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Broadband Internet Rollout in Rural Vietnam: From Policy to Everyday Use

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Broadband Internet Rollout in Rural Vietnam: From Policy to Everyday Use

by

Trang Pham

A THESIS

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Abstract

This thesis examines broadband infrastructure rollout and rural residents' Internet adoption and use in Vietnam through an analysis of the country's Internet policy documents from 1990 to 2020. It is based on semi-structured interviews with two policy makers and a content developer from 2016 to 2020, and ethnographic interviews with 79 rural residents conducted between November 2016 and January 2017. The central objective of the thesis is to understand how Vietnamese rural residents use the technology to enlarge their informational and human capabilities. The study draws on three distinctive literatures: critical constructivism, the capabilities approach, and the domestication model. The key findings include a) rural residents hardly understand what broadband Internet is, and thus are unable to contribute their ideas to and monitor the deployment of subsidized broadband Internet networks in their villages; b) the top-down rollout approach that focuses on Internet infrastructure expansion and economic growth as part of the modernization and industrialization discourse does not automatically translate into rural residents' increased capabilities to lead lives of their choice; and c) rural residents, despite being considered "laggards" in adopting the state-of-the-art technology and experiencing systemic discrimination due to their rural origins, take an active part in shaping the Internet via the initiation of use genres grounded in the social-biographical contexts. Among this thesis's significant contributions are the demonstration of rural residents' creativity in the process of Internet adoption; the examination of the relationship between broadband Internet access and the enhancement of human capabilities in this marginalized population; and the documentation of use genres emerging in the process of broadband appropriation and anchored in rural residents' daily needs and aspirations. Finally, the thesis offers a set of recommendations to Vietnam's Internet policy makers including: the integration of rural resident voices in Internet policy

making via technology intermediaries; the consideration of both the negative and positive changes that could result from the introduction of broadband Internet in rural areas from users' perspectives; and the inclusion of rural residents in public deliberation and decision-making concerning the policies and strategies of broadband Internet rollout.

Keywords: broadband Internet, Vietnam, critical constructivism, capabilities approach, domestication model, technology intermediaries

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Dedication

To my late grandmother whose love made me and my sisters whom we are

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List of Abbreviations

Abbreviation	Definition
2G	2 Generation technology
3G	3 Generation technology
4G	4 Generation technology
BTA	The U.S. – Vietnam Bilateral Trade Agreement
BTS	Base Transceiver Station
CPV	Communist Party of Vietnam
DSL	Digital Subscriber Line, a technology that transmits digital data over telephone lines
FB	Facebook
IMF	International Monetary Fund
ISP	Internet Services Provider
HDI	Human Development Index
Internet băng rộng	broadband Internet
Internet băng thông rộng	broadband Internet
ICT	Information and communication technology
ICT4D	Information and communication technology for development
ITU	International Telecommunications Union
IXP	Internet Exchange Provider
MIC	Ministry of Information and Communication
ODA	Official Development Aid
OECD	Organisation for Economic Co-operation and Development
SCOT.....	Social Construction of Technology

The United States or the U.S.	United States of America
UN	The United Nations
Vietnam	The Socialist Republic of Vietnam
Viettel	Viettel Group, one of the biggest telecom operators in Vietnam, owned by the Ministry of Defence
VHLSS	Vietnam household living standards survey
VNPT	Vietnam Posts and Telecommunication Group, one of the biggest telecom operators owned by MIC
VTF	Vietnam Public-Utility Telecommunication Service Fund
WiMAX	Worldwide Interoperability for Microwave Access

Epigraph

“Stupid people, black butts”¹ (Vietnamese proverb)

“Bare feet, sore eyes”² (Vietnamese proverb)

“Sore eyes are because of the [village’s] temple [main door] direction

All villagers, not only me, have sore eyes” (Vietnamese saying)

“Socialist Republic of Vietnam ... is of the people, by the people, and for the people” (Vietnam Constitution, 2013)

¹ The proverb expresses the image of farmers in this tropical country working in a field with bent backs so that their hands can reach the soil to harvest rice, spread seeds, and unroot grass. They look down to the ground and their upturned bottoms are sun-baked. The proverb degrades uneducated and working people who are deemed to be unintelligent and should bow their heads in the presence of higher classes in the society (dân ngu khu đen, n.d.).

² The saying depicts farmers walking barefoot within their bounded villages and using unsanitary water that causes infected eyes. This image, which was widespread in the past especially during colonial war and pre-renovation times disparages people based on their rural originality (Do, 2017).

Chapter 1: Introduction

Background and Context of Vietnam's Broadband Internet

COVID-19 presents both challenges and comparative advantages to Vietnam in terms of digital technology rollout and uptake in the country. The Internet has become increasingly important in the face of the COVID-19 pandemic when individuals across the globe must self-isolate and many work from home in an effort to limit the spread of infection. People rely on the Internet to communicate with their family members, work colleagues, and friends as these social circles migrate online for the sake of health and safety. People also respond to essential and everyday demands such as ordering groceries, banking, watching movies, and more online. The COVID-19 pandemic has highlighted existing inequalities in Internet infrastructure and Internet-induced capabilities among users across the world, including those inequalities between rural and urban areas (Broadband Commission for Sustainable Development, 2020).

Although Vietnam has effectively managed the pandemic and has returned to relative normalcy since April 2020 (Lockhart, 2020) with some controlled outbreaks, Internet traffic in the country increased by 40 percent during the period when students studied online and many employees worked from home (Minh, 2020). Vietnam is one of the few countries in the world that posted economic growth in 2020 (World Bank, n.d.). Nevertheless, the integration of its economy has also slowed down due to the global ramifications of the pandemic (The World Bank, n.d.).

Vietnam's economic growth rate of 2.4 percent forecast by the International Monetary Fund for 2020 is one of the world's highest (Phuong, 2020), yet it is significantly lower than the government's target of 6.8 percent growth before the pandemic (Nguyen, 2020). This economic slowdown has affected the rollout and adoption of broadband Internet infrastructure in the country directed by the government and the Ministry of Information and Communication. However,

according to a government policy maker with extensive knowledge about broadband Internet in Vietnam, the country is on a positive path toward digital transformation (Dang, personal communication, October 28, 2020), which has been a longstanding goal of the country's leadership.

The national broadband Internet rollout in rural areas has its origins in 2011 when the Vietnam government decided to call on telecommunications corporations to put the needed infrastructure in place by 2015 (Decision 119, 2011). To help the industry achieve this goal, the government has provided subsidies through the Vietnam Telecommunications Public Utility Fund, an affiliation of the Ministry of Information and Communication (Decision 119, 2011). However, the government has since extended the timeline to 2020 due to missing the initial target. In 2019, the ministry announced that the mobile broadband network had covered all communes, the smallest administrative units in rural areas ("3G, 4G Reaches 98 Percent," 2019). The government considered broadband Internet and telecommunications as both an industry in itself and a catalyst for modernizing and industrializing Vietnam. From 2020 to 2030, the Vietnam government set out to implement the so-called "digital transformation" strategy that focuses on training rural residents how to use the Internet and how to monetize their products and services online for local economic development.

Vietnam has an area of 331,211 square kilometres, or half the size of Alberta and had a population of 96.5 million in 2019 (World Bank, n.d.)—more than 21 times that of Alberta (Statistics Canada, n.d.). While an overwhelming majority of the Canadian population lives near the United States' border and cellular networks only need to cover 20 percent of the country's area to provide services to 99 percent of Canadians (Taylor, 2015), more than 60 percent of the Vietnamese population lives in rural areas with an average density of 290 people per square kilometres (General Statistics Office, 2019c). Vietnam's population density provides a comparatively better market for

broadband Internet companies that invest in expanding and upgrading their networks in rural areas (Dang, personal communication, October 28, 2020). The government also provides subsidies and bandwidth incentives for telecom companies to upgrade, expand, and operate their own networks to connect more rural areas to broadband Internet (Dang, personal communication, October 28, 2020).

Given this background, I am interested in examining broadband Internet network development in rural areas in Vietnam and how rural residents make sense of, adopt, and use broadband Internet for their development and empowerment. Though I was born and raised in Ha Noi, the capital, I had memorable summer breaks in my mother's home village in Thanh Hoa province when I was a schoolgirl. When I visited there in the 1980s and 1990s, local people received me with kind-heartedness. The hardship and discrimination these people faced made an indelible impression on my mind. In the 1990s, the villagers did not have electricity, televisions, or radios, and newspapers' newsstands could only be found in a far-away town. I questioned why rural residents had no access to information beyond the village so that they would have more life choices and a chance to lead a better life.

Personally, I first utilized the Internet in an Internet café in the downtown area of Ha Noi in 2003. One of my best friends took me out for an Internet tour on a computer screen during a weekend when I did not have to go to work as an assistant in the Embassy of Belgium in the capital. At that time, the embassy only had one computer connected to the Internet, which was in front of the ambassador's office and only Western diplomats, not local staff, could touch it. This demonstrated to me how inaccessible the Internet was for the general Vietnamese population in the early 2000s. I remembered the high-profile of casual off-line groups' meetings of Vietnamese Internet individual users who could afford computers, dial-up modems, and Internet subscriptions at that time. Some of these early savvy Internet users have become top leaders in the country's Internet

industry, including a former CEO of one of the biggest Internet service providers in Vietnam (P., 2017). The Vietnamese government was cautious about the capacity of the Internet to transmit information beyond a sovereign border, so the government preferred an analogue mode of communication, and all correspondence with local authorities at that time was sent via fax or mail instead of email.

For me, the Internet café opened a new world though at that time the Internet only meant static websites and low-speed emails, while patrons still needed to pay for every hour they used a computer. The Internet helped me to deal with the pressure of being the first in the family to get married. According to Vietnamese culture, both my younger sisters, who had boyfriends, could not marry until I, the oldest child, married. I found a way to put my profile on the Internet via a pal-looking website—a kind of ancestor to E-harmony, Match, and Cupid. To my amazement, I received about 60 replies via email in 2003. One of these respondents became my husband, to whom I have been married for 17 years now. The Internet also opened various opportunities for me to seek scholarships to pursue my graduate studies abroad. Being able to access the global World Wide Web was enormously meaningful to me, given the amount of censored information and strong propaganda in the mainstream media controlled by the Vietnam government. About eight years after I first accessed the Internet, the government's broadband Internet rollout policy in rural areas provided me with an opportunity to pursue my research interest in how this technology makes its way into rural residents' everyday life.

Like many of my interviewees, Que, a 23-year-old papaya trader in Can Tho, did not know what broadband Internet meant; however, she saved and bought her 3.7 million Vietnam dong (\$204 CAD) Oppo smartphone in several payments over four months as her friend showed her how the applications on the phone worked. When I met her on a canal bank waiting for a truck to come to

pick up papaya for a canned juice factory, Que told me she did not use the Internet. However, when I asked if she used YouTube or Facebook, she answered “yes” to YouTube. Que and her husband made 5 million Vietnam dong per month (\$276 CAD), a modest income for their young family with a 7-year-old daughter. Que paid 50,000 dong per month for a mobile Internet subscription but only whenever she could afford it. She kept the phone at home as a precious household property fearing that she might lose or break it during her boat and truck trips as a fruit trader. Que treasured family time together with her husband and daughter, watching comedies or movies on her smartphone in bed after a hard-working day.

Que and many rural residents in my study had not heard of the term “broadband Internet” before I asked them in the interviews and did not know that the Vietnamese government subsidized telecom companies and had a plan to connect rural areas to broadband Internet networks by 2020. Some saw telecommunications poles built in their villages and telecom companies told them they were for local Internet coverage. What made these rural residents—with limited incomes and various household priorities—decide to invest in Internet devices and subscriptions that accounted for more than one percent of many families’ incomes? While a desire to catch up with modernization may account for some of it, I argue that an expectation that the Internet would help them realize their potential plays an important part in rural users’ decisions to adopt the technology.

The theoretical framework of my study draws on the diffusion of innovations theory (Rogers 1962/2003) and the economic growth thesis (Rostow, 1960/1991) to explain the broadband Internet rollout policy and its implementation in the country. Critical constructivism, the capabilities approach, and the domestication model help me explain rural residents’ Internet adoption and use in Vietnam and to recommend how broadband Internet policy and policy-making can respond better to rural residents’ needs.

Research Questions

This thesis is an empirical study seeking to examine how broadband Internet has been rolled out, adopted and used in rural Vietnam. It aims to delineate gaps between top-down broadband Internet rollout policy making and implementation and bottom-up Internet use genres set in motion by rural residents. The main questions asked are: How can rural residents' Internet use genres inform broadband Internet rollout in Vietnam? Do they point to ways in which Internet technology can respond to users' spectrum of needs, empower them, expand their capabilities and enable them to lead worthwhile lives? Specifically, I outline seven research questions that inform the study as follows:

1. What is the broadband Internet policy in Vietnam and how is it implemented?
2. How does the Vietnamese government discuss and conceptualize broadband Internet network development through the lens of development discourses?
3. How do rural residents understand broadband Internet drawing on government promotion on the one hand and their own experience on the other?
4. What features of local contexts contribute to the shaping of Internet use by different categories of rural residents in the country? What kind of use genres arise in these contexts?
5. Do rural residents have a voice in shaping broadband Internet policy in the country?
Depending on whether the answer is "yes" or "no," what are the repercussions?
6. How do rural residents account for the role of broadband Internet in their personal, professional, and local economic development? What do they find empowering? What are their concerns?
7. Are there ways in which policy-making can become more inclusive of the input of rural communities?

My approach is based on the premise that technology users have a say in shaping a technology via their situated rationality, but their voice is often muted or excluded by powerful groups who integrate dominant rationality in designing and maintaining technology in line with their own interests. I argue that Internet policy and technology design should consider rural residents' Internet use genres grounded in the intersections of users' social biographical context, their varying purposes of Internet use, and technology affordance to make the Internet respond better to users' needs. Moreover, Internet connectivity and access should not be the end goal of the broadband Internet rollout plan, but rather only the means of development to enable rural residents to realize their potentials and lead their worthwhile lives.

Significance of Research

This section outlines the significance of the thesis. The thesis addresses a gap: few studies have focused on rural residents' adoption and use of broadband Internet in Vietnam (Fife & Hosman, 2007) in the context of broadband Internet rollout to all rural areas of the country by 2020. Rural residents account for a majority of the country's population; however, their opinions and ideas about broadband Internet that should respond to their needs and wants are not incorporated in the top-down broadband Internet policy initiated by the government. This thesis attempts to give agency to rural resident voices as capabilities or opportunities that are available to these individuals. The lack of rural resident voices about broadband Internet policy demonstrates that these voices are systematically discriminated against as backward in the march of the country's modernization.

The thesis explores how the Vietnam government's broadband Internet policy works on paper and how it works on the ground through rural residents' Internet use genres. Thus, it contextualizes and contrasts broadband Internet rollout policy with rural residents' awareness of this policy and presents qualitative data on how rural residents make sense of the Internet and make use

of it to lead a life they have reason to value. The thesis contributes to the Internet use genres literature by providing a nuanced understanding of Internet use that is grounded in Vietnamese rural residents' social biographical contexts with both negative and positive connotations beyond the use of social media, which is studied in multiple countries in the series "Why We Post" (Miller et al., 2016).

Lastly, the timeline of the thesis from 2010 to 2020 provides valuable insights on how the Vietnamese government can achieve its digital transformation objectives from 2020 to 2030: with the creation and adoption of intermediary organizations designed to enhance informational and human capabilities for the rural residents, as discussed by Gigler (2011, 2015) and Gow (2018).

Synopsis of Theory and Subsequent Chapters

I provide the chapter breakdown for the thesis in this section. Chapter 2 discusses the theoretical frameworks that guide this research. The chapter is divided into two parts. The first part demonstrates the modernization discourse and development theories (i.e., diffusion of innovations theory and the stages of economic growth approach), which have contextualized and informed Internet policy in Vietnam since the 1990s. The modernization discourse and motto go beyond governmental policies and policy-making on paper, and likely influence how rural residents think of themselves. Subsequently, society at large views rural residents as underdeveloped on the country's road to modernity. The second part introduces foundational theories in technology adoption and use and human development to provide rationale and directions that recognize rural residents' agency in their appropriation and use of the Internet. These foundational theories include the capabilities approach, critical constructivism, and the domestication model. Seen through the lenses of these theories, rural residents have room to increase their informational and human capabilities as they apply Internet technology to meet their meaningful needs and pursue their aspirations. While

modernization discourse prioritizes economic growth as the most important development goal and generates a top-down policy approach to meet this goal, the capabilities approach proposed by Nobel Laureate Amartya Sen (1979, 1992, 1999) defines development as citizens' freedom to pursue worthwhile lives and to realize their potentials given human diversity and multifaceted terrains including the social, the economic, the environmental, and the political, etc. However, Sen and his colleagues, including Nussbaum (2000) and Robeyns (2005), do not specifically discuss how technology plays a role in developing human capabilities. Critical constructivism, as developed by Feenberg (1999), unveils the *dominant rationality* of powerful groups in their approach to producing and perpetuating technologies. Feenberg (1999) and Bakardjieva (2005) argue that technology users have a lot to contribute to technology development, but the dominant rationality often excludes them for the sake of profit-making and efficiency, which are typical to capitalism. Furthermore, in terms of adopting a technology, the domestication model (Silverstone, Hirsch, & Morley, 1992) delineates how established patterns of everyday lives and household values shape and negotiate technology adoption patterns over time. Lastly, this chapter invokes the concept of Internet use genres as an analytical tool that weaves together the capabilities approach, critical constructivism, and the domestication model. This Internet use genres concept is later applied in the investigation of the relationship between users and technology with a view to finding ways in which Internet use can enhance rural residents' informational and human capabilities.

Chapter 3 maps out Internet use literature in developing countries and in rural areas in both developing and developed countries to provide context for this research. The underlying assumption that the Internet contributes to countries' economic growth and development and helps deliver public services quickly and effectively provides a rationale for policies that extend Internet connectivity and use in developing countries (Avgerou, 2010; Heeks, 2010; Walsham & Sahay,

2006). I examine Internet connectivity modes, which represent both actors' attempts and predictions to connect this underprivileged and underserved part of the world to the Internet, from telecentres to broadband mobile Internet modes, Internet development discourses, policies, and user appropriation. The literature on users' Internet appropriation in developing countries is highlighted by the series "Why We Post," which includes 11 books on social media use and posting in 8 countries—namely Brazil, Chile, China, England, India, Italy, Trinidad, and Turkey (Miller et al., 2016)—but which also overlook other Internet uses other than social media. Since my research focuses on rural Vietnam, I also map out Internet use literature in rural areas through the lens of inequality of both Internet infrastructure and social aspects. In addition, I discuss rural residents' perceptions of Internet use and well-being when the Internet is first introduced to a rural community as a factor that may hamper Internet adoption in rural areas. Finally, considering the overlapping areas of these two literatures on Internet use in developing countries and in rural areas, I conclude that Internet use and connectivity in rural areas of developing countries face a double digital divide deriving from infrastructure, social, and categorical inequality.

Chapter 4 takes on the task of delineating methods to conduct this research, namely policy analysis, expert interviews, and ethnographic interviews. I adopt thematic analysis to analyze Internet policy-related documents in Vietnam, propose a coding scheme for the dataset, and come up with some themes both originating from theoretical frameworks and emerging from the data. Moreover, I conduct expert interviews to clarify, explore, and pick up on technical and process knowledge to compare and interpret policy-related documents about broadband Internet rollout in Vietnam. Most importantly, I carried out ethnographic interviews with 79 rural residents in their villages, which are in six provinces and cities across Vietnam, to ask about their Internet adoption and use. Both individual and group interviews with these residents involve convenience interview

samples; however, interview saturation sets a bar for me to continue or discontinue interviewing certain groups of Internet users within a province. Finally, I discuss how these three methods in a method triangulation complement each other to answer the research questions.

