only judge negatively, but also to actually present different incommensurable, and even positively-charged, critical justifications and visions of the future.

Lietuvos Telekomas was privatized in 1998 during the second phase of privatization in Lithuania, which allowed foreign companies to privatize Lithuania's assets for cash. The critical justifications that I encountered during fieldwork regarding Lietuvos Telekomas illustrate that the development of the Internet as infrastructure has been a process comprised of contradictory justifications. Three motifs of privatization critique thus form a kaleidoscope of critical justifications that not only judge privatization, but also hint toward a vision of a possible future that is more progressive in terms of fair labor relations, has the capacity to adapt to new circumstances, and is both national *and* European. The development and maintenance of the Internet as infrastructure in post-socialist Lithuania thus also means practicing ongoing acts of critique and using incommensurable disagreements to strive for different futures, which are articulated in the case of privatization in terms of local adaptation, endurance, and resistance. I also use this case to illustrate how a 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 geopolitical imaginaries, but also emerges as a site of societal struggle connected to different future visions. Thus, infrastructure is not only developed via a clear plan over the course of time, but is rather the result of ongoing stakeholder critique, which continually exists and frames infrastructural developments despite being most visible and concentrated throughout crucial industry events. In the case of Lietuvos Telekomas, critical negotiations regarding privatization presented different future visions despite the fact that the company was privatized to a Swedish-Finnish state-owned consortium, the majority of employees were eventually fired and the legacy of past employee work has not been celebrated. On the other hand, industry regulation has improved against the backdrop of the Communications Regulatory Authority, which was established due to the provisions of the local Telecommunications Law and European Union. Thus, while critical negotiations of privatization were diverse and provided multiple future paths, not all of them came to fruition. Despite this, a focus on critical negotiations during crucial industry moments of change that is visible and palpable, due to its intensity, illustrates how infrastructural developments should not be taken for granted, but are rather built upon distinct, diverse justifications of multiple stakeholders and their visions of the future.

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.

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