Chapter 5 maps out Vietnam Internet policy since the 1990s when the communist country started opening its door to international integration and foreign investments after the United States lifted the trade embargo against Vietnam in 1994. The chapter emphasizes, on the one hand, that the modernization discourse that directs and impacts Vietnam Internet policy and development assumes that economic growth is the most important development indicator in the top-down approach of designing and rolling out broadband Internet in Vietnam. This modernization discourse is instrumental in maintaining and strengthening the sole ruling party's power in their efforts to industrialize and modernize the country. On the other hand, Chapter 5 also discusses broadband Internet as both a communications medium and socio-economic ecosystem in which Internet access and connectivity—the main objective of the government's top-down broadband Internet rollout plan for economic growth by 2020—fails to promote users' informational and human capabilities in many cases. Though the Vietnam government achieved its goal of connecting all rural communes to mobile broadband Internet in 2019, categorical inequalities between urban and rural areas, as well as inequalities along the lines of gender, income, and education, perpetuate the double digital divide that rural residents face in developing countries. This chapter also sketches Vietnam's digital transformation policy beyond 2020, proposing a broader context that would enable the inclusion of rural residents' voices regarding broadband Internet network rollout and Internet content design.

Chapter 6 lays out socio-economic contexts and an Internet connectivity overview in the visited villages and discusses rural residents' understanding and awareness of broadband Internet, the governmental plan of broadband Internet rollout, and the residents' exclusion from the rollout

plan. I conducted field trips in a ceramics village in Hanoi, Northern Delta-based Nam Dinh and Thanh Hoa villages, a fishing village in Da Nang, Central Highland villages in Dak Lak, and water-inundated villages in Mekong Delta-based Can Tho. Visiting these diverse locations across the country amplified the nuanced voices of rural residents, and their level of awareness, understanding, and participation in the broadband Internet network plan and rollout. This chapter considers the influence of the modernization discourse in which rural residents are seen and see themselves in inferior positions in the country's modernization process. Rural residents thus often blame themselves for limitations despite not having a voice in shaping broadband Internet, a symbol of state-of-the-art technology and modernity. Given the top-down approach of broadband Internet policy and rollout, rural residents have only vague ideas about broadband Internet, which is subsidized by the government to roll out to many rural areas, and know very little about the government's broadband Internet policy. As a result, rural residents do not participate in broadband Internet policy and are unable to monitor the broadband Internet rollout process that is partly subsidized by the government. I suggest that intermediary organizations could bridge the gap between policy-makers and rural residents through the organizations' representation and empowerment of rural users and user-driven digital training.

Chapters 7 and 8 examine collected interview data in light of critical constructivism, capabilities approach, and domestication theory. Chapter 7 considers Internet use genres that reflect local, professional, and personal development. I analyze Internet use genres and delineate positive and negative capabilities in the face of migration and Internet uptake in traditionally closed villages. Thanks to conducting ethnographic interviews in mobile sites, I propose the concept of local Internet use genres that delineates recurrent and relatively distinctive ways of using the Internet based on geographical and socio-economic characteristics of a village. I demonstrate that local

Internet use genres emerge mainly from a village's social, economic, and geographical characteristics while other Internet use genres present substantive patterns of Internet use across different villages. Chapter 8 examines how the Internet empowers rural residents in making effective choices while also giving voice to residents about their concerns regarding Internet usage. Potential negative impacts on health, children's upbringing, cultural traditions, and interpersonal relationships make some rural residents approach the Internet with caution and suspicion. While these concerns can be seen as a barrier to slow down Internet adoption, such concerns also trigger needed critical reflection on and discussion of the new technology and its impact on families and communities.

In the final chapter, I summarize my findings and recommend ways in which the government can make broadband Internet policy inclusive for rural residents in implementing digital transformation. I also suggest future research directions about broadband Internet adoption and use in Vietnam and in developing countries. Though rural residents do not participate in broadband Internet policy making, a few of their Internet use genres reflect a creative appropriation of the Internet. These use genres represent a democratic rationalization of Internet technology that enlarges rural residents' informational and human capabilities.

Chapter 2: Theory – Critical Constructivism, the Domestication Model, and the Capabilities Approach

The purpose of the theory chapter is to discuss a few shortcomings in the modernization paradigm, which the Vietnamese government and institutions adopt in rolling out broadband Internet. In this chapter, I will introduce critical constructivism (Bakardjieva, 2005; Feenberg, 1999), the domestication model (Silverstone, Hirsch, & Morley, 1992), the capability approach (Sen, 1999), and the literature applying this approach to ICT (Gigler, 2011, 2015; Gow, 2018; Kleine, 2013). I will argue that the ideas proposed by these schools of thought can be used productively in the analysis of the process of Internet adoption in Vietnamese rural settings. These concepts and principles can elucidate the ways in which Vietnamese rural residents make sense of broadband connectivity and creatively adapt it to the conditions and necessities of their everyday lives. By doing this, they demonstrate how technology can practically and effectively contribute to human development in rural areas.

I am using the terms “modernization paradigm,” “modernization school of thought,” and “modernization discourse” interchangeably in this dissertation. The word “modernization” was first used and discussed in the social sciences in the 1960s as American academics began paying increasing attention to the study of social, economic, and political changes in developing countries after World War II (Tipps, 1973). Modernization research either refers to industrialization and rationalization or to the transformation process from traditional to modern societies (Tipps, 1973). The modernization paradigm includes the literature wherein the concept of modernization plays an important role. Tipps (1973) reviewed this literature, which emphasizes a progressive and transformative type of socio-economic change. In a few developing countries, the above expressions refer to individuals’ and their countries’ desires and public discourse to advance from their current

state to that of modernized societies. However, the modernization paradigm is criticized for its ethnocentric worldview that juxtaposes the so-called civilized with the so-called barbaric and for its linear development, which seeks to turn the alleged barbaric society into the alleged civilized world's image (Tipps, 1973). The modernization paradigm is a dominant development discourse that includes its model for economic growth, social evolution, and its individual change ideas in society and culture whereby developing countries follow the development trajectory of developed countries (Melkote & Steeves, 2015). This lexicon denotes modernization theories, assumptions, and their use, and how modernization thought influences research, policy, media coverage, and everyday life in Vietnam. The commonality among these terms is that they emphasize a top-down approach and take lightly the voices of those who are deemed as less developed.

In the modernization paradigm, technology is viewed as an essential catalyst in developing the economy; thus, technology transfer from developed countries is crucial for developing countries (Melkote & Steeves, 2015). Vietnam has been embracing the idea of technology as a catalyst for economic growth and aims to become an industrialized and modernized country by 2020 ("Communist Party of Vietnam Resolution Session XII," 2016). Vietnam has implemented a top-down approach in delivering universal services in the telecommunications sector (Do & Falch, 2018). Since modernization is a national goal for all sectors and facets of social life—a goal that is emphasized in all consecutive Communist Party Congresses since at least 1996—the modernization discourse plays out in the government's approaches to economic growth, policy making, and social development, and finds its way into the collective and individual mindset in Vietnam. It has also been the dominant discourse adopted in telecommunication policy, including the political and corporate decisions related to the broadband rollout into rural communes (Do & Falch, 2018).

The modernization discourse views technology as a neutral tool to promote economic growth as an industry and a catalyst for all sectors in the economy (Kelly & Rossotto, 2012). In contrast, *critical constructivism* sheds light on how technology design and rollout reinforce power structures in society (Feenberg, 1999). Critical constructivism argues that technology is socially constructed and reflects and sustains social hierarchy in its design, but it also preserves room for users to adapt technology to respond to their wants and needs that are neglected or ignored by the powerful (Bakardjieva, 2005; Feenberg, 1999). At the theoretical level, the domestication model (Silverstone, Hirsch, & Morley, 1992) delineates how technology users appropriate and learn to deploy a technology on temporal and spatial fronts as they integrate it in their everyday lives and embed it within their domestic values (Haddon, 2018; Silverstone, Hirsch, & Morley, 1992). This model recognizes the users' roles in shaping a technology in the process of adoption and use.

Another perspective on the possibilities for the emancipation of marginalized people and enhancing human development in a more general sense is offered by the capability approach founded by Sen (1979, 1992, 1999), the 1998 Nobel laureate in economics. This approach posits that an individual's freedom to choose a life they value is both the means and ends of development. Taken together, the capability approach, critical constructivism and the domestication model suggest a way to look at the creative engagement by ordinary, especially marginalized users in the shaping and modifying of technology as a process that could lead to the harnessing of technological affordances toward enlarging human freedoms and capabilities.

Reflecting on the place of technology in the capability approach literature, Zheng and Stahl (2011) posit that technology is viewed as a tool or resource rather than an end to the development process. The literature adopting the capability approach in digital technology rollout emphasizes three important points: (a) users' empowerment to achieve their chosen lives (Kleine, 2013); (b)

informational capabilities as crucial in the digital age (Gigler, 2011; 2015); and (c) the role of intermediary organizations that facilitate marginalized users in enhancing their empowerment and informational capabilities (Gow, 2018). Critical constructivism enriches these studies by recognizing users' agency in the design and use of a technology, since questioning the neutrality of technology is missing in both Kleine's (2013) choice framework and Gigler's (2011, 2015) informational capabilities.

The remainder of this chapter comprises five sections. First, I delineate the assumptions of the modernization paradigm pointing to its top-down approach. This modernization discourse influences Vietnam's overall development directions and policies³ including broadband Internet rollout policy. Second, I present the capability approach, which I argue advocates the removal of barriers at macro and organizational levels to provide greater freedom for marginalized rural populations to participate in the shaping of technologies in line with their own understanding of personal and community flourishing. Third, I discuss critical constructivism and its concepts, including technical code, democratic rationalization, and technical micropolitics, including creative appropriation. Fourth, I discuss the domestication model in relation to technological appropriation on the one hand and the Vietnamese peasantry on the other. Lastly, I discuss Internet use genres as providing methods that rural residents could mobilize to generate a collective voice in shaping the technology they adopt and utilize.

³ Modernization and industrialization are development goals of Vietnam, which are stated and confirmed in Communist Party of Vietnam (CPV) Congress documents since at least 1996 (Communist Party Resolution, 1996; Communist Party Resolution, 2001; Communist Party Resolution, 2006; Communist Party Resolution, 2011; Communist Party Resolution, 2016). These congress documents lay out development directions in economic, social, and political realms for the country.

Modernization Paradigm Formulations: Rostowian Thesis and Diffusion of Innovations

Theory

This section situates two formulations of the modernization paradigm as found in the debates on the relationship between technology and society. These two formulations are important as they have been adopted in broadband Internet policy making in Vietnam, and hence provide an interpretive lens to analyze broadband Internet policy in the country. The Rostowian thesis and the diffusion of innovations theory have been formulated to capture the process in which developing countries adopt and diffuse Western-imported technologies. Both of theories represent the process as a unilinear development path and see technology as a force that has its own trajectory and impacts society in a positive way (Melkote & Steeves, 2001).

Rostowian thesis

Rostow's *The Stages of Economic Growth: A Non-communist Manifesto* (1991) takes the economic dimensions of society as the sole factor in identifying how developed a society is. Vietnam falls in the spectrum between non-communist and communist countries in the economic realm, which makes it a good case study to apply the non-communist manifesto. Rostow (1991) delineates five categories, from a traditional society to a capitalist age of high mass consumption, that he argues a country's economy goes through in its development process. Traditional society is "one whose structure is developed within limited production functions" (p. 4), and its attainable output reaches its limits due to the absence of modern science and technology on a large scale. According to Rostow, the precondition for the take-off stage when traditional productive techniques have been supplanted by modern technologies proceeds the first stage when the following conditions are in place: 1) modern science and technology are applied in industry and agriculture, 2) banks and other capital-mobilizing organizations appear, and 3) investments also increase in the

non-agriculture sectors, such as transportation and communications (Rostow, 1991). The nation is transformed to a modern state during the next stage or the take-off in which Rostow (1991) explains:

The take-off is the interval when the old blocks and resistances to steady growth are finally overcome. The forces making for economic progress, which yielded limited bursts and enclaves of modern activity, expand and come to dominate the society. Growth becomes its normal condition. Compound interest becomes built, as it were, into its habits and institutional structure. (Rostow, 1991, p. 7)

During this period, investment and savings rates rise from five percent of the national income to at least 10% (Rostow, 1991). The take-off also sees a rapid expansion of new industries as unprecedented profits earned from expanding industries are invested in new plants, which in turn generate jobs and services for hired workers. Thus, urban areas and other plants are expanded (Rostow, 1991). Revolutions also occur in agriculture as “increasing numbers of farmers are prepared to accept the new methods and the deep changes they bring to ways of life” (p. 8). After the take-off, the drive to maturity comes with a steady investment of from 10% to 20% of the national income, “permitting output regularly to outstrip the increase in population” (p. 9). The country replaces former imports with domestic products, exports new goods, and imports new kinds of materials to boost exports. Eventually, the nation comes to the age of high mass consumption when people gain command of consumption beyond basic needs of food, shelter, and clothing and enjoy some luxury goods and services (Rostow, 1991).

Rostow (1991) is one of the most influential scholars in economic development in Vietnam; thus, the perception of economic growth as the goal of development has far-reaching ramifications on governmental policies and public discourse in the country. From conducting a Google search

using the key words “*Rostow giai đoạn phát triển kinh tế*” in Vietnamese, which means “Rostow stages of economic development,” I found approximately 6,100 sources in Vietnamese.

Interestingly, the theory is usually called either the “take-off model” or “the stages of development theory,” without mentioning the “non-communist manifesto” part. In a few of the studies, Vietnam’s economy is analyzed through the lens of the stages of development. For example, Long, Ngoc and My (2018) argue that Vietnam is at the stage of pre-condition for take-off whereby only 5 to 10 percent of gross domestic product (GDP) is spent on investment, while fundamental industries including electricity, energy, and transportation have been developed. However, Long et al. (2018) used the Rostowian thesis as a framework for their analysis, which means they did not analyze the differences between the stages of economic growth in rural versus urban areas when reviewing discrepancies in economic development among regions within a country. This points to a shortcoming in the Rostowian thesis, specifically that this thesis stops short at evaluating the stages of development of a country as an entire economy because it does not pay attention to economic inequality among regions and does not consider societal, cultural, and political factors as criteria for the country’s development. Therefore, the resulting message of the Rostowian thesis is that developing countries need to follow the same exact stages of economic development experienced by developed countries to progress. The consequences of this influential thesis are that economic growth is given primary importance in public discourse about development in Vietnam without adequately considering other equally important factors such as equality and human development (Bui, 2020). In line with the focus of economic growth, I will discuss the diffusion of innovations theory in the next section.

Diffusion of innovations theory

Rogers (1962/2003) developed and fine-tuned the diffusion of (technological) innovations theory within the context of the dominant development paradigm. The theory is a concept of development that “grew out of certain historical events, such as the Industrial Revolution in Europe and the United States, [and] the colonial experience in Latin America” (Rogers, 1976, pp. 121 - 122). Influenced by this history, Rogers (2003) perceives that development occurs at both social and individual levels. Some of the diffusion of innovations theory’s objectives are to contribute to economic growth, community development, and country modernization in developing countries.

The diffusion of innovations theory explains how an innovation spreads throughout society via communication channels, including mass media and opinion leaders who pass the information to the community and influence information recipients (Rogers, 2003). Rogers defines *innovation* as “an idea, practice, or object that is perceived as new by an individual or other unit of adoption” (p. 137). He delineates five categories of people based on the degree of their innovativeness relative to the time dimension of innovation in the so-called “social system” that permits innovations into the community.

The five categories are the following: innovators (2.5%), early adopters (13.5%), early majority (34%), late majority (34%), and laggards (16%), which are taxonomized based on adopters’ innovativeness, or how quickly they adopt new ideas compared to other members of the community (Rogers, 2003). Innovators, the first group of technology adopters, are risk-takers who collect information about the technology and consider whether the innovation is worth adopting, given the financial and time investment in adopting it. Early adopters play the role of opinion leaders who influence the rate of diffusion of technology. They are characterized as venturesome and technology-savvy (Rogers, 2003). While innovators are cosmopolites, early adopters are locals.

Thus, early adopters exercise opinion leaderships among the community in adopting new ideas (Rogers, 2003). Early majorities are prudent pragmatists who depend on the review and information of early adopters before they decide to adopt a new technology. Early majorities do not focus on the technical edge of the new technology that will benefit them—they “go with the flow” that started with the early adopters and innovators. Late majorities face peer pressure and economic necessity before making decisions to adopt a new technology. Due to their cautious attitude, the late majority emerges after half of the population has adopted the technology (Rogers, 2003). Laggards may have financial constraints to adopt the technology or they simply resist changes because they are suspicious of new ideas because their point of reference is in the past, not in the future (Rogers, 2003). The word “laggards” is still used in studies that use the diffusion of innovations theory, with the negative connotation of shaming those who are late in adopting a new technology (Haider & Kreps, 2004). This implies a research stance in favour of corporations and institutions that introduce new ideas and technologies in local communities. Their use of the word “laggard” suggests that these theorists do not consider users’ perspectives, rationales, and rights either to adopt new technologies at their own pace or even to refuse them outright in order to lead lives of their choice.

Recognizing that individuals’ uncertainty about an innovation influences its adoption rate, Rogers (2003) points out five attributes of an innovative technology that can reduce the uncertainty and increase its adoption rate: relative advantage, compatibility, complexity, trialability, and observability. Rogers (2003) posits that individuals’ perception of these five attributes determines the success of an innovation’s adoption. The greater the relative advantage of an innovation, and the more effectively it is conveyed to the community, the more quickly it diffuses in a society (Rogers, 2003).

The diffusion of innovations theory is an example of the modernization paradigm because it prioritizes technological advances over users' heterogeneity and various needs in the course of transforming society to modernity. Research applying this theory provides perspectives for institutions and companies about the course of technological diffusion when attempting to make technology more attractive to adopters. Rogers (2003) recognizes this pro-innovation bias and suggests some research directions to limit this bias. He suggests researchers should consider users' points of view about an innovation, which is probably rational, and coins the term "reinvention" to refer to inventions that have been adjusted by users to better fit their situations. However, when putting forward suggestions for future research, Rogers (2003) stops short of calling for the diffusion of innovations theory research on adopters' and users' ideas in shaping an innovation. Even though an innovation is defined as anything perceived as 'new' by adopters, an innovation remains exogenous for adopters. The purpose of the theory, then, remains how to make an innovation permeate a community for the sake of progress and advancements, the criteria of which are defined by innovators, institutions, and corporations.

While the diffusion of innovations theory is influential in governmental and corporate approaches to rolling out broadband Internet in rural Vietnam, rural Internet adopters and users tend to be classed as late majorities and laggards whose voices do not count in shaping the technology. This innovation allows users to communicate in real-time at low costs, offering new potentials for rural users, but the diffusion of innovations theory research does not address the economic and social disadvantages of rural residents, and how innovations might be made more inclusive for marginalized users. In comparison with the ladders of inclusive innovation (Figure 1) introduced by Heeks, Foster, and Nugroho (2014), diffusion of innovations theory stops short at the middle of the ladder from level 1 to level 3. These first three levels refer to the intention to connect rural residents

to the broadband network in which some rural residents adopt and use the Internet and obtain some positive impacts. However, rural residents do not participate in developing broadband Internet (level 4); there are no formal structures and institutionalization that require rural residents' participation in creating the technology (level 5); and the discourse involving the Internet and rural residents is not inclusive of the latter (level 6), i.e., the *laggard* and *know-not* discourse definitely excludes rural residents.

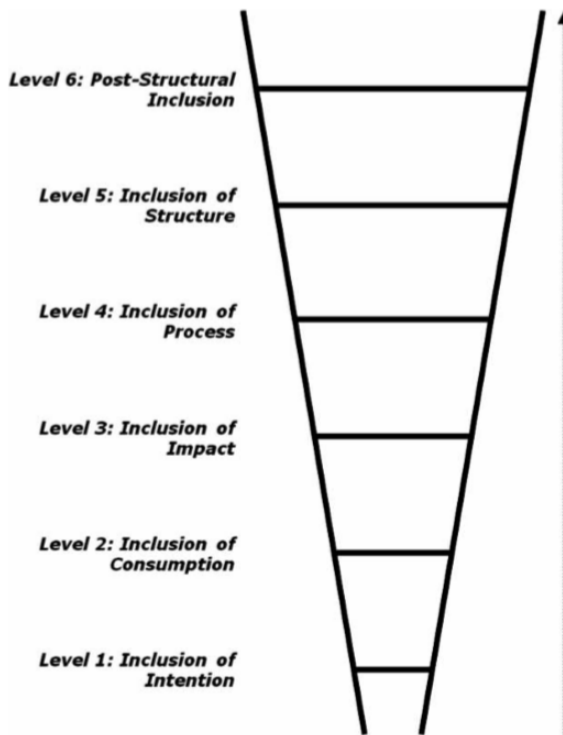


Figure 1. Ladder of inclusive innovation levels (cited in Heeks et al., 2014, p. 4).

The general stance that diffusion of innovations theory takes is first and foremost to assist institutions and individuals who launch the innovation, not users. How users' respond to a technology—a response that is grounded in their living conditions and could be incorporated in that technology's design and diffusion—remains unspecified. Among the five attributes that make a

technology attractive—namely, *relative advantage*, *compatibility*, *complexity*, *trialability*, and *observability*—*compatibility* most explicitly takes into account users' social context. For example, logically, there is no point in connecting the Internet in rural areas that have no or very intermittent electricity; thus, Internet connectivity requires certain infrastructure prerequisites. However, compatibility and the other four attributes refer to the technology itself and have little to say about the ways in which users creatively imagine and expand technological affordances in ways that designers and innovators have not foreseen. These innovative uses sometimes allow users to redefine and adapt technology to a broader spectrum of needs.

The modernization paradigm views economic growth as the core of development and adopts a pro-innovation perception, thus eliminating other facets in human life. Development is defined through a macro-social perspective and with a top-down orientation as “a purposeful change toward a kind of social and economic system that a country decides it wants” (Rogers, 1976, p. 8). Development also refers to the trajectory that Western countries experience and model (Rostow, 1991).

Scholars, many of who are originally from developing countries, have criticized the modernization paradigm theoretically and based on empirical studies of its adoption and influence in the developing world. Theoretically, Melkote and Steeves (2015) posit that modernization is the most influential and powerful paradigm in developing countries however, little attention is given to its shortcomings. First, the modernization paradigm focuses on economic growth while ignoring cultural, social, and environmental aspects. Second, they argue, it emphasizes Western values while downplaying ethnic cultures. Finally, it orients individual and social change towards wealth creation (Melkote & Steeves, 2015; Zheng et al., 2018). While acknowledging that the modernization paradigm helps mobilize resources from governments for development, Matunhu (2011) further

asserts three critical stances towards modernization. He points out the danger of deculturalization and value shifts of African people and highlights how the modernization paradigm constructs marginalized groups as passive while it also adopts a deterministic model of external intervention. Empirically researching the influence of the modernization paradigm in ICT development in rural parts of China, the largest developing country with the highest number of Internet users in the world, Shi (2020) suggests that many ICT rollout projects are guided by the modernization paradigm and outlines these projects' weaknesses. The projects assign passive roles to rural communities. They often advance ineffective solutions to local needs due to a top-down approach, lack of accountability, and lack of locally relevant content (Shi, 2020). Specifically, Zhao (2008) conducts in-depth interviews, participant observations, and document analysis in five rural places in China and reveals that local rural communities are not engaged in these projects led by local governments, companies, and development organizations. Consequently, these projects do not effectively address residents' development problems.

Ting and Yi (2013) conduct a case study of ICT development in a province in China and find a few systemic issues resulting from the dominant modernization paradigm such as the absence of accountability and continuity in policy, and gaps in responding to local needs due to central planning. Similarly, Liu (2016) also points to a lack of locally relevant content provided by the ICT systems as a result of rural residents' passive roles in ICT development. Thus, Zhao (2008), Ting and Yi (2013), Liu (2016), and Shi (2020) delineate shortcomings of modernization-driven ICT development in rural areas but do not suggest a theoretical framework that could offer an alternative approach and help overcome those limitations. The section that follows will present the capability approach—a turn away from economic determinism towards a bottom-up human capability approach that considers development at the micro-level of individuals and communities.

Capability Approach

In the 1980s, Amartya Sen, the 1998 Nobel laureate in economics, pioneered the capability approach, which provides novel insight into welfare economics and is applied to various disciplines, including communication and development studies. Sen's ideas are critical of utilitarianism (Bentham, 1781/2000; Mill, 1895) in welfare economics and libertarianism (Simon, 2008).

Moreover, Sen also sets his arguments against economists like Nozick (1974), who posits that governments should limit themselves to minimal activities, including enforcing contracts and providing citizens with safety and security against crimes. Sen (1999) views both free-market principles and the necessity of government intervention in the market as tools to enhance people's capabilities in specific circumstances. He posits, for example, that government intervention into a market mechanism such as stopping food exports to lower the price for domestic consumption is required to sustain the people's existence (Sen, 1999).

The capability approach is partly built on Rawls' theory of justice as fairness (Sen, 1995). Rawls' idea of liberty informed Sen in formulating his approach that emphasizes freedom as means in addition to freedom as an outcome (Sen, 1999). The capability approach has been developed and refined in various publications by Sen (1979, 1992, 1999) and other scholars over decades (Robeyns, 2005; Zheng, 2007). It posits that development is about freedom of choice in the political, economic, social, and personal spheres (Kleine, 2010). In *Development as Freedom*, Sen (1999) argues that freedom is both an end and a means of development that is conventionally considered only from economic perspectives. Sen (1999) contends that development should refer to removing not only economic, but also social, security, and political barriers to free the unfree (Sen, 1999). As Sen (1999) states, the freedom to lead a worthwhile life, which is identified by

individuals themselves, is both the means and ends of development and should be used to evaluate development progress.

The capability approach has numerous implications and applications in mass media and communication studies (Garnham, 1997). Applying Sen's (1995) focus on the freedoms people have in the realm of communication, it has been argued that users value activities they can undertake with technologies such as the Internet more than connectivity itself (Garnham, 1997). In other words, Internet connectivity and devices are not the focus of equality for Internet users, rather how freely they can use the Internet and realize its affordances to help them lead worthwhile lives matters more. For example, even if some Internet users have Internet connectivity but are not digitally literate (i.e., they do not know how to download a certain app, such as for mindfulness to practice a guided meditation, they cannot enjoy digitally facilitated meditation). Hence, the goal of Internet network rollout should not be technical connectivity as such, but how the Internet can enable users to realize the activities they value.

The two core concepts that need to be differentiated in the capability approach are functionings and capability (Sen, 1999). According to Sen (1999), "[t]he concept of functionings...reflects the various things a person may value doing or being" (p. 75). The concept of functionings relates to the Aristotelian concept of *ergon* or the function or task of people, which helps provide them happiness or "the chief good" of human beings (Aristotle, 2002, p. 12). Capability is defined as "the alternative combinations of functionings that are feasible for her [one] to achieve" (Sen, 1999, p. 75). Capability focuses on the opportunity set or potential functionings set that effectively enable a person to be or to do things one has a reason to value (Robeyns, 2005).

The difference between functionings and capability is not made based on the outcome of beings and doings but is based on individual freedom to choose activities that help individuals to

lead worthwhile lives. For example, many people use an app each day to count how many steps they are taking to be healthier. Individuals who use such apps might enjoy hiking in the mountains frequently, although they sweat under the heat and have sore knees and legs or even injuries. On the other hand, some individuals who use this app may be stuck in the jobs they dislike doing, such as physically demanding work that involves carrying and wheeling heavy boxes among buildings. This work can result in back pain due to repetitive tasks but must be done for the individuals to earn a living. These two groups have some similarly achieved functionings, such as the ability to walk and to be physically active; however, although both may have walked the same number of tracked steps as shown by the app, the first group of mountain hikers has exercised their freedom of living a physically healthy and active life while the latter group are deprived of their capability to choose a job that enables them to live a worthwhile life.

While *capability* in Sen's writing refers to a person's capability as a whole, *capabilities* (in plural) include multiple potential functionings a person possesses or various freedoms one enjoys. Capabilities (in plural) is a concept coined by Nussbaum (2000). In my dissertation, I will use capabilities because some categories of human capabilities that Nussbaum (2000) suggests, such as her discussion of recreation and education, are applicable in the analysis of rural residents' use of online entertainment and the Internet in Vietnam. However, Nussbaum (2000) does not discuss capabilities and information and communication technology (ICT). I will draw on Zheng (2007) and Robeyns (2005) to discuss ICT and goods and services as a means of development.

Means, freedom, and achievement

These concepts are important in light of the relations among ICT, functionings, and capabilities (Zheng, 2007). Goods and services are only the means of development: they are only important when they are instrumental to generating people's capability (Robeyns, 2005; Zheng,

2007). Zheng (2007) states that “[g]oods and services being the means to achieve (a life that one values) ... potential functionings, that she is endowed with, including what her individual conversion⁴ factors allow her to generate from the available goods and services” (p. 4). Based on personal characteristics and socio-economic and climate circumstances, Robeyns (2005), following Sen (1992, 1999), delineates three groups of factors that convert resources into functionings and capability: personal factors, such as physical and mental health, age, sex, education, digital literacy, etc.; social factors, such as law, norms, power relations, gender, policy, hierarchy, discrimination, discourse, etc.; and environmental factors, such as climate, geography, etc. For instance, in Vietnam, the limited education of elderly women in a rural village is a barrier for them to use the Internet effectively as compared to their husbands, who had had educational priorities, although both share the same income, computer, and Internet access. In another example, a village is geographically adjacent to the sea, and fishing is the villagers’ traditional way of making a living. As a result, villagers use the Internet in this living context, either informing their fishing business or escaping this business, depending on how they make sense of the value of their work and personal lives.

The link between the capability approach and digital technology adoption and use is discussed by Gigler (2011, 2015), Kleine (2013), and Zheng (2007). For mass media and communication studies, Garnham (1997) first discusses the implications of the capability approach,

⁴ “Conversion” refers to the change of combined personal, social, and environmental factors, and goods and services into different capabilities. For example, two brothers in the same household are supplied with Internet access by their parents. However, they possess different personal factors: the 5-year-old brother watches cartoons while the 15-year-old brother does homework on the Internet. As a result, these individual conversion factors lead to effectively different potential doings and beings, which are mediated by Internet access and devices.

in which “thinking in terms of functionings and capabilities allows us to get behind the superficial indices of access and usage that we so often use” (p. 32). Analyzing the capability approach for technology-infused development, Zheng (2007) particularly calls for examining relations between computers as a means to achieve capabilities and personal, social, and environmental factors as they change over time in the presence of the technology. Viewing technology as one of the converting factors for users to enlarge their achieved and potential functionings, Gigler (2011) coins the concept of “informational capabilities” (p. 10), and Kleine (2013) introduces the choice framework to analyze and evaluate ICT development and adoption.

Because digital technology plays an increasingly important role in everyday life and access to ICT does not automatically translate into enhanced capability, Gigler (2011, 2015) argues that analysis should look at how informational capabilities obtained by technology use can improve social and human capabilities. Informational capabilities include four groups of capabilities (Gigler, 2011, 2015). The first group is information literacy, which refers to people’s ability to look for, digest, evaluate, and use information. The second group is ICT capability or the ability to operate and use information and communication technologies effectively. The third group is communication capability, which consists of people’s ability to communicate effectively with others. The fourth group is content capability, which comprises people’s ability to create and share content with other technology users (Gigler, 2011, 2015).

The concept of informational capabilities is partly built on Bebbington’s (1999) *rural sustainable livelihoods* approach to operationalize the capability approach. According to Bebbington (1999), livelihoods should be considered not just in terms of natural resources but in a broader range of assets that also provide rural residents with the capability to act in addition to producing livelihoods (Gigler, 2011). When conceptualizing informational capabilities, Gigler

(2011) shifts the focus from resources to users' capabilities in using digital resources to enhance both achieved and potential functionings. Though Bebbington (1999) recognizes empowerment gained in the process of combining resources and the ability of individuals to set goals and pursue their goals, she emphasizes the importance of individual identities in accessing cultural resources, such as festivals and other entertainment activities, as empowerment. In Gigler's (2011) "empowerment through ICT framework" (p. 10), he added informational capital as a group of livelihood resources that help to facilitate increased informational, human, and social capabilities. Informational capabilities can enhance individual and collective agency, users' capital, and other capabilities, thus impacting human and social capabilities (Gigler, 2011).

For the purpose of enhanced capability as both the means and end of development, Kleine's (2013) choice framework emphasizes empowerment processes and outcomes. The choice framework is similar to the empowerment framework in the sense that both consider the interrelationship between agency resources and structure elements as converting input factors into development outcomes (Appendix A).

In the choice framework, agency resources comprise technology users' resources (e.g., educational, psychological, financial, cultural, social, natural, material, geographical, etc.), information, health, and time (Kleine, 2013). Structure elements, among which individuals exercise their agency, are institutions, organizations, discourses, policies, programs, laws, norms, technologies, and innovations, including ICT availability, affordability, and skills (Kleine, 2013). The interrelationship between agency and structure elements results in degrees of empowerment, namely existence of choice, sense of choice, use of choice, and achievement of choice. First, existence of choice refers to the availability of choice in the community in terms of both the structure and individual resource levels (Alsop & Heinsohn, 2005; Kleine, 2013). Second, a sense of

choice is necessary because individuals can be aware of certain affordances of technology, but not others, as a result of both limited individual resources and structural deficiency hindering their access to that technology (Kleine, 2013). Third, use of choice denotes if an individual chooses a certain use of the technology (Alsop & Heinsohn, 2005; Kleine, 2013). Finally, achievement of choice focuses on the outcome of choice and examines whether the outcome is the same as the individuals thought it would be (Alsop & Heinsohn, 2005; Kleine, 2013).

To clarify the term of agency used in this research, I differentiate between *agency freedom* coined by Sen (1992) and *agency resources* as defined by Kleine (2013). In general, agency refers to individual initiatives and actions that may contribute to enlarging their opportunity set to lead worthwhile lives. Sen (1992) focuses on the goal of individual initiatives and actions in exercising agency freedom, which is beyond or can jeopardize the individual well-being. However, Gigler (2011, 2015) and Kleine (2013) focus on resources individuals own or have access to that enable them to generate initiatives and conduct actions to exercise their capabilities. When I use agency in the data analysis chapter, I will clarify whether I refer to agency freedom or agency resources (elements).

Drawing from studies aiming to increase ICT users' capability by Gigler (2011, 2015) and Kleine (2013), Gow, Chowdhury, Ganpat, and Ramjattan (2018) suggests technology stewards should function as intermediaries to help users increase informational capabilities and obtain degrees of empowerment. Since rural residents or marginalized groups are often excluded from the adoption and use of innovative technology, Heeks et al. (2014) devised a ladder to show six different levels of inclusive innovation (Figure 1). These levels are: one, the intention for the innovation to address needs and wants of excluded groups; two, the consumption of the innovation by these groups; three, the positive impacts of the innovation on the groups' livelihood; four, the

process of the innovation participated by these groups; five, the structure of the innovation inclusive of these groups; and six, the post-structure and discourse in favour of marginalized users' participation in technology adoption and use (Heeks et al., 2014). Gow (2018) uses Heeks et al.'s ladder of inclusion to argue that a trained intermediary can work closely with the community to help include them at all levels of the ladder. In actuality, however, technology stewards—either locally or externally-based technical personnel—who serve and lead user communities in adopting and using technology can help users to participate in the ladder from level 3 to level 6 (Gow, 2018). Technology stewards respect users' choices of using a technology to lead lives they value (Gow et al., 2020). They also help convert users' access to technology into increased informational capabilities and degrees of empowerment so that users lead lives that they have reason to value (Gow, 2020).

Human diversity

Sen (1999) posits that individuals are starting points of development; incomes and commodities fail to serve as a standardized material basis for human well-being. Personal heterogeneities, climate conditions, social and environmental settings, community relationships, and family income distribution all play a role in the choices people make to lead their lives even in case they have access to the same goods and services (Sen, 1999). Human diversity is found in the relation between capability and achieved functionings in light of personal preference, social pressure, and other decision-making mechanisms and influencing factors that convert means into

capabilities (Robeyns, 2005). Sen (1999) argues that individual capability can help society to achieve its good cause⁵ via public reasoning in the face of human diversity.

Though Sen (1999) does not discuss human diversity and achieved and potential functionings in relation to ICT use, his emphasis on human diversity as a central consideration in the capability approach suggests a particular strategy for the study of Internet use by rural residents. First, governments, organizations, and researchers need to acknowledge Internet use from the bottom up by individuals to enable them to enlarge their freedoms given their personal, social, and environmental heterogeneity. Governments and institutions are not in the position to anticipate and plan for the full spectrum of users' heterogeneity to play out in their Internet use. Second, based on human diversity, various ways of using the Internet, which are grounded in Internet users' different situations when they encounter technology, lead to these users' achieved and potential functionings. Third, in response to human diversity, Internet policy needs to broaden its scope beyond computers and access used primarily for economic growth to focus on the multi-faceted realms of users' training and social, cultural, economic, and political development. The reason is that the capability approach (Sen, 1992, 1999) places importance on the freedom to lead a worthwhile life, and offers a complicated conversion process of Internet use into functionings and capabilities in the wake of human diversity. To summarize that process, the capability approach's central argument for human diversity does not only lead to an acknowledgment of studying Internet use from users' situated perspectives and conditions, but also demonstrates that human capabilities induced by the Internet

⁵ Sen (1999) offers the example that women's literacy brings the birthrate down voluntarily in Kerala, India. The rate was reduced to 1.7 in Kerala thanks to public reasoning or exchanging ideas among the population. While China has been implementing compulsory family planning policy, the birthrate in that country is 1.9, higher than Kerala.

are only achieved through individual users' conversion of Internet access into achieved and potential functionings.

Well-being and agency

Given human diversity, Sen (1992, 1999) categorizes two kinds of freedom—well-being freedom and agency freedom—as both the means and end of development. Well-being and agency are two perspectives to consider about people's achieved functionings and commitment to communities (Sen, 1987). Well-being refers to personal well-being or one's own standard of living and sympathy-driven outcome of feeling better about oneself by helping others (Sen, 1987; Robeyns, 2005). For example, if someone is concerned with how to increase his or her monthly income, one aims at increasing the standard of living. If the person also cares about increasing the welfare of other members of the community, she or he is working on well-being in general. Agency involves a commitment to advance the benefits of others rather than the agent oneself (Sen, 1987; Robeyns, 2005). For example, if a person voices one's opinions against corruption or one's alternative understanding of history on Facebook despite the potential risk of being penalized by a government, the person chooses agency freedom rather than well-being freedom. When one's own well-being is the only concern of a person, the person does not exercise one's agency and does not possess agency achievements (Sen, 1987). Since freedom is both means and ends of development in Sen's works (1987, 1992, 1999), a person is not judged good or bad if she or he does not choose to include exercising agency in his or her capability set.

To further differentiate the various manifestations of agency, Sen (1992) proposes the concept of instrumental agency success, which represents a part of achieved agency success. It refers to how one contributes to the course of social, economic, or environmental progress that one has a reason to value beyond one's own well-being. Well-being and agency are not in a state of total

separation and polarization but intersect in the sense that sometimes they enable each other or blend into each other to some extent, and sometimes even cannibalize each other. For example, if an Internet user in Vietnam looks for and reads alternative news in addition to state-censored mainstream news, the user acquires informed perspectives about current affairs, thus probably improving one's well-being by having better decisions in their everyday life. If the user does not disseminate alternative news in writing, one faces low risks of getting penalized by the government for consuming the news. However, such news consumption can prepare the user to exert agency once she or he decides it would be the right thing to participate in political affairs, such as the anti-corruption or environmental protection efforts. If the Internet user is arrested by the government due to posting the so-called defamatory and fabricated information on social media, his or her well-being is sacrificed for the exercising of agency. This Internet user's instrumental agency falls within the spectrum from reading alternative news for oneself to joining or leading an anti-corruption effort at the expense of his or her well-being in the face of governmental punishment.

Given that the capability approach broadens the mainstream view on development that focuses on economic growth, and given that it emphasizes individual freedom (as both the means and ends of development), using a bottom-up perspective, I employ this approach to examine ICT adoption issues. Taking this approach is not an easy task because Sen (1999) refuses to list the functionings or beings and doings that people have reason to value. Sen (1999) believes it is not democratic to list all the functionings because, due to human diversity, the list could not work for the benefit of everyone, and he thinks public reasoning can come up with a list. Sen (1992, 1999)

adopts the Kantian argument⁶ for taking others' positions in arriving at public reasoning as an approach to list and weigh functionings in particular social and cultural contexts. However, Nussbaum (2007) takes on this task and presents a list as a starting point of a conversation about identifying capabilities. This current list of central human capabilities by Nussbaum is open-ended (Appendix B) and can be modified in light of criticism.

Nussbaum (2007) does not specifically mention the role of a technology in this set of capabilities, in the same perspective toward technology and capability discussed earlier in this chapter by Gigler (2011, 2015), Gow (2018), Kleine (2013), and Zheng (2007). These four scholars see ICT as a tool and a resource—a means—to enable and enhance all these listed capabilities. However, this perspective of the role of technology in shaping capabilities can be used to assess ICT's potential to enhance the emotional, recreational, educational, interactional, and psychological capabilities that shape how people make life choices.

This list of functionings or “central human capabilities” (Nussbaum, 2007, p. 76) is relevant in the study of technological development in the sense that digital connectivity and devices are not an end of development per se; however, Internet use contributes to human development when it can enable these capabilities to occur and expand. Since Nussbaum (2007) acknowledges that this list is not inclusive and indefinite, there are likely many other ways that users utilize the Internet that enable them to lead lives they have reason to value, increasing and enriching their individual capabilities. To answer the question how to convert Internet use into human capabilities, the

⁶ The “categorical imperatives” concept coined by Immanuel Kant (1724 – 1804) holds that a person should always respect others' humanity and act rationally according to the universal moral law (“Internet Encyclopedia of Philosophy,” n.d.)

answers are either this use increases informational capabilities for individuals (Gigler, 2011, 2015) or it enables individuals to achieve degrees of empowerment to make a life choice they have reason to value (Kleine, 2013) or both informational capabilities and empowerment occur thanks to Internet use.

In summary of the capability approach and its central tenets, Sen (1999) posits that development is “a process of expanding the real freedoms that people enjoy” (p. 3). Sen (1999) differentiates two key concepts of the capability approach: one, capability as effectively possible doings and beings; and two, functionings as doings and beings people have the reason to value. Thus, capability refers to freedoms or available options one can choose to lead a worthwhile life while functionings are achievements (Robeyns, 2005). In communication studies, the capability approach sheds light on the role of communication technologies, including the Internet as means (not ends) of development (Garnham, 1997). Through the lens of the capability approach, the Internet contributes to human development when it helps enlarge people’s capabilities (Gigler, 2011, 2015; Gow, 2018; Kleine, 2013). Since human diversity is a central tenet of the capability approach, the theory emphasizes that different people using the Internet can generate different effectively possible doings and beings based on a conversion process from human diversity factors and the communication technology into sets of capability (Robeyns, 2005; Zheng, 2011). These sets of capability can refer either to well-being freedoms—which consist of one’s own standard of living and commitment to help others so that one feels better off—or agency freedoms for a social course at the expense of one’s own well-being (Robeyns, 2005; Sen, 1987).

Critical Constructivism

Sen (1999) views technology as useful when it helps enlarge people’s freedom to lead a life of their choice; however, his capability approach does not discuss the role of different social groups

in shaping a technology with a view to expanding their capabilities. Critical constructivism is a perspective on the social shaping of technology that focuses on the power relations embedded in a technology. It builds on the social construction of technology (SCOT) tradition that emerged in the 1980s to counter technological determinism, including diffusion of innovations theory, the dominant perspective on the relation between technology and society at the time (MacKenzie & Wajcman, 1999). In contrast, to technological determinism that sees technology as value-free or “neutral,” the SCOT tradition posits that technological development proceeds as a negotiation process between relevant social groups that have their own definitions and stakes in the emergent new artefacts. Advancing this line of inquiry through charted by the works of Trevor Pinch, Wiebe Bijker, Bruno Latour and Langdon Winner, Andrew Feenberg first called his critical theory of technology by the name “critical constructivism” in 1999 in his book *Questioning Technology* (Campos, 2009). Rejecting technological determinism and aligning himself with social construction views, Feenberg (2010) argues that technology can be shaped and reshaped continuously and has numerous paths of development, and both technical and social factors determine technological development (p. 13). Feenberg (2010) also takes a methodological approach similar to the SCOT tradition in analyzing development processes of various artefacts in history such as videotext, cotton mill machines, and bursting boilers. Technology is loaded with an inherent ambivalence that is reflected in the principle of democratic rationalization and the principle of conservation of hierarchy so that social hierarchy is reproduced through technological progress (Feenberg, 1999). The principle of conservation of hierarchy refers to the reinforcement of the interests of the powerful in society through technological design and to perpetuating these interests in future technologies. The principle of democratic rationalization postulates that there is room for groups at lower levels of the social

hierarchy to reinvent and restructure technologies and make them respond better to their needs (Feenberg, 1999).

Whereas SCOT neglects the role of structural inequality and power relations among relevant social groups, critical constructivism argues that power and structural inequalities play out among relevant social groups, including the entrenched hierarchy regarding sex, age, race, ethnicity, education, income, etc. in society (Klein & Kleinman, 2002). The relevant social groups involved in the negotiations around a technology can comprise heterogeneous subgroups that are unable to come to an agreement (Klein & Kleinman, 2002). Moreover, among the relevant groups, some marginalized voices are not included or equally heard. Thus, they are unable to impact the social constructions of a technology in a way that responds to their needs (Klein & Kleinman, 2002). In a world marked by power inequality and stigmatization against some groups of people, even in case everyone was included in the shaping of an artifact, the consensus arrived at would still be impacted by hegemony, ideology and entrenched social inequality (Klein & Kleinman, 2002).

Feenberg's theory seeks to identify possibilities for the inclusion of a broader spectrum of participants in the process of social construction of technology. One of his core concepts is "democratic rationalization," a revised version of his earlier term "subversive rationalization" (Bakardjieva, 2005), which derives from Marcuse's and Foucault's notions of "alternative rationality" mobilized to challenge the dominant rationality of technology. Feenberg (2010) is interested in how average citizens challenge relations of power and the social order that are consolidated through technology design and seek "democratic control over the direction and definition of progress" (Feenberg, 1999, p. 5). Given this focus, he proposes the principle of democratic rationalization, which suggests that "new technology can also be used to undermine the social hierarchy or to force it to meet needs it has ignored" (Feenberg, 1999, p.76).

Although it seems unfeasible to produce and reproduce a technology that responds better to marginalized users' needs because the powerful do not surrender their interests easily, Feenberg (1999) points out some approaches for ordinary users to alter the inherent bias of technology. The "technical micropolitics" he envisions include technological controversy, innovative dialogue, and creative appropriation (Feenberg, 1999). First, technological controversy refers to pointing out the negative impacts technological development may have on certain populations. For example, a factory, which does not strictly follow environmental requirements, has recorded accidents of discharging its unfiltered chemicals into the ocean on a large scale. In response, environmentalists and social activists voice concerns not only about these accidents but also about environmental law loopholes and systemic corruption problems. Second, innovative dialogue denotes the participation and engagement of users and ordinary people in designing a technology along with experts and engineers so that the technology responds better to users' and people's needs. Third, creative appropriation occurs when users inventively open up technological affordances unforeseen by designers and producers. However, the powerful also have their ways to remain at the helm of technological developments. They often take on board the inventions made by ordinary users in some form and put them in service to their own interests. Bakardjieva (2005) calls this the "appropriation of the appropriators" (p. 17).

Feenberg (2010) develops the concept of "technical code" in two layers: primary instrumentalization and secondary instrumentalization to emphasize that social and cultural aspects play an important role even at the expert level of technology design. Primary instrumentalization deals with "functional necessities" such as forces of gravity, the physical property of materials, geopolitics of particular sourcing materials and the nature of participation by human actors. Secondary instrumentalization emphasizes "the realization of the constituted objects and subjects in

actual networks and devices” (Feenberg, 1999, p. 202). Thus, primary instrumentalization deals with properties of materials and physical laws, while secondary instrumentalization focuses on how social, political, cultural, and regulatory contexts influence the design of the technology. The existence of this second layer or instrumentalization makes it possible for wider participation in technological design that goes beyond the circles of engineers and technical experts. This process presents opportunities to users to intervene and contribute to technological development. This secondary instrumentalization concept demonstrates that average users can participate in shaping a technology and offers hope to those who are discriminated because of whom they are and where they come from.

Examples of creative appropriation and innovative use of a technology demonstrate how average users have intervened in the course of technology development. Feenberg (1999) argues that it was grassroots Internet users who changed the Internet from an original military network to a universal communications network. Von Hippel (2001) shows that it is the user communities that create innovation in products and services as users know what they want the most and producers can only produce at large scale for potential customers as the whole group. For example, Internet users formed online forums and communities that empowered them to talk back to authorities and experts (Bakardjieva, 2005). By creatively using the Internet, users discover new dimensions of the technology (Bakardjieva, 2005). Diffusion of innovations theory taxonomizes users into categories based on their innovativeness or how early they adopt the technology (Rogers, 2003); thus late majorities and laggards are self-explanatory in terms of being late in the innovativeness game. The creative appropriation concept recognizes these marginalized groups’ agency and participation in discovering and creating new ways of using the technology despite that they may be lag behind in adopting the technology.

To recap, this section argues for the non-neutrality of technologies that are shaped by relevant social groups in the process of unequal negotiations charting the path of technology. They are characterized by the sway of dominant rationality and by struggles and compromises between the powerful and the marginalized. Technology users, who may be considered passive and powerless at the level of primary instrumentalization can play a direct or indirect role in shaping secondary instrumentalization by engaging in technical controversies and exercising creative appropriation. The section that follows looks at the process of technology domestication guided by the domestication model or how ethics and value play out in users' purchase and adoption of ICT. Domestication represents the stage where technologies enter the homes of the end-users and become subject to active re-definition and appropriation. As such, it is the process in which the ability of ordinary users to contribute to technological development through the invention and performance of particular uses or "use genres" (Bakardjieva, 2005) is actively demonstrated.

Domestication Model and ICT Appropriation

The moral economy of the household and ICT appropriation were first theorized as "domestication" concepts in British cultural studies in the early 1990s, which provides a framework of thinking about how ICT makes its way into users' homes in economic, ethical, and value-laden terms (Haddon, 2003).

The concept of the moral economy of the household focuses on values and ethics that play out in apparently economic decisions of purchasing, adopting or appropriating goods and services (Silverstone, Hirsch, & Morley, 1992). Because a household has competing consumption demands, how goods and services are purchased often involves discussion and negotiation among family members.

The domestication framework was developed by Silverstone, Hirsch, and Morley (1992) based on a study of television, telephone, computer, and videocassette recorder uptake into British homes. It conceptualizes several distinct strands in this process. First, appropriation refers to the purchase and introduction of an ICT into a household. In other words, the ICT “crosses the threshold between the formal and moral economies” (Silverstone, Hirsch, & Morley, 1992, p. 22) and becomes part of a household and its everyday life.

Appropriation triggers a process of taming the ICT by family members who are negotiating how the technology should be consumed and adopted in line with family values and practices. Second, objectification is a process of placing and displaying the ICT within the material configuration of the home as an aesthetic and spatial environment. Third, incorporation comprises the integration of the new technology into the temporal rhythms and routines of the home. For example, checking weather forecasts on smartphones in the mornings and surfing the web during lunch breaks refer to how smartphones are incorporated into the daily routines of some Vietnamese farmers. Fourth, conversion calls attention to the relationship between the household and the outside world in its consumption of the ICT. For instance, when some rural residents do exercise and walk in the mornings, they talk with each other about comedies, talk shows, and movies they watch online. Thus, the Internet is not only on the screen shared by family members, but meanings associated with it travel into social activities outside the household.

Domestication theory has been evolving in the face of the growing use of mobile technology through the works by Haddon (2018) and Bertel (2018). Haddon (2003) posits that the nature of mobile technology outside the house makes technology use negotiation among family members less central. Reviewing mobile telephony studies, Haddon (2003) suggests domestication theory should be adapted to account for mobile telephony use in public space, friendship relationships, face-to-

face communication compromised by mobile phone calls, and mobile telephony's extension from its original use base to the ways in which people communicate and think about communication.

Bertel (2018) demonstrates how domestication theory should be changed to address the adoption of smartphones. The first theme is how the theory is applied when users are mobile and use a smartphone out of the house. Bertel (2018) posits that “communicative configurations,” a concept in mediatization theory developed by Couldry and Hepp (2016) and Hepp (2013), should be adopted in domestication theory. Instead of the focus of the home as a unit of analysis of domestication theory, the communicative configuration consists of a group of human actors, communicative purposes and practices, and specific media, which domestication theory should take into account. The second theme is the highly individualized use of a smartphone. The third theme, which relates closely with the second theme, is its configured “malleability.” The fourth theme is cross-media smartphone use with an Internet connection. Bertel (2018) assumes that smartphone users know how to use the phones, Internet connectivity is available and affordable, and users take smartphones outside the houses to make use of their mobility, which are not always applicable in the Vietnamese context. However, these four themes are useful for my analysis of the domestication of smartphones in the villages.

In conclusion, how rural households in Vietnam adopt broadband Internet in their everyday life can be explained through appropriation, objectification, incorporation, and conversion stages of the domestication theory given the local context of users' digital literacy, smartphones' mobility, and Internet connectivity. The concept of communicative configurations by Bertel (2018) can be applied in a unit of a household, understood in many cases as a group of families who live nearby and share Wi-Fi subscriptions with each other so that each family pays the monthly subscription charges partially in rural Vietnam.

Having discussed modernization discourse, the capability approach, critical constructivism, and the domestication model, the final section of this chapter offers a blueprint for using these foundational theories in the context of broadband Internet rollout in rural Vietnam. While the capability approach and critical constructivism share similar premise and research agenda in favour of users, the domestication framework captures the process of technology integration into people's everyday life in accordance with their moral values and established routines. The concept of Internet use genres that Bakardjieva (2005) introduced as ways of using the Internet that arise in typical situations of everyday life brings attention to three additional dimensions of technology appropriation by ordinary users: the immediate social and personal context, the technical affordances users discover in new devices, and the particular challenges and goals toward which users apply the technology in a reflexive and imaginative way. Bakardjieva (2006) argues that the invention of such genres is an important way in which users participate in the social shaping of technology. In addition, some of these genres represent and lead to user empowerment with the help of the new technology. I advance further the Internet use genres concept by showing how it can be seen as a point of intersection and collaboration between the capabilities approach, critical constructivism, and the domestication framework. These distinct approaches can enrich and complement each other in this concept.

Internet Use Genres

Bakardjieva (2005, 2006) coins the Internet use genres concept, drawing on the literature of phenomenological sociology about everyday life (Schutz & Luckmann, 1974), the critique of everyday life (Lefebvre, 1991), and genre as a linguistic concept. The world of everyday life is “man's fundamental and paramount reality” that includes people's agency in engaging and changing

this reality with surmountable and insurmountable obstacles created by objects and events (Schutz & Luckmann, 1974, p. 3).

Using a technology is seen as an analogy to speaking a language in the sense that both have embedded motives, intents, recipients, and both arise in specific social situations (Bakardjieva, 2006). Speech genres, which consist of speech goals, motives, and language forms, combine uniqueness and standardization and connect verbal and extraverbal undertakings in everyday life (Bakhtin, 1986). Similarly, Miller (1984) develops a view on genre as social action that creates meaning and mediates between private intention, or purpose, and socially objectified need or exigence. In the Internet era, genre characterizes communities and enhances recurrent patterns (Miller, 2015). I further discuss the concept of use genres in Chapter 7 in which I suggest the idea of local Internet use genres given some unique use genres emerge in a certain geographical area with its own local traditions, situations, and characteristics within a country. Internet use genres are ways of using the Internet, which are enabled by technological functionalities, but are not technologically determined, and are influenced by elements of users' personal situations and social contexts (Bakardjieva, 2006).

Internet use genres emphasize users' agency grounded in their living contexts rather than what script designers and engineers inscribe in a technology; thus, this concept is useful in light of critical constructivism. Some Internet use genres can manifest themselves as forms and contents of creative appropriation of the Internet. With a critical agenda built into critical constructivism, Internet use genres have the potential to provide democratic rationalization of the technology to help make the Internet respond to a wider spectrum of individual and community needs. Internet use genres also shed light on culturally relevant ways of Internet use because the situations and contexts

in which they arise are not strictly individual. They are shared by certain categories of users inhabiting the same or similar cultural spaces.

In light of the capabilities approach, human diversity plays an important role in converting Internet use into achieved functionings and capabilities for each person and the local community. Thus, Internet use genres can be seen as the product of ordinary users' efforts to convert technological affordances into capabilities and functionings, allowing them to pursue the ways of life they value. It could be argued Internet connectivity and devices do not automatically translate into Internet users' capabilities, but considering the list of central human capabilities proposed by Nussbaum (2007), it can also be argued that Internet-enabled use genres could lead to the growth and diversification of users' capabilities.

Through the lens of the domestication model, the identification of Internet use genres serves as a manifestation of how users appropriate, tame, and use the Internet in a similar manner when their personal and social characteristics, situations, and living environments are comparable. These user-initiated genres offer an alternative to top-down mandated prescriptions for technology use. They hold the potential to enhance users' freedom to lead a worthwhile life both in terms of well-being and agency as defined by Sen (1987). Thus, evaluating the potential of these genres to enlarge human capabilities can add a critical edge to the descriptive nature of the domestication framework (Bakardjieva, 2006).

Summary of Theoretical Framework

While the modernization paradigm with its primary goals of industrialization and modernization of Vietnam is popular in the country's mainstream discourse and policy making, the capabilities approach sheds light on the possibilities for multifaceted human development beyond economic growth and the linear path of development charted by modernization policies. The

Internet contributes to users' development only when it enhances their informational, human, and social capabilities. Overcoming the deterministic view of the Internet's impact on human lives, critical constructivism sheds light on users' agency to creatively appropriate technology and to make it respond to their needs that are ignored in the original designs sponsored by powerful social groups. The domestication model, for its part, maps the empirical process of active appropriation and adaptation of media technologies by ordinary users to the value systems and valued activities of their everyday lives. Finally, the concept of Internet use genres demonstrates how these three strands of literatures—the capabilities approach, critical constructivism, and the domestication framework—can complement each other in elucidating the evolving relationship between users and a new technology in the direction of expanding freedom, empowerment, and the enhancement of human capabilities. The conceptualization of Internet use genres and capabilities is visualized in Figure 2:

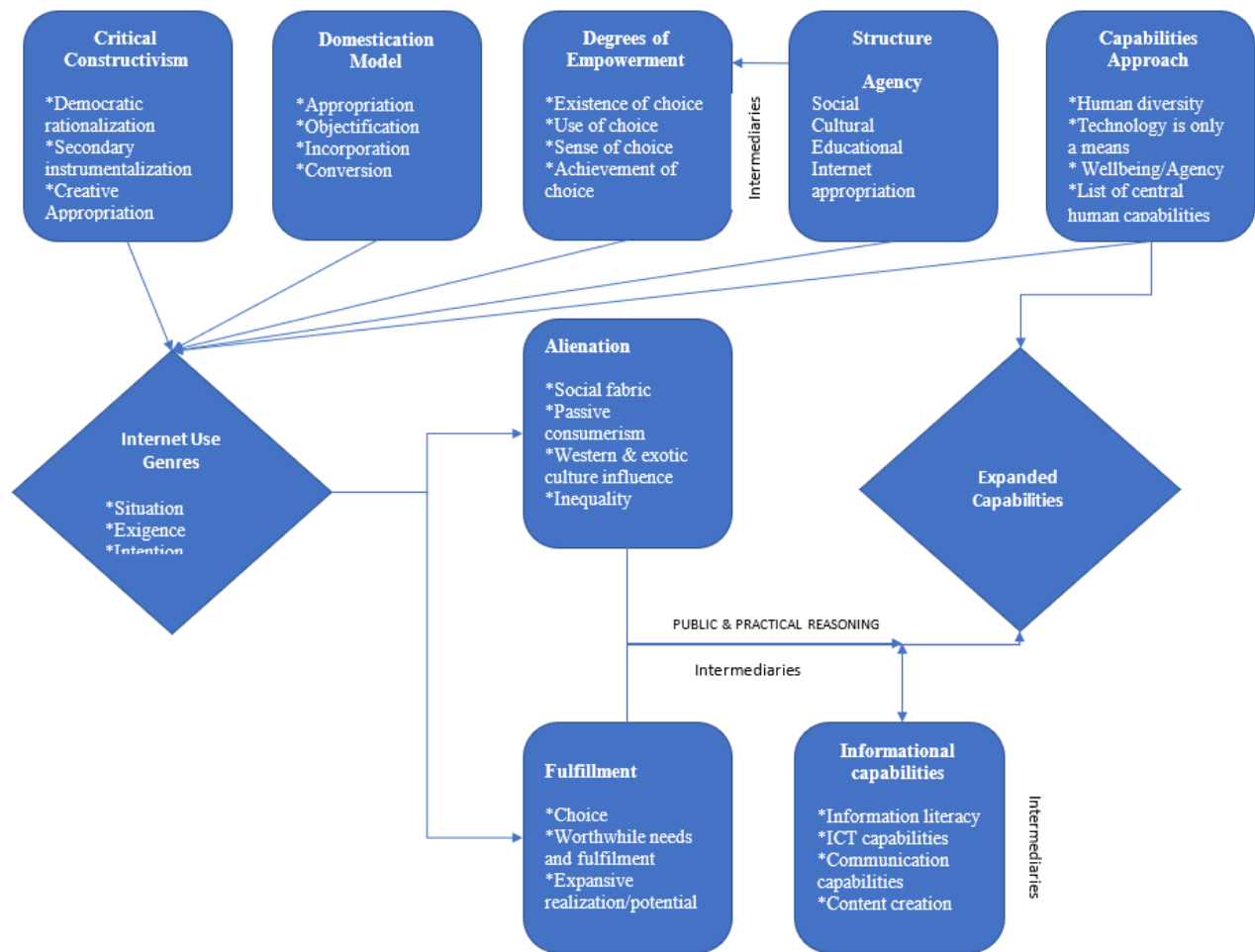


Figure 2: Theoretical diagram – Conceptualizing Internet use genres and capabilities⁷

⁷ While I have explained in detail how Internet use genres are a meeting point of critical constructivism, the domestication model, and the capabilities approach in the theory chapter, public and practical reasoning could help transform choice, and other fulfilments into capabilities. Also, Internet users' structure and agency resources in the choice framework could shape their situations, socially objectified needs, and intentions as discussed in Chapter 8, and the degrees of empowerment conceptualized by Kleine (2013) could stabilize Internet use genres as choice or outcomes. Some alienation aspects of Internet use in this diagram are analyzed in Chapter 7, and expansive realization or potential concepts by Slater and Miller (2000) are integrated in the fulfilment category. Both fulfilment and alienation elements could lead to informational and then expanded capabilities with the help of practical and public reasoning. Intermediaries (or stewards) could help rural residents practice and pursue critical reasoning and informed choice and thus enlarge their degrees of empowerment and Gigler's (2011, 2015) informational capabilities and expand capabilities.

Chapter 3: Literature Review – Internet Use in Developing Countries and Rural Areas

This chapter provides a review of the literature on Internet use in developing countries, focusing specifically on China, India, Brazil, and other countries in the Asia Pacific in order to provide a context for the study on Internet use in rural Vietnam. The literature on Internet use in developing countries is vast and focuses on the debates, predictions, and current availability of affordable technological modes of connecting these underdeveloped areas. This literature review also examines how Internet development discourse functions as a rationale behind efforts to introduce and diffuse the Internet and its technological connectivity modes in developing countries. In these countries, the Internet and information communication technology (ICT) are considered to help boost economic development and deliver effectively and efficiently in terms of health care, education, social conditions, and so on (Avgerou, 2010; Heeks, 2010; Walsham & Sahay, 2006). Thus, governments and organizations embrace policies and initiatives to connect these countries to the Internet predominately for the purposes of development (Kelly & Rossotto, 2012). However, these policies also manifest surveillance and censorship of Internet users in the name of public safety (Deibert, 2003), which serve the vital interest of a government (Nguyen, 2013) at the expense of global openness of the Internet and freedom of communication.

At the same time, researchers who adopt an ethnographic approach (e.g., the *Why We Post* series' comprising 11 ethnographic books) have suggested that social media use varies from one area to another and is rooted in local social, cultural, and economic contexts (McDonald, 2016; Wang, 2016; Venkatraman, 2017; Spyer, 2017). These studies demonstrate how the Internet makes its way into the diverse lives of users, in their offline and online communities, and in their living contexts. However, these studies focus on social media and overlook the diversity of the broader Internet uses ranging from studying online to teleconferencing with family, friends, and customers.

Moreover, these studies do not examine Internet infrastructure and the inclusion of rural residents in technological development initiatives. Therefore, the aim of this chapter is also to review the literature on Internet use in rural areas in both developed and developing countries to contextualize Internet use in rural areas in Vietnam. Notably, the studies of Internet use in rural areas focus primarily on infrastructure and social inequality as compared to urban areas, which focus on the latest technological advances and benefits. Based on my review of the literature from 2000 to 2020, I identified that the research does not examine the impact of top-down broadband Internet policy on the choices and practices of rural residents, who may struggle to adopt the technology in ways that increase their freedom and choice⁸.

Hence, this chapter aims to review the literature on Internet use in developing countries and Internet use in rural areas to demonstrate a double digital divide existing in rural areas in developing countries. In this literature review, I first address Internet use in developing countries and focus on Internet connectivity modes transitioning from telecentres to smartphones. Second, I consider the rationale for diffusing the technology as manifested in the literatures dealing with Internet development discourse, Internet diffusion and surveillance policies, and Internet appropriation. Third, I present the existing research on Internet use in rural areas, focusing on infrastructure underdevelopment issues such as telecommunications market and technological generations and social inequality rooted in rural demographic features. Finally, I consider policy analysis that

⁸ This idea originates from the capability approach that I discuss in the Chapter 2. Choice is a key concept in the choice framework developed by Kleine (2013) in a study about applying the capability approach in information communication technology for development (ICT4D) in a town of about thirteen thousand people in Chile. Operationalizing capabilities in this study, Kleine (2013) argues that choice, which represents combinations of various functionings people value doing or being or a proxy of capabilities, is the primary outcome and means of development.

addresses both material and social inequality in Internet diffusion in rural areas. I demonstrate that the well-being of rural new Internet users is rarely a subject of attention in the literature.

Internet Use in Developing Countries

Developing countries

This section discusses the notions of developing and developed countries and their equivalent terms and prevalence of use. The terminologies, though imperfect in the sense that they group together heterogeneous countries, determine a country's status of development by considering their income per person, gross national product, and a combined index of human development that includes the population's health, longevity, education, and decent living ("World Economic Situation and Prospects Annex," 2018). Categorizing countries according to degrees of development helps to demonstrate how Internet use is similar and different in a few countries belonging to the same 'development' category (Chen & Wellman, 2004). After reviewing this necessary schema for classifying countries based on their development levels, I argue that the categories of developing, transition, and developed countries, although problematic, remain relevant to the analysis I undertake in this dissertation.

After the Second World War, countries all over the world were classified based on the relationships with the two confrontational superpowers: The United States of America and the Soviet Union. Countries were defined as First World, Second World, and Third World (Sauvy, 1952; Dirlik, 2004; Dodds, 2008; Karpilo & Intern, 2019). The Third World was a prominent term referring to those countries that did not belong to either the U.S.-led Western allies or the Soviet Union block.

The Brandt Report, which the United Nations sponsored-Brandt Commission issued in 1980, categorizes countries in the rich North and the poor South, which are divided by the Brandt Line—a

geographic boundary approximately drawn between countries with satisfactory levels of human development, rights, and liberties, and countries deficient in these goals (Dodds, 2008; Solarz, 2012; Wionczek, 1981). Instead of associating countries' development with their geographical location, alternative terminologies and rich-poor classifications emerged in the context of delivering aid from wealthy countries to poor countries.

The terms *developed countries* and *developing countries* are widely used in the development aid community (Pearson, 1969). However, there exists no agreed-upon criteria and definition of developed countries, developing countries, and their sub-categories (Nielsen, 2013). The United Nations, the International Monetary Fund (IMF), and the World Trade Organization (WTO) use the attributes *developed* and *developing* to classify countries in accordance with what the organizations aim to achieve and how they carry out their interventions in the world (Nielsen, 2013; "WTO," n.d.).

Given my research focus on ICT use and human development, I adopt the UN's definition of developed and developing countries based on the UN's Human Development Index (HDI), which includes health, education, and income as criteria to determine whether a country is developed or developing (Nielsen, 2013). For the sake of simplicity and feasibility, the World Economic Situation and Prospects Annex (2018) is used as a reference to classify whether a country belongs to the developed economies or developing countries. The latter includes economies in transition, developing economies, heavily indebted poor countries, and least developed countries. Despite in-group heterogeneity, developed and developing countries face problems distinctive to each group. The gap in ICT—or the digital divide between developed and developing countries—refers to differences in resources to participate in the digital era, including ICT infrastructure, computers for

the inhabitants, digital literacy and skill of users, and so on, between developed and developing countries (Chen & Wellman, 2004).

The next section discusses the Internet connectivity mode where the technology development trend is either in the forecasting state or in the reality of a paradigm shift from communal to individual use of the Internet.

Internet connectivity mode in developing countries

Telecentres, hybrid Internet models, and privately-owned Internet shops

Telecentres are facilities, equipped with phones, faxes, and computers, that provide various telecommunications services and meeting space to the public (Oestmann & Dymond, 2001). The first telecentre originated in Sweden in 1985, and the number grew to 230 by 1994 in rural or isolated areas in developed countries from Australia to the United States (Oestmann & Dymond, 2001). This telecentre model was then transferred to less developed countries as a Western-based ICT system (James, 2004). According to Oestmann and Dymond (2001), telecentres are present in 21 developing countries, including Uganda, the Philippines, and Vietnam.

While telecentres are supposed to provide telecommunications access to geographically and financially challenged areas, their shortcomings are numerous. For example, many telecentres in rural Vietnam are financially unsustainable and suffer from a lack of local people's awareness about the existence of such telecentres, as well as weak coordination between central and provincial governments in developing rural content (Vong, Song, & Mandal, 2015). Several telecentres are funded by donors, which James (2004) describes as a capital-intensive project that aligns more with donors' internal funding preferences and financial procedures than with local interests. Though James' (2004) arguments do not cover internally developed telecentres, they may still ring true as

telecentres located in developing countries occasionally fail to respond to local needs and thereby fail to remain viable.

Impressed by the importance of ICT in fostering the growth of developing countries, scholars and organizations seek ways to provide Internet in underprivileged areas and to solve the financial sustainability problem. James (2004) advocates for privately-owned Internet service shops that provide Internet services to address local needs and attract customers as a means to make a profit. Vietnamese Internet cafés, with computers configured for online gaming, are an example of for-profit, privately-owned Internet shops. With the advent of mobile devices and their relatively lower costs over time, users in numerous developing countries are able to access the Internet without going to an Internet café, except maybe for online gaming.

One Laptop per Child, Facebook Free Basics

One Laptop per Child (OLPC) and free basic Internet on Facebook are globally designed programs for developing countries. However, their presence and uptake are country-dependent, as I discuss further in this section. They face challenges as a one-size-fits-all solution created by developed countries to implement in developing countries and prove to be ineffective and limited.

The OLPC program, which aims at providing each child a \$100 Internet-connected computer designed at MIT Media Lab to empower children's learning, has reached millions of children in 40 countries ("MIT Media Lab," n.d.). However, authors critique such programs pointing out competing education and economic resources (James, 2010b) while questioning the academic achievements and cognitive skills gained by children using their laptops (Beuermann, Cristia, Cueto, Malamud, & Cruz-Aguayo, 2015). Saxe and Kirby (2018) also emphasize the program's unintended consequences on local communities. Therefore, implementing certain Internet programs

or technologies in developing countries becomes a daunting task due to their specific development paths.

Facebook provides Free Basics in developing countries so that people can access the Internet free of charge with services such as news, local jobs, and travel to improve their lives (“Facebook for Developers,” n.d.). The service also faces criticism. After introducing free Internet to new users, the partnership between Facebook and local telecom companies now aims to retain them to pay for data services that Free Basics does not provide (Mobile Operator Partnership Program, n.d.), thereby aiming to make corporate profits over the long term (Solon, 2017). Free Basics are available in 65 countries (Solon, 2017), including Thailand, Laos, Cambodia, but not their neighbouring country, Vietnam (Where We’ve Launched, n.d.), where the government is at the helm of censoring the Internet. On the other hand, the widely used Free Basics represents digital colonialism, as it promotes Western business interests and language, which violates the non-discrimination principle of content transmitted via the Internet by selective content providers (Solon, 2017).

Internet connectivity and access devices pose a challenge for organizations to deliver the service affordably and sustainably in developing countries. The International Telecommunication Union suggests that mobile broadband networks and devices have become popular due to their expansion and low cost in less developed countries (“ITU Development,” 2018). The next section will discuss a current trend of Internet use in developing countries: broadband Internet and end users’ Internet connectivity devices.

Broadband Internet and users’ devices

At an international level, providing “universal and affordable access to the Internet in the least developed countries by 2020” is a target in the 2030 Agenda for Sustainable Development of the United Nations Sustainable Development Summit that dates back to September 2015 (as cited in

“ITU Development,” 2018, p. vi). The developing countries make progress in fostering infrastructure of Internet connectivity, particularly via mobile broadband Internet (Avgerou, Hayes, & La Rovere, 2016). By 2016, 61 percent of people in these countries were within a mobile-broadband signal range (“ITU Development,” 2018). Competition in the telecommunications market in these countries has resulted in affordable broadband Internet infrastructure, including fibre-optic cable backbones (“ITU Development,” 2018).

The practice of using mobile phones to access the Internet in developing countries is increasing (Poushter, 2016; Neogi & Jain, 2018). This is mainly due to (a) the prices of end users’ Internet devices, particularly smartphones lowering over time (ITU Development, 2018), and (b) using a phone which requires fewer skills than using a computer (Stork, Calandro, & Gillwald, 2013). Mobile broadband accounted for 61 percent of all broadband connections in 2011 and is forecasted to continue rising in developing countries (Bold & Davison, 2012). The use of mobile phones to access the Internet emerged as a popular trend in Africa in addition to community-based Internet access at workplaces and Internet cafés (Stork et al., 2013). In their study, Stork et al. (2013) surveyed Internet use in at least 768 randomly selected households in each of 11 African countries. They established that more than 60 percent of Internet users access the Internet via mobile phones in the last 12 months in all of the countries surveyed except Cameroon. (The other countries surveyed were Namibia, Ghana, Uganda, Ethiopia, South Africa, Botswana, Kenya, Nigeria, Tanzania, and Rwanda). According to Gartner (2016), a research and advisory company, 1.4 billion smartphone units were sold in 2015, as affordable smartphone prices from China and local companies won over first-time and midrange users in developing countries.

While it is easy to embrace mobile telephone Internet access as an affordable and viable solution in developing countries, the limitations of mobile phones reinforce users’ inferiority in

developing areas. Mobile phones do not have as much memory and storage capacity as computers; their smaller screens do not facilitate a full display of information, while mobile-tailored websites are designed within mobile display limitations (Napoli & Obar, 2014). Mobile apps save time and are convenient in obtaining Internet content. They also serve as gatekeepers, thus constraining the free flow of information that computers provide (Napoli & Obar, 2014). The depth of information access is questionable on mobile phones, which only allow brief keyword searches (Napoli & Obar, 2014). When analyzing surveys of more than 2,600 people in Chile about their digital skills and types of Internet use, Correa, Pavez, and Contreras (2018) find that mobile-only users possess lower levels of digital skills and more limited use of the Internet as compared to those who also use computers. Therefore, mobile-only Internet access provides more limited online opportunities and resources for its users who, consequently, are unable to take full advantage of the Internet.

In order to bridge the digital divide between developed and developing countries and also cope with limited resources in the latter, Internet connectivity in developing countries has been adapted from community-based access telecentres to individual handset connections to the Internet. Apart from reviewing the trends of Internet connectivity in developing countries, the above sections also discuss the pros and cons of each access mode. Each connectivity mode has its disadvantages that may result in the fact that Internet users in developing countries may appear as a second class of Internet users. At the same time, telecentres, Internet cafés, and handsets undeniably help to connect more people to the Internet, thus narrowing the digital divide. The following discussion will focus on Internet development rationale, policies, and user appropriation, which underlie and explain these Internet connectivity trends.

Behind the scenes: Internet development discourses, policies, and user appropriation

Internet development discourses

The rationale for introducing and expanding the Internet in developing countries is embedded in development discourses. ICT4D research focuses on these countries with a presumption that Internet connectivity is a positive catalyst in areas that overlap, such as economic growth, improvements in health care, quality of life, education, and civil society (Avgerou, 2010; Heeks, 2010; Walsham & Sahay, 2006; Kivunike, Ekenberg, Danielson, & Tusubira, 2011; Igboaka, 2010; Karanasios & Burgess, 2008; West, 2015). Most recognizably, Avgerou (2010) situates ICT4D in the context of developing countries and classifies ICT4D discourses based on the nature of how the technology is designed and used and the impact it has on the community. ICT is either transferred from developed to developing countries and is adapted in the latter, or is socially shaped in developing countries (Avgerou, 2010). The technology can ignite both “progressive transformation” in socioeconomic realms and “disruptive transformation,” leading to uneven development and enlarged disparities among groups (Avgerou, 2010, p. 9). ICT’s positive impacts, which include mitigated negative impacts, serve as a rationale for governments and organizations to diffuse the Internet in developing countries (“United Nations,” 2011).

From development perspectives, ICT4D in developing countries is mainly either approached under the assumption that ICT promotes economic growth, or derives from the theoretical foundation of Sen’s capability approach, which defines development in terms of increased human capability to lead a life of their choice (Avgerou et al., 2016; Zheng, Hatakka, Sahay, & Andersson 2018; Lwoga & Sangeda, 2019). The former, which Avgerou (2010) calls “transfer and diffusion,” (p. 1) is usually associated with a top-down transfer approach from developed to developing countries, in which the Internet is diffused to bring about economic gains not necessarily in

alignment with what user communities need and want. This view also likens technological connectivity to an end goal of development. The latter position focuses on various aspects such as economic, social, political, and cultural opportunities, which enable technology users to enlarge freedom in their lives. According to this view, technology is a means, and not an end, to development (Alampay, 2006; Kleine, 2013; Zheng & Stahl, 2011).

Internet development discourse belongs to ICT development discourse with the distinctive feature of the Internet as both a medium and a resource. ICT is defined as handling and communicating information by using electronic devices such as the Internet, computers, and broadcasting technologies (Kaware & Sain, 2015). With the advent of the Internet and its horizontal communication networks, Castells (2011) stresses the importance of an information age in societies across the globe. Both developed and developing countries must invest in high-speed Internet to increase their thriving economies, and to improve their quality of life (Gulati & Yates, 2012). In the next section, Internet policies, with a focus on broadband policies, in developing countries will be discussed.

Internet policies

Since the Internet can be a tool to tackle development problems that developing countries face, such as education, healthcare, and financial inclusion (“United Nations,” 2011), these countries create and implement policies to diffuse the Internet to the population. This section will discuss the impacts of regulation in developing countries, in addition to Internet policies in the Asia Pacific region where Vietnam is situated (and where several developing countries resemble each other in terms of shared international cable networks and cultural and economic institutions).

The impact of an Internet regulating agency and policies in developing countries is controversial, depending on how they function. Wallsten (2005), who analyzed returned surveys of

45 regulatory agencies in developing countries, places regulation in the context of telecommunication competition policy. He suggests that Internet regulation can either benefit or hinder Internet development depending on the barriers it creates or removes for innovation, altering the playing field in the industry. Whereas Wallsten's (2005) study did not elaborate on the impact of Internet regulation on Internet uptake and use in developing countries, Gulati and Yates (2016) examined the impact of Internet policy and regulation on broadband subscriptions in 148 countries and divided them into developed and developing countries. They found that, while financial investments in both groups of countries impact broadband diffusion, higher levels of competition and democratic institutions increase broadband uptake in developing countries. The role of national regulatory agencies on telecommunications is questionable in developing countries, as the findings show that the presence of these agencies correlates with lower levels of broadband diffusion in these countries (Gulati & Yates, 2016).

International Telecommunication Union (ITU), which is "the United Nations specialized agency for information and communication technologies" ("About the International Telecommunication Union," n.d., para. 1), utilizes a consistent measurement that enables a competition framework among developed and developing countries. ITU includes the competition framework in market segments and foreign participation as a criterion to track ICT regulators globally ("ICT Regulatory Tracker," 2018), and classifies regulators in one of five generations ranging from generation 1 (least desirable) to generation 5 (most desirable).

Based on the criteria of openness, flexibility, and effectiveness of regulatory dimensions, generation 1 (or "regulated monopoly" or "command and control approach") ("ITU Regulatory Tracker," 2018, para. 11) regulates public monopolies without an independent regulator ("ICT Development Index," 2017). Generation 2 refers to ("basic reform" or "partial liberalization and

privatization across the layers”) whereas generation 3 is an “enabling environment, innovation and access – dual focus on stimulating competition in service and content delivery, and consumer protection” (“ITU Regulatory Tracker,” 2018, para. 11). Generation 4 (“integrated regulation”) indicates that regulators are perceived and function as a “partner for development and social inclusion” (“ICT Development Index,” 2017, p. 10) to achieve socio-economic goals. Generation 5 (“collaborative regulation”) refers to ICT regulators’ collaboration with non-ICT regulators to achieve sustainable development goals (“ICT Development Index,” 2017).

The ITU’s taxonomy of these five generations depicts where a country’s ICT regulator is in comparison with other countries in the region and in the world, while encouraging regulators to move up in the ladder of regulatory generations. In the Asia Pacific, the ICT regulators of developed countries, such as Australia, Singapore, and New Zealand, are in generation 4, 4, and 3, respectively, while most developing countries’ regulators are classified from generation 1 to generation 3. Due to government command and control measures, Laos and Solomon Islands are in generation 1. Vietnam is assessed to be implementing basic reform by partially privatizing its ICT industry, which places it in the same category of generation 2, along with China, Cambodia, and Myanmar, while Bangladeshi, Thai, and Indian regulators are classified in generation 3.

With the position that broadband Internet is essential if citizens are to integrate successfully in a digital society, the ITU tracks regulatory trends in the face of an evolving technological landscape and ICT development (“ICT Development Index,” 2017). Among approximately 190 tracked countries, the ITU shows that countries in the Asia Pacific region have increased their bandwidth supply and decreased international bandwidth prices through the installation of International submarine cables in the past few years (“ICT Development Index,” 2017). Mobile broadband platforms on the rise enable new services and constant connectivity (“ICT Development

Index,” 2017). However, issues relating to cybersecurity and trust in the system require proper regulation of personal data (“ICT Development Index,” 2017).

Wallsten (2005), Gulati and Yates (2016), and the regulator tracker by the ITU all aim to promote ICT services and use in developing countries through policies and agencies that regulate the ICT sector. However, a gap in these studies is the exploration and analysis of Internet regulations that end up assigning control to powerful groups such as authoritarian governments that severely restrict rights such as free speech. Internet surveillance, control, and censorship exist in many countries with various nuances, particularly in one-party countries such as China and Vietnam. Deibert (2003) posits that an open, democratic, and freedom-of-speech global communication Internet can no longer be taken for granted, given censorship, surveillance, and the militarization of the Internet in the wake of the 9/11 attacks in 2001, and ongoing terrorist threats in other countries. For instance, Vietnam applies strict censorship and surveillance measures (Mai, 2016; “Vietnam Army Hires Censors,” 2017; Nguyen, 2013; Surborg, 2008). However, in contrast from other countries’ strict censorship rules such as China’s—which I will later discuss—Vietnam allows technology giants such as Facebook and Google to provide services for its population, while passing a cybersecurity law that requires these companies a) to remove content perceived to be offensive to the government and b) to store data in Vietnam (McLaughlin, 2019; “Vietnam’s Cyber-Security Law,” 2019).

Censorship, defined as the omission of materials and content perceived to be objectionable, has become entrenched in international copyright law to protect producers and creators whose intellectual property could be stolen online (Deibert, 2003). At the government level, censorship in China is based on “a combination of: self-censorship; legal restraint and fear of punishment, content

filtering software..., and a national firewall...to block access to the Internet content deemed ‘undesirable’ and ‘subversive’” (Deibert, 2003, p. 512).

In conclusion, two key discourses shape Internet policies and regulations in developing countries: 1) Internet development with an aim to promote economic, social, and cultural realms; and 2) Internet control and surveillance at the expense of data privacy and the global openness of communication. In the next section, I discuss Internet use and appropriation patterns specific to developing countries.

User appropriation of the Internet and social media use

In this section, I focus on how the Internet is delivered to users in developing countries, and how they use it. Providing Internet access in a developing country is a seemingly overwhelming challenge given the stratification of Internet users by gender and by region, and the varying ways in which individuals and groups integrate the Internet into their everyday lives. My task in this section is two-fold. First, I discuss the gender gap in Internet usage to provide context about this issue in Vietnam, where data indicating gender Internet use is absent. Second, to avoid falling into the trap of generalizing a heterogeneous group of countries as one entity, I discuss Internet usage in selected individual countries to delineate how diverse Internet use is in various parts of the developing world, while also drawing commonalities between factors that shape Internet usage. I also link back to the gender gap in Internet usage in these individual countries and examine the takeaway for Vietnam’s broadband Internet use.

Antonio and Tuffley (2014) discuss the gender digital gap in developing countries and posit that women have less Internet access than men due to the perceived roles of women in a society, which restricts their educational and social opportunities. According to the ICT Development Index (2017), 47 percent of men were found to use the Internet in the Asia Pacific region, while 39 percent

of women used it. In developed countries, while 82 percent of men have Internet access and 80 percent of women have Internet access, in developing countries, these figures are 45 percent and 37 percent, respectively (“ICT Development Index,” 2017). By examining studies about the gender digital divide and statistics from international organizations such as the United Nations, World Bank, and Intel, Antonio and Tuffley (2014) argue that entrenched perceptions about women’s domestic roles create barriers for women in accessing the Internet, or in accessing it effectively. These barriers include women’s exclusion from education and technology design, their limited free time due to household duties, social norms favouring men, and budget constraints (Antonio & Tuffley, 2014).

Although the gender gap still exists, increasing smartphone and social media use in developing countries helps boost both male and female Internet use in these countries. According to a Pew Research Centre report by Poushter (2016), ownership rates of smartphones and mobile devices used to access the Internet in these countries have risen dramatically to a median of 37 percent in 2015, from 21 percent in 2013. Social networking websites have also become more and more popular among Internet users in developing countries. Almost three out of four Internet users in Africa, Latin America, and the Middle East use social networking sites (Poushter, 2016). In 2015-2016, approximately four in ten adults in developing countries used social networking websites; whereas, in 2017, more than half of Internet users used them (Poushter et al., 2018). Regardless, more men use the Internet than women in many developing countries such as Mexico, Nigeria, Kenya, and Ghana, and men are more likely than women to own smartphones.

From a user perspective, social media helps female users in conservative cultures pursue a version of themselves that is not always welcome or appreciated by their local communities (Discovery 12, n.d.)—although how social media is used varies from individual to individual. The

important literature about social media use from a user perspective is the series *Why We Post*, led by Daniel Miller, which includes 11 books whose authors stayed in local areas for 15 months to study social media use. The most significant finding of social media use in various countries is that it is “individual and distinct” (Miller et al., 2016, p. v). I will discuss how social media is used in several developing countries, including Brazil, China, and India, in the series “Why We Post.”

The research was conducted in a formerly rural setting in Brazil—a place which is now a newly-urbanized area situated within one of the tourist destinations where low-income people migrate for better economic opportunities (Spyer, 2017). After six months of interacting and establishing relationships with locals, Spyer (2017) coined the terms “light off” and “light on” (p. 4) to describe how social media users draw the lines of their online posting, which is different from his initial notion that people are uneducated, or rendered them as too unskilled to use privacy settings or to differentiate between private and public online realms. Turning off the light on Facebook is a frequent online technique given the prevalence of offline spying, gossip, and rumours resulting from the proximity of the close living situation by low-income habitants whose lives are thus exposed to their neighbours (Spyer, 2017). When people want to showcase their “moral values and achievements” to their community, they post on social media, thereby lighting the postings on (Spyer, 2017, p. 3).

In China, McDonald (2016) and Wang (2016) research how social media makes its way into the everyday life of rural residents and rural immigrants who travel to urban areas for work. In an ethnographic study, McDonald (2016) examines social media use in a rural area called Anshan Town and its impact on aspects of daily life, such as friendship, love, family, education, and commerce. The online postings of the community tended to be moralistic, given that they connected mostly online with those in the community with whom they had already established relationships,

such as classmates, family members, friends, and villagers. These postings praise traditional family values and dignity—ideals that also serve as common ground when they make friends online with strangers. Chinese government censorship on social media is based on patriarchy, which reinforces the government’s so-called legitimacy in censoring what citizens are permitted to post online, ensuring that every comment is in line with patriotism and communal values. Thus, censorship comes both from the top and from the social media users themselves, who appreciate being part of their community and thus avoid posting controversial content that might hamper family or familiar non-kin relationships.

Tackling rural migration to urbanized areas in China, Wang (2016) explores social media use of a “floating population” (p. 1) that both migrates physically and digitally to and from an urbanized town named Goodpath, where tens of thousands of workers are migrants. *Hukou*, or the household registration system, prevents rural people from living in cities permanently (Wang, 2016). Established in the 1950s, *Hukou* stipulates that citizens’ welfare, job, and land rights remain attached to the area in which they live. The floating working population escapes their villages—not only because of economic necessity—but also due to a desire to live in the world. However, rural immigrants face hardships and offline exclusion in the urbanized communities they migrate to, and frequently move from location to location. Social media is, in turn, a lifeline and an escape for the transient existence these immigrants live, whereby uprooted workers construct themselves as living their dream of how they want to live in the world. Wang (2016) discusses an online migration that enables rural immigrants to escape their offline life boredom, social exclusion, and factory hardship to live their dreams of modernity.

In India, a previously rural area called Panchagrami has been undergoing urban transformation due to its growing information technology sector. Venkatraman (2017) spent 15

months conducting ethnographic research on social media use with the initial goal of delineating various use patterns between local rural residents and information technology professionals. Despite perceived differences in social media savvy, attitudes towards technology, and usage skills between these two groups, Venkatraman's study demonstrates that these groups share similar everyday social media use practice that is grounded in caste, kinship, gender, age, and religion. For instance, kinship governs behaviour norms and relationships within members of a kin group and with outsiders (Venkatraman, 2017). Caste⁹ reinforces homogeneity within a kin group so that, generally, only people within the same caste marry someone in the same caste (Venkatraman, 2017). On social media, people of the same caste or with kin-based social relationships have profound interactions, while cross-caste communication is for transactional purposes, rather than socialization. For example, a servant from one caste who is working for an employer from another caste may message the employer through WhatsApp to ask what the employer would like her to cook for supper (Venkatraman, 2017). However, the servant will not post social messages about memes, jokes, and so on (Venkatraman, 2017). Many Indian users also create fake accounts if they want to interact on social media out of these normative expectations (Venkatraman, 2017).

Perceived gender roles in offline life provide a foundation for people's social media use in the above-noted studies in Brazil, China, and India. For example, in Brazil, non-evangelical groups tend not to post mixed-gendered photos on social media, while evangelical people post these photos to affirm their modernity and civilization, thus demonstrating that men and women can be friends

⁹ Although caste-based discrimination was banned in 1948 in the Indian Constitution, it is clear it is still practiced in certain localities in India (Nolen, 2011; Agrawal, 2016).

and partners without romance or sexual relationships (Spyer, 2017). In another example, in China, more men use the Internet than women; in fact, according to CNNIC (2015), 56.4% of males use the Internet as compared to 43.6% of females (as cited in McDonald, 2016, p. 6). However, due to China's one-child policy and preference for sons, men currently outnumber women, which leads to male rural immigrants' disadvantage in marriage and certain job markets; thus, their anxiety about social pressures is discussed on social media (Wang, 2016). At their home village in Anshan Town, men enjoy increased mobility compared to women, as they own and drive cars and motorbikes, while women ride electric bikes that require regular battery charging and have a speed of only about 20 kilometres per hour (McDonald, 2016). Social media thus enables these town women of limited mobility the means to extend their social networks and maintain their relationships with family, friends, and acquaintances living in other towns or locations that are out of reach for electric bikes (McDonald, 2016). In India, kin members constantly monitor and restrict women's freedoms, including social media use, based on caste-based norms and patriarchal discourses for fear of inter-caste romance and marriages (Venkatraman, 2017). In short, offline contextualized nuances and perceived norms of gender roles and gendered practices in each research site manifest themselves in how different genders use social media. Consequently, the use of social media in developing countries is specific to groups of study participants in their own unique living contexts.

While the first part of this chapter discusses Internet use in developing countries, the second part will focus on Internet use in rural areas in both developed and developing countries. The two parts share a commonality of development discourses that unveil the digital gap between developing and developed countries, and between rural and urban areas, with an aim to narrow the gap for the sake of economic, social, political, and cultural development in underprivileged and underserved regions.

Internet Use in Rural Areas

Internet uptake presents itself as a paradox in rural areas. On the one hand, beyond being considered as a necessary utility such as electricity and water in both rural and urban areas in many countries, ICT is perceived as facilitating the communication needs of rural life in many ways, given the transportation and geography challenges. On the other hand, telecommunication companies are reluctant to invest in rural areas because of low profits and large infrastructure investment due to vast and sparsely inhabited areas (McMahon, Gurstein, Beaton, O'Donnell, & Whiteduck, 2014). Following Salemin, Strijker, and Bosworth (2017), who reviewed 157 peer-reviewed journal articles about Internet uptake, adoption, and use in rural areas in advanced western countries, I adopt an equality-based approach in grouping the literature according to themes. I also add studies in developing countries within these themes to examine nuances of the issues in various contexts. In the first section, I will focus on infrastructure inequality that comprises an overview of rural-based business models, gaps in technological generation and distribution, ICT-enabling growth and innovation, and policy and regulation in rural areas. In the second section, I will discuss the social inequality inherent to rural Internet users. While rural users in developed countries experience a transformation of Internet technology from dial-up to broadband, their counterparts in developing countries make use of mobile Internet, which in turn creates social and economic inequalities as compared to those who use a computer. This is partly due to the affordance of smartphone or telephone screens and the population's limited digital literacy. While Internet adoption and well-being are not discussed in the literature, I review studies on this issue and suggest that rural residents' belief that certain health problems are induced by the Internet may hamper Internet uptake in rural areas. This outcome sparks necessary reflections about Internet use and its ability to facilitate a worthwhile life.

Internet infrastructure inequality

By infrastructure, I refer to top-down supply factors that influence Internet connectivity in rural areas. These factors include the rural telecommunication business environment, technological generations, the role of ICT in development among regions, and policies and regulations to narrow down the digital divide between rural and urban areas. Salemink, Strijker, and Bosworth (2017) discuss these issues in developed countries, and I elaborate on other studies on Internet infrastructure in developing countries.

Due to low profit in rural areas and economy of scale in the telecommunications industry, the rural ICT business environment centres on debates concerning management approaches of ICT sector privatization, oligopolies, and governmental subsidies to increase rural connectivity (Salemink, Strijker, & Bosworth, 2017). Economies of scale refer to the natural saturation of telecommunications service providers, as the telecommunications industry requires large investments in infrastructure, which restrains new entrants to the market due to both the required investment and the industry profitability level (Woudstra, 2010). The United States and a few European countries have implemented market deregulation policies to develop the ICT industry and infrastructure, while sharing a concern of connecting ICT services to rural areas (Holt & Galligan, 2013). A free-market rationale leads to increased competitiveness; however, this guiding market supply and demand principle also leads to a lack of ICT services provisions in less profitable and sparsely populated areas (Grubestic, 2003; Oyana, 2011).

Postulating that governmental policies towards ICT, in general, are derived from their economic doctrines, Atkinson (2011) argues that there is no right or wrong way to justify and evaluate telecommunication network policies because the policies derive from economic doctrines—a set of coherent perspectives on what promotes growth and how to achieve growth.

There are various approaches to creating broadband Internet policies. Believers in the free market aim to optimize efficiency through a price signal, while believers in governmental intervention aim to correct market failures and to boost competitiveness and demand. Believers in innovations aim to increase both productivity and creativeness. All these doctrines lead to various approaches to create and implement broadband Internet policies (Atkinson, 2011). However, in high-cost broadband investment areas, including rural areas, the majority of people appear to recognize the need for market intervention to deploy networks to where they are missing (Atkinson, 2011).

Many studies in the research literature examine the question of how to connect rural areas to ICT networks in the absence of market incentives while also considering which technologies can best serve these areas. Velaga, Beecroft, Nelson, and Edwards (2012), for instance, contend that new ICT technologies are deployed in urban areas first before rural areas. However, due to the high cost in replacing technologies and corporate business strategies, a few telecom companies invest in the newest and most innovative technologies in rural areas first (Binh, 2019).

Several researchers pose questions about the Internet's role in narrowing the development gap among regions. ICT infrastructure investment and ICT-induced increased productivity contributes to economic growth in rural areas (Prieger, 2013). Researching the impact of broadband Internet on local businesses, Gallardo and Scammahorn (2011) examine if and how demographic, location, infrastructure, and socioeconomic factors influence entrepreneurs in Arkansas, Louisiana, and Mississippi. They locate a correlation between an increased number of broadband providers and an increased number of entrepreneurs. In addition, broadband Internet enables creative professionals, including video and website producers, to migrate to Scotland's rural area to live and work. These professionals, in turn, build cultural capital, help grow the local economy, and encourage knowledge transfer and local desirability to participate in the industry (Roberts &

Townsend, 2016). However, ICT development and use in rural areas do not automatically bridge the development gap between urban and rural areas, as rural areas' growth rates need to surpass those of urban areas for a duration of time in order to narrow the gap (Salemink, Strijker, & Bosworth, 2017).

Due to rural areas' underdevelopment in ICT infrastructure and usage, contemporary governmental policy and regulation aim to promote technological advances in these areas through various programs whose effectiveness and efficiency are questionable (Gulati & Yatesn 2012). The United States, Canada, and several European countries have been funding projects to areas that lack high-speed Internet infrastructure (Bakardjieva, 2008; Salemink, Strijker, & Bosworth, 2017). In a study to recommend best practices of broadband development in Canada, Japan, Korea, and the United States, Frieden (2005) postulates that national governments should foster broadband success for everyone through subsidies and grants in underdeveloped areas. At the same time, governments should not intervene in an effective market economy in which the private sector manages to excel (Frieden, 2005). A strand of literature on connectivity equality in rural areas evaluates governmental universal access programs without discussing originating economic doctrines, but simply pointing to practical indicators (Salemink, Strijker, & Bosworth, 2017).

Not only governments but also organizations create an initiative to bridge the digital divide in rural areas facing a lack of digital infrastructure. In cooperation with Intel, the U.S. Agency of International Development and a Vietnamese Internet service provider (Nguyen, n.d.), WiMAX was deployed first in Vietnam in Sapa and Ta Van, a Northwestern rural area. WiMAX is a technology that enables the transmission of broadband services via cable or DSL line (How WiMAX Works, n.d.). In Cambodia, The World Bank, Asian Development Bank, and private donors funded a project to implement DakNet, an asynchronous wireless Internet connectivity

system using Wi-Fi equipped motorbikes as mobile access points to synchronize emails and data between the satellite dish and computers at a rural school (Luo & Chea, 2018). According to Luo and Chea (2018), the initiative was a success and brought digital access to the students and villagers in the rural part where electricity for school computers was generated by solar panels and diesel. The parents and teachers had to rotate guard-duty roles to watch over the computers and solar generators at night to prevent theft.

In short, given the importance of providing Internet access in rural areas that are usually hindered by their remoteness, government and telecommunications companies address Internet infrastructure inequality between rural and urban areas at the macro-level and meso-level. Governments prefer to work with telecommunication industries in accordance with certain economic doctrines. In general, state-of-the-art telecommunications technologies are deployed in urban areas first. However, depending on corporate strategies, a telecom company frequently rolls out most up-to-date technologies in rural areas to leverage its business edge. Since Internet connectivity serves as a catalyst for the rural economy, governmental and organizational policy and regulation tend to adopt some form of subsidies or incentives to help roll out the Internet in rural areas.

In addition to this top-down governmental-based system, I address Internet social inequality in the following section, including a discussion of a people-focused perspective that focuses on users themselves.

Internet social inequality

Internet social inequality, which focuses on social inclusion and development of users in adopting and using the technology, represents a vicious circle. First, social, demographic, cultural and educational features, as well as the level of digital literacy of rural people, can either include or

exclude them in their ability to use the Internet effectively. Second, Internet uptake perpetuates social stratification between the haves and have-nots in rural areas, and between rural and urban areas. Following Salemink, Strijker, and Bosworth (2017), I categorize Internet social inequality research into three main themes: the diffusion theory strand, digital inequalities, and social inclusion policy. In addition, Internet users' well-being emerges in the literature of Internet use in rural areas. I will also examine well-being in the context of developing countries where many rural users primarily use the Internet through mobile devices. Thus, I add users' perceived well-being as a factor that either encourages them to critically reflect on Internet use and their agency and well-being freedoms or discourages them from adopting the Internet altogether. At the same time, perceived well-being challenges the boundary of discussion in order to promote Internet use in rural areas and also widens the discussion to include Internet-enhanced capability for rural uses.

Diffusion theory research discusses the social and economic characteristics of members of the community in relation to their adoption and use of the Internet (Salemink, Strijker, & Bosworth, 2017). Galagedarage and Salman (2015) conduct a quantitative study to analyze surveys of 400 people in rural communities in Sri Lanka and examine the correlations between Internet adoption and independent variables of five stages of technology diffusion communication channels as well as other variables, including Internet infrastructural facilities. These five stages are knowledge, persuasion, decision, implementation, and confirmation (Rogers, 2003). Galagedarage and Salman (2015) reveal that computer skills, Internet affordability, and infrastructure are likely to hamper Internet adoption in the rural community. Sharing these Internet-adoption restricting variables, Hilbert (2011) identifies education, income, size of the population, and geography as factors that influence Internet uptake while arguing that the goal of Internet uptake defines what constitutes a digital divide in various countries.

Beyond the goal of diffusing the Internet to the community, digital inequality research delineates a widening gap between ubiquitous Internet use in urban areas and limited Internet use by some disadvantaged groups in rural areas. In a quantitative study examining six socio-demographic factors that may explain the digital divide in 25 countries in Europe, Lengsfeld (2011) posits that education, age, and type of employment are the influencing digital divide factors in these countries. Most of the studies focus on rural groups (e.g., rural youth, children, patients, and the elderly) who fall behind in adopting the telecommunication technology, and end up being socially and digitally excluded in the face of fast digital development (Salemink, Strijker, & Bosworth, 2017).

However, in isolated and ageing rural Chilean communities, many local people resist adopting broadband Internet due to perceived negative health effects and fear of negative consequences such as lack of in-person social interaction, harmful content, and inaccurate information online (Correa & Pavez, 2016). These perceptions and attitudes toward the Internet hamper Internet use in these communities, especially among manual farmers who do not see the need of participating in an online economy despite the Chilean government's subsidized 3G Internet connectivity in rural areas (Correa & Pavez, 2016).

In contrast, in several rural areas of developing countries, such as a village in Cambodia, the saying "necessity is the mother of invention" rings true. The lack of electricity and digital infrastructure has led to an Internet connectivity solution: an asynchronous Internet transmission system powered by solar energy and diesel generator, in which a scooter is used as a mobile access point to transmit Internet data from the Internet access point and vice versa (Luo & Chea, 2018). What keeps this system operating is the rural residents' desire to catch up with the digital world, and also students' perceptions about Internet use that enables them to study English and math and also helps to bring about their professional achievements (Luo & Chea, 2018).

Due to the inherent social inequality of rural populations in adopting and using the Internet, governments and organizations develop and implement multi-faceted policies to remove this inequality at both macro- and micro-levels (Salemink, Strijker, & Bosworth, 2017). Researching determinants of broadband Internet uptake in the Organization for Economic Co-operation and Development countries, Lin and Wu (2013) argue that when broadband Internet is first introduced to early adopters, policies should target high-income and educated people and foster specific content that is designed for this group. At later stages, policies should focus on advertisements about the advantages of broadband services, the increase in broadband market competition, and the affordability of broadband services in accordance with the shifting of key determinants in these stages (Lin & Wu, 2013). Specifically, in four American communities, LaRose, Strover, Gregg, and Straubhaar (2011) highlight the importance of public education efforts about broadband Internet in the local and cultural contexts to influence rural residents' perceptions related to broadband Internet and encourage them to adopt and use the technology.

In order to promote universal broadband services to remote communities effectively, Jayakar (2011) suggests that local non-profit organizations should be included in a national broadband strategy. The added value of these organizations—their community-grounded management approach—would help increase local residents' awareness of publicly-funded broadband programs, increase the effectiveness of these programs, promote broadband competition from a community perspective, and provide oversight in fund allocation in the United States (Jayakar, 2011). In a capability approach strand of the literature, Gow (2018) uses the term *technology stewardship* to refer to technological services provided by either local or subject matter experts that enable residents in Sri Lankan and Caribbean communities to adopt a local-content and user-demand-oriented technology that enhances their capability to live a life of their choice. In short, inclusion

policies by governments and organizations aim to point out and address rural residents' inclusion problems, such as digital literacy, income, public investment oversight, and capability issues in both developed and developing countries.

While inclusion policies are designed to address inequalities in education, income, digital literacy, and geographical remoteness between rural and urban areas, they do not consider users' perceived well-being as a factor in tackling the digital divide in rural areas. In the following section, I will discuss the well-being rural residents perceive by using the Internet and its implications for Internet adoption in rural areas.

Internet use and well-being

The well-being of users is neglected in studies of technology uptake (Castellaci, Grodal, Mendonca, & Wibe, 2005) and seems to be absent in the studies of Internet adoption in developing countries. According to Castellacci and Tveito (2018), subjective well-being, which includes both short-term feelings of pleasure and life satisfaction, is rooted in Aristippus' hedonism and Jeremy Bentham's utilitarianism. Objective well-being, rooted in Aristotle's ethics, refers to the extent that technology enables individuals to realize their potential to lead a good life. On the one hand, the eradication of space and time, Internet resourceful content, and its efficiency as a communication medium tend to result in positive impacts on both subjective and objective well-being (Castellacci & Tveito, 2018). On the other hand, problematic Internet use appears to have a negative influence on life satisfaction among Chinese adolescents (Cao, Sun, Wan, Hao, & Tao, 2011) and Japanese rural high-school students (Kojima et al., 2018). Thus, although the Internet has a positive impact on the well-being and the capability of Internet users, its overuse may, at the same time, lead to a lack of life satisfaction and problematic health.

However, this literature does not appear to examine non-problematic Internet connectivity and use effects on users' health, particularly for those newly introduced to the Internet. Correa and Pavez (2016) posit that rural people in Los Maquis and Inca de Oro in Chile are so fearful about the negative health consequences of Internet connectivity that they cover an antenna with wooden panels. Hence, the perceived negative influence of Internet connectivity and use on people's health may prevent rural residents from gaining access to the Internet when it is introduced to the community, while studies on correlations between non-problematic Internet use and negative health effects seem to be absent.

Conclusion

The overlapping of the studies on Internet use in developing countries and on Internet use in rural areas can be inferred in the theme of a double digital divide in Internet use in rural areas in developing countries. Rural residents experience underserved Internet connectivity services and inclusion inequality issues due to lack of investment and resources when compared to those living in urban areas. At the same time, developing countries face more challenges in digital infrastructure and resources than developed countries. As a result, a few governments and organizations launch financial support and initiatives to implement universal services policies on Internet connectivity in rural areas.

Deriving from Internet development discourses that recognize the importance of the Internet in rural, professional, and personal development, both Internet material connectivity and people-focused inclusion policies aim at promoting Internet connectivity. They also strive to enable technology that helps Internet users realize their potential to live a life of their choice. However, these policies reviewed above reveal the existence of shortcomings between national and local scales—the latter that contextualizes cultural, social, and political factors in rural areas. Concurring

with Saleminck, Strijker, and Bosworth (2017), I argue for a community-based approach wherein local residents and organizations have a voice in implementing both Internet infrastructure and inclusion policies. This specific approach should be adopted so that the needs and wants of rural residents are integrated into Internet uptake policies.

The literature also communicates the hopes and innovation of Internet adoption in rural areas whereby the local community expresses ownership and is involved in initiatives to appropriate the Internet in their everyday lives. Despite the undeniable challenges of the double digital divide in these areas, rural residents demonstrate resilience and resource commitments in the adoption of the Internet after recognizing that the technology can enable them to effectively realize their potential. However, psychological barriers, such as fear of Internet-infused harms and disruptions, can help rural residents critically reflect on their Internet use or hamper their Internet adoption. However, with the advent and popularity of smartphones, Internet handheld devices, and broadband Internet, rural residents in developing countries now have an opportunity to adopt the Internet or share its subscriptions and devices to lead a worthwhile life.

Chapter 4: Methodology – Combining Policy Analysis, Expert and Ethnographic Interviews

In this methodological chapter, I aim to achieve three goals. First, I introduce, through a selective literature review, the three methods used in my research: a thematic analysis of policy documents, expert interviews, and ethnographic interviews. Second, I delineate the dataset used for each method, and each coding scheme of the dataset. Third, I explain how these three methods complement each other in answering my research questions by introducing the concepts of the method, dataset, and data analysis triangulation applied to social constructionism and critical research.

Thematic Analysis

Thematic analysis of Vietnam's ICT policy

To analyze Vietnam's broadband Internet policy documents, I apply the most-used qualitative analysis approach: thematic analysis, which is popular in various disciplines, but is very useful in studies about Information and Communication Technology (ICT) policy regarding e-government (Ruhode, 2016), and in media policy research (Herzog, Handke, & Hitters, 2019).

A qualitative inquiry into a policy leads to interpreting a policy or determining what a policy means for various groups of people (Yanow, 2000). Braun & Clarke (2006), while maintaining the flexibility of thematic analysis in relation to a theory, suggest analytical steps that lead to themes. Applying Braun and Clarke's (2006) analytical steps, I analyze Vietnam's ICT policy documents, including the Communist Party of Vietnam resolutions and the Vietnamese government and Ministry of Information and Communication decisions, directives, and circulars. These documents range from 1996—the year of official Internet introduction in Vietnam—to 2020.

Braun and Clarke (2006) note that methodologies such as critical discourse analysis and interpretative phenomenological analysis need to go hand-in-hand with a theory; however, thematic

analysis can either derive from a theory or be independent of it. Thus, they posit that thematic analysis' relationship with a theoretical framework is flexible. In other words, thematic analysis does not depend on a specific theoretical framework but can be applied in conjunction with different theoretical and epistemological approaches (Braun & Clarke, 2006). Its techniques are somewhat similar to those of grounded theory; however, the latter aims at building a theory, while the former does not have this ultimate goal (Braun & Clarke, 2006). Moreover, in thematic analysis, the themes are derived either deductively from a theoretical approach or inductively from a dataset (Braun & Clarke, 2006). In addition, a researcher is not able to conduct a study entirely independent from their epistemological knowledge and assumption (Braun & Clarke, 2006). Hence, although thematic analysis does not require a theoretical stance, I make a conscious choice to generate themes from the literature on Vietnamese Internet policy in order to analyze the Vietnamese ICT and Internet policy documents. I also allow themes to emerge inductively from the documents themselves.

The thematic analysis includes two kinds of themes depending on the levels of analysis: semantic and latent themes. Researchers identify semantic themes based on “explicit or surface meanings of the data” and do not look for themes beyond the meanings of what interviewees said or what was written in documents (Braun & Clarke, 2006, p. 13). On the other hand, if researchers consider ideologies, underlying assumptions, background information, and other features that help shape the semantic content, they arrive at latent themes—which is the theorized analysis level of the descriptive semantic content (Braun & Clarke, 2006).

I choose to adopt latent thematic analysis instead of semantic content analysis because of the way in which Vietnam ICT policy documents are read, and because policy discourse needs to be examined in relation to the country's economic, political, and social contexts. This constructivist approach views language and knowledge as constructed by socio-historical processes (Burr, 1995).

Specifically, in Vietnam, two key contexts to consider in latent thematic analysis are firstly that the Communist Party of Vietnam directs the gist of the country's socio-economic policies (London, 2014), and secondly that major telecom companies are state-owned (Do & Falch, 2018). These contexts help explain how and why ICT policies are made and implemented in Vietnam, and are crucial when interpreting and analyzing ICT policies beyond a descriptive level of the data.

Dataset

In Vietnam, ICT policies need to be contextualized amid the Vietnamese Communist Party's guidance and the country's historical, economic, and political background. The two research questions that guide this section are: (1) "What is the broadband Internet policy in Vietnam and how is it implemented by 2020?" and (2) "How does the Vietnamese government discuss and conceptualize broadband Internet network development through the lens of development discourses?" To explore these questions, I selected a few documents defining Vietnam's ICT and Internet policy, starting from the 1990s when the Internet first emerged globally and in Vietnam. The documents that I critically examine include (1) Communist Party of Vietnam Resolutions from 1996 to 2016; and (2) the government and Ministry of Information and Communication ICT policy documents. These documents were chosen because they either represent ICT policy during a period¹⁰ that marked a policy shift in the renovation era when Vietnam opened its door to international communities and followed market economy principles under the communist party leadership. I focus on Internet policy documents and widen the scope to the Communist Party of Vietnam (CPV) resolutions, which are disseminated at the end of each CPV Congress that occurs

¹⁰ These periods are specified and articulated in Chapter 5.

every five years. These resolutions include entries consisting of overarching economic, political, and social guidance, and directions to shape and determine the development strategies for all industries including information communication technology.

I used four methods to collect, examine, and then select ICT policy documents. Firstly, I downloaded CPV resolutions from 1996 to 2020. These sources were downloaded from either the official CPV site or other government websites, depending on where I could find the documents for each Congress. Secondly, after reading academic sources about Vietnam's ICT policy, I noted the names of specific Vietnam policy documents and searched on the official government website *chinhphu.vn*. Thirdly, government officials suggested that I examine policy documents regarding major turns in ICT policy and broadband Internet policy. Fourthly, I read *ICT News*, an online newspaper that periodically discusses upcoming government policy documents, both new and revised. This information helped me search for specific documents regarding broadband Internet policy on the Vietnamese government's official website. These four approaches enabled me to search for relevant and updated policy documents among thousands of them and follow up with their ongoing revisions.

For each selected congress or policy document, I analyzed the objectives of the document and searched for the words "Internet," "telecommunication," and "information" in Vietnamese in general policy documents to discover Vietnam's official narrative about the Internet, telecommunication, and information. Next, I summarized the policy documents, and collected exact quotes about their objectives and views on the telecommunications industry and the Internet. I then drew on latent thematic analysis to analyze the defining texts derived from the theory and review of the literature, which allowed me to extract and suggest the themes via a coding scheme.

Coding scheme

After collecting the selected data in phase 1, I generated codes in phase 2 while following the phases delineated by Braun and Clark (2006) to conduct thematic analysis. I coded the data's latent content in their context, not their semantic content. For example, Decree 55 (2001) states that "management capacity must keep pace with development requirements, at the same time, systematic measures need to be in place to prevent Internet exploitative behaviour that impacts national security and violates traditional and customary practice and ethical standards" (p. 1). In the context of ambivalent attitudes towards the Internet by the Vietnam Communist Party in the face of the collapse of socialism in Eastern European countries in the 1980s and 1990s (Tan, 2017), this decree marks the party and government's shift in management philosophy. The government's methodology changed from capacity-centred management to a cautionary, requirement-centred approach in developing and diffusing the Internet (Boymal, Martin & Lam, 2007). I coded the themes incentives for industry, projected economic benefits, and censorship and surveillance for this decree, which marked a new chapter in the country's ICT development. The government began allowing the telecommunications industry to lower Internet prices to diffuse the Internet to the wider publics while ensuring that the sole leadership of the CPV was not compromised by the influence of fast and free information exchanged via the Internet.

Based on the codes, I searched for the themes in phase 3. I reread all the codes and their primary classifications in nodes in phase 2. I re-examined them twice to determine if they belonged together or should be in another node and rearranged the nodes accordingly. I then thought of a name of a node for all excerpts and labelled the different themes. In phase 4, I refined and reviewed the themes by examining the coherence of all extracts within each theme and then the distinctions among the themes of the entire dataset. This review step can lead to broader and fewer themes.

However, the themes should be instrumental to answering my research questions, and should appear as independent and justifiable themes emerging from the dataset. The themes *government censorship, incentives for industry, and projected economic benefits* have been discussed in numerous studies about the Internet in Vietnam (Hachigian, 2012; Surborg, 2008; Tran, Nguyen, & Nguyen, 2017), while the theme of *anticipated rural community/residents' benefits* derives predominately from these selected official policy or policy-related documents.

Given that constructivism holds that realities are constructed, multiple-dimensional, and dynamic (Merriam, 1995), I use expert interviews as a method in my research to help fill the gap of information and interpretation of policy documents, and I present them as an aspect of realities from the powerful and authoritative perspective.

Expert Interview

The use of expert interviews as a qualitative method has been growing since the 1990s (Meuser & Nagel, 2009). At that time, perceived knowledge production shifted from unquestionable objective and superior knowledge provided by experts to an emergence of transdisciplinary and integrated forms of knowledge informed by various actors, including experts, counter-experts, and lay people (Bogner & Menz, 2009; Meuser & Nagel, 2009). The question of who the experts are and how to identify them derives from premises of the sociology of knowledge, which posits that experts represent not only knowledge but also power in the production of knowledge (Bogner, Littig, & Menz, 2018).

There are three ways to identify who the experts when conducting social research, or other research purposes in which experts play out their roles. These are (1) the voluntarist concept, (2) the constructivist definition, and (3) the grounding of subjects to generate theories. First, (1) the voluntarist concept is based on the perspective that everyone is an expert in the sense that they own

information and capacities that only they know in their everyday lives (Bogner & Menz, 2009). Though this view personifies a conceptual will to eradicate an existing hierarchy of power between experts and lay people, it does not provide critical insight on the differentiation of the production and analysis of knowledge by a heterogeneous group of interviewees (Bogner & Menz, 2009). To tackle the problem of this blanket definition, (2) the constructivist definition of an expert sheds light on the role of experts in social research on both “method-relational” and “social-representational” grounds (Bogner & Menz, 2009, p. 49). A method-relational approach holds that experts are those whose roles are constructed by researchers’ research interests (Bogner & Menz, 2009). Thus, an expert of an organization is not necessarily one who has a high profile of publications and media representations in the organization, but an individual in the organization whom researchers view as credible (Bogner & Menz, 2009). In addition, relative qualities of an expert are discussed in the social-representational approach, which posits that experts are those who are *seen* as experts by societal processes and in social reality. However, these qualities also lead to an uncritical acceptance of experts who gain their privileges in social reality due to their elite status granted through birth or position (Bogner & Menz, 2009). These two constructivist approaches are separated for analytical purposes in the literature but are closely related in the real world. Beyond the consideration of selecting experts from an existing social and representational reality that precedes the onset of the research, the third way of defining experts in terms of the sociology of knowledge is (3) to examine their knowledge by comparing it and building grounded theories (Bogner & Menz, 2009).

Researchers interview experts in hopes to obtain technical, process, and interpretative knowledge (Bogner, Littig, & Menz, 2018). Technical knowledge refers to operational routines, rules, and points of view pertaining to an organization where experts come from (given that this specialized knowledge provided by experts can be systematic and reliable if experts do not hold

subjective or erroneous views) (Bogner, Littig, & Menz, 2018). Process knowledge is experience-based and includes experts' understandings about how an organization works (Bogner, Littig, & Menz, 2018). For example, what a government decision stipulates belongs to technical knowledge, while how a ministry comes up with a draft decision for the prime minister's approval is in the realm of process knowledge. Finally, interpretative knowledge comprises both experts' and researchers' interpretations of rules and points of view. In other words, interpretative knowledge is an unavoidable part of both technical and process knowledge (Bogner, Littig, & Menz, 2018). Thus, epistemological analysis is unable to delineate the separation between these three types of knowledge, and the use of expert interviews in research can differentiate between types of expert interviews in terms of epistemological analysis (Bogner, Littig, & Menz, 2018).

Expert interviews in relation to research objectives are classified in two main categories: explanatory and grounding interviews. Explanatory interviews refer to interviews preceding research design in order to clarify a research problem and to orient research directions. This is usually possible due to experts' exclusive and inside knowledge of the matters—i.e., their technical and process knowledge (Bogner & Menz, 2009; Bogner, Littig, & Menz, 2018). Grounding interviews—which play a role in analyzing subjective reconstruction of knowledge rather than elucidating useful knowledge for research design—comprise systematizing and theory-generating interviews (Bogner, Littig, & Menz, 2018). While systematizing interviews provide researchers with systemic and comprehensive information to help answer research questions, theory-generating interviews analytically examine subjective knowledge to create and unveil grounded theory that is based on coding and analyzing the expert interview data (Bogner & Menz, 2009; Bogner, Littig, & Menz, 2018). Because the nature of my research focuses on voices of average users rather than that of elite and professional groups who clarify and elucidate policy documents from insider

perspectives, I adopt systematizing interviews to obtain experts' technical and process knowledge in order to obtain an in-depth understanding of the Vietnamese government's broadband Internet rollout policy in rural areas.

Expert interviews are necessary in my research because I aim to examine Vietnam broadband Internet policy, and experts' technical and process knowledge is important to systemize the country's broadband Internet policy. Since the thematic analysis of the Communist Party of Vietnam's and the government's policy documents did not unpack all the interpretations of the policies, I also interviewed two policy makers from the Ministry of Information and Communication to further clarify information. Their perspectives helped me to better understand broadband Internet policy and to hear their perspectives on Vietnamese people's Internet use, particularly among rural Internet users. Though I found many Communist Party of Vietnam's and the government's official documents on this policy online, interviewing two experts or governmental policy makers helped to clarify technical terms and helped me understand how the broadband Internet rollout policy is implemented among dominant Internet services providers that are state-owned. Interviewing these experts also helped provide a connection and trust with policy makers, who supplied me with insider and exclusive information about the network rollout. I was allowed access and use of internal data, including a broadband network map that is included in this dissertation but is not available online for the public. In addition, I interviewed a content developer—the founder of influential online mathematics and English contests for school-age pupils nationwide—to examine how the Internet as a platform plays a catalyst role in popularizing the contests, and in turn, how the contests encourage rural families to appropriate and use the Internet for the primary purpose of their children's education. This interview participant is the founder of Violympic and IOE contests, which report on their websites that millions of students from elementary to high schools nationwide had participated

in these contests (“IOE,” n.d.; “Violympic,” n.d.). I had planned to interview non-governmental organizations whose work involves broadband Internet diffusion in rural areas; however, my search for such an organization was to no avail.¹¹

The two government officials and the website content founder are identified based on their publications, media representations, and word of mouth. I have known the first government official for years through their publications. A retired and respected high-ranking government official referred me to the second official, who oversaw Internet introduction and expansion during the 1990s. I was able to speak with the second official for an exploratory interview prior to heading out to Canada for my doctoral studies. These two government officials were chosen not only because of their accessibility but also their technical knowledge gained from different management portfolios—which are, namely, broadband Internet applications popularization, and ICT strategy, respectively. Moreover, I learnt about the website founder’s work first through widespread press coverage featuring him (Hong, 2017). Their trust in academic integrity, in conjunction with the long-term acquaintance they had with me, allowed them to speak their mind on the condition of anonymity. When an interviewee asked if I was a CPV member in an interview, I answered that I was not, but a family member of mine and all my husband’s family members were. This answer

¹¹ I examined a comprehensive directory of international non-governmental organizations in Vietnam, which included its mission and activities. However, I was unable to locate an organization that provides broadband Internet-related services to Internet users. Those services appeared to be absent among state-funded domestic non-profit mass organizations such as the Vietnam Women’s Union, Labor Union, Farmers’ Association, Ho Chi Minh Communist Youth Union. These organizations are supervised by the Vietnam Fatherland Front under the Communist Party (Salemink, 2006). Major online newspaper coverage about broadband Internet in Vietnam over the past decade does not hint of any of these mass organizations’ activities relating to broadband Internet use in rural areas, which are current. Two Vietnamese government officials in charge of broadband Internet policy, who participated as expert interviewees and continuously provide me with updated knowledge about broadband rollout, are not aware of such organizations in 2020.

perhaps helped me build connections with an expert who then talked with me about what he personally thought about the government's Internet censorship and surveillance, which was not necessarily the same as what the government officially said to the public. I interviewed three of these experts in person in January 2017, and I interviewed one of them a second time in person in February 2020 to follow up on some evolving issues we had discussed in the first interview.

My interview strategies were to ask semi-structured interview questions so that I could systemize my understanding of broadband Internet rollout in rural Vietnam, while also leaving room for open conversations with these experts. At the time, I was a novice in terms of practical broadband Internet knowledge in Vietnam, but I had some research knowledge about broadband Internet rollout in rural Alberta (SuperNet), which the experts did not know about. This method of semi-structured interviews involves a mix of typology of interaction situations and interview strategies for the role of interviewers as an expert outside of a local field and as a lay person (Bogner & Menz, 2009). As a result, interviewees did not feel pressure from me as if I had been a potential critic of them. At the same time, I was also able to create symmetric interaction situations by asking some so-called "sensitive" questions in comparison to what I learnt from the literature about SuperNet and other countries' broadband Internet rollout. I asked semi-structured questions to the experts to fill holes of information I could not find in official documents, and they clarified some of my understandings about the policy. I also requested any additional information, including opinions and judgments about the policy and its implementation.

Dataset

The dataset is four interviews with three experts, as discussed earlier in this chapter. These experts allowed me to audio record their interviews so that I could correctly cite them in my research—on the condition that I did not use their real names for the sake of identity protection. I

conducted an interview with a government official in charge of making broadband Internet policy before I made my first field trip to rural Vietnam. Later, after interviewing rural residents in Vietnam in 2016 and 2017, I interviewed another government official in charge of promoting ICT application uses so that I could ask this expert to respond to some questions arising from the field trips. In February 2020, I repeated an interview with the first government official in order to inquire whether there were any updates to the policy and to seek additional information on how corporations expand the network with governmental incentives. Previously, in 2017, I conducted an interview with the founder of two educational contest websites after I interviewed rural residents, many of whom mentioned these websites in their interviews. Thus, I was determined to examine the content developer's perspective.

I transcribed these four interviews by myself and translated some quotes from Vietnamese into English. Following Van Audenhove's (2007) suggestions of transcribing expert interviews, I typed only outspoken texts and left out sidetracks; however, I kept the transcriptions as complete as possible, so as to represent the interviews to the fullest. As a woman quite a bit younger than these older, male experts, I am aware of the power relations in the Vietnamese cultural context, and I learned as much about the topics discussed beforehand as I could while maintaining learning attitudes from what the experts had to say. However, as a former reporter in Vietnam covering markets and the government, I was used to interviewing male authorities and was good at following up with questions of critical perspectives, but also creating a secured atmosphere for interviewees to feel safe to talk to me about their opinions in their own words. By repeatedly listening to the transcripts, I picked up some cultural cues for my interpretations and analysis of the texts to develop a coding scheme for these four expert interviews.

Coding scheme

Due to the interview purposes, interaction modes, and strategies, I coded the interviews by two approaches: (1) systemizing complete answers to the questions I had regarding broadband Internet policy mentioned in official documents, and (2) examining emerging themes of other topics in the interviews, which are captured in my research questions. Since I only had four expert interviews to analyze, and therefore I did not need to use NVivo, I used paper and pencil to code the themes grounded in the literature review and research questions.

In terms of systemizing data, I was prepared before the interviews to ask for insider information to fill some gaps in my understanding of broadband Internet policy. I asked many follow-up questions in the interviews until I had the clarification and additional information I needed for a more comprehensive interpretation of broadband Internet policy and its implementation in rural Vietnam. I did not have to code this part of the interviews as the information was clear enough to fill in the puzzle piece for my understanding of the policy. Though some experts brought their own life experiences and personal views to answering some questions, I differentiated key facts from small personal chats and worked with facts to fill in the puzzle piece.

Since the interviews were semi-structured with open-ended questions, I had opportunities to have dialogues about what the experts inform and understand about broadband Internet policy and its rollout, and I coded the interviews to capture the themes reflected in the literature and my research questions. Additionally, I coded the answers not in the units of paragraphs because of back-and-forth questions, but in terms of the topics that experts revealed. For example, after three of my follow-up questions, an expert arrived at somewhat complete answers about how broadband Internet policy is made top-down in Vietnam. Thus, I coded all these answers as a top-down approach that (1) perceives little-to-no citizen participation in the rare citizen policy consultation websites; (2)

blames citizens for not voicing their opinions; and (3) emphasizes broadband diffusion for economic development and service delivery facilitation. As suggested by Van Audenhove (2007), choosing coding units comprises follow-up answers to a certain topic, which enabled a holistic understanding of related answers on this topic. Moreover, I adopted the definition of a coding unit as “an identifiable message or message component” varying from characters to statements and themes (Neuendorf, 2017, p. 105). Applying the phases of thematic analysis discussed in the coding scheme of thematic analysis as discussed above, I arrive at some themes of Internet policy expert interviews, such as *top-down broadband Internet diffusion to rural areas, passive roles and blaming of rural residents, arbitrary Internet surveillance and censorship practices, and government incentives for ICT industry to disseminate the Internet to rural areas.*

Apart from thematic analysis and expert interviews, the critical perspectives of constructivism allow various methods and sources which would enable different voices to be heard and power inequality to be revealed (Natow, 2020). Thus, I conducted in-person ethnographic interviews with Vietnamese rural residents between 2016 and 2017 about broadband Internet adoption and use in the face of the ongoing broadband Internet rollout in rural Vietnam. I will discuss ethnographic interviews with these rural residents in the following section

Ethnographic Interview

Ethnographic interview and issue-based ethnography in mobile sites

An ethnographic framework has been adapted to short-term interactions and interviews in multiple sites to track research issues (Bakardjieva, 2005; Hannerz, 2003). This framework helps to reveal how media and technology make sense to people in their everyday life (Ito, Baumer, Bittanti, & Cody, 2019). Original ethnography or anthropological ethnography involves long-term immersion in participants’ living conditions in order to theorize a topic that emerges from

participants' lived holistic experiences (Heyl, 2011). The ethnographic interview originates from cultural ethnography and has been used in communication studies (Munz, 2017). To differentiate ethnographic interviews from qualitative interviews, I adopt some of the characteristics of these interviews, which are discussed by Heyl (2011) and Munz (2017). First, ethnographic interviews should occur in interviewees' natural life settings. Second, they should be built on respectful relationships and shaped by interactions between interviewers and interviewees. Lastly, they should aim to explore the meanings interviewees produce on various aspects of research topics.

Despite using short-term ethnography in different research sites, researchers' ability to gain native views to some extent is demonstrated in social media use research (Miller et al., 2016; McDonald, 2016; Wang, 2016; Spyer, 2017; Ito et al., 2019; Venkatraman, 2017). The three main reasons for my research design of short-term ethnography in mobile sites are delineated as follows:

Firstly, given my resource constraint as an individual field researcher, and the task of studying Internet use in various villages across Vietnam, I chose to use ethnography in mobile sites with short-term interaction, observation, and interviews. Since smartphones are the most popular devices to access the Internet by the rural residents in this research, it was important for me to interview the residents at the places where they regularly accessed the Internet, such that I could observe their use and conduct the interviews. Thus, the interview took place at home, at a school, in public places, and in other places in the villages. I prefer the term 'ethnography in mobile sites' instead of multiple sites due to the popularity of mobile devices in accessing the Internet.

Secondly, I adopt the core attribute of ethnography, which can be defined as a holistic contextualization of participants' living environment as they participate in everyday life (Why We Post, n.d.). In particular, I observed rural residents and conducted all the face-to-face interviews in local geographies that connect to each other via the Internet. This decision to conduct interviews in

various villages across Vietnam derives from a transnational context of economic, social, and cultural influences in villages at the advent of telecommunications and transportation networks in the country. Therefore, hardly any place stands as an independent ‘island’ exempt from transnational and global impacts. As a result, the advantage of this research design seems to be the thick description of the linkage (Wittel, 2000) between Internet adoption and use within the networked villages, rather than that of each individual village. This linkage is manifested through rural residents’ Internet use genres across Vietnam. The selection of the different villages was based on an attempt to both pursue diverse issues and to compare them in a multi-site ethnography.¹² For example, I chose villages from north to south across Vietnam, which represent delta, ocean, and mountainous regions and various farming and fishing communities. The practices of these communities helped shape rural residents’ recurrent patterns of Internet adoption and use in each village and across the villages in the country.

Thirdly, Pink coined the concept of “ethnographic place” (as cited in Pink & Morgan, 2013, p. 354) to emphasize that short-term ethnography is not bounded in fieldwork locations; ethnographic knowledge is produced by entanglements, or “a range of different types, qualities and temporalities of things and persons come together” (p. 354). Therefore, the place of conducting ethnographic fieldwork is not just a limited boundary of physical space wherein the field work in anthropology builds up interview data, which is then to be theorized inductively. Taking a deductive stance on designing and conducting ethnographic interviews, Pink and Morgan (2013) argue that

¹² This methodological choice is influenced by a study by Hannerz (2003), which researches how foreign correspondents deal “with issues of translating culture and representing others” (p. 205). Thus, Jerusalem, Johannesburg, and Tokyo are the research sites, which allow for both comparison among these sites and global linkages.

theory-informed intense routes of researching participants in a short-term period lead to “deep and valid ways of knowing” (p. 351) of the networks of participants and localities.

This concept of ethnographic place informs my inquiry in two ways. Firstly, as my research is in the field of communication studies, a sequence of social science research guides my study. According to Spradley (1976), this sequence includes choosing research problems by reviewing theoretical literature, which in turn sheds light on using specific method(s) for gathering and analyzing data. Secondly, this ethnographic place goes beyond the physical boundary of fieldwork and acknowledges researchers’ theoretical frameworks in conducting and analyzing ethnographic interviews. This concept then enables researchers to shorten their field work time while generating qualitative knowledge about their study.

Moreover, observation—which is a hallmark of ethnography—is becoming less crucial in short-term ethnography in multiple locations. This is not only because of the time that must be divided between each site, but also due to the nature of the study and study design priorities (Hannerz, 2003). To illustrate, in a multi-site ethnographic study about foreign correspondents, participant observation would not contribute to the study because these journalists would be spending many hours working on their computers or at their desks (Hannerz, 2003). Hannerz’s example draws an analogy to Internet users’ personal and private use of small screens on their smartphones—the most popular devices that rural interviewees in Vietnam use to access the Internet. With other foreign correspondents’ activities, such as staff meetings and reporting trips, Hannerz observed these activities to some extent and agreed that participant observation is useful, but he chose to spend more time on ensuring participants’ diversity. For example, his choice of main field sites—specifically, Jerusalem, Johannesburg and Tokyo—illustrates how local culture and representation influence journalists’ reporting. Moreover, Pink and Morgan (2013) posit that short-

term research engagements between participants and theoretically-oriented, open-minded, and empathetic researchers can produce knowledge that is generally known but “unspoken” (p. 353) in participants’ everyday life.

Positioning

The following reflections of my personal background help explain how I approach and analyze research topics of broadband use in rural areas in Vietnam. I was born and raised in Ha Noi, the capital, and I fondly remember the peaceful and quiet summers my sisters and I spent at my mother’s home village in Thanh Hoa province during my childhood. The family, relatives, and villagers were kind and social, and often gathered at my grandmother’s house to keep us company. However, the local people repeated a lot of their stories, and everything seemed stagnant in the village. I wished at that time that rural residents had newspapers and magazines to read, radios to listen to, and televisions to watch—yet newspaper stands were in a faraway town, and the village did not have a regular supply of electricity in the 1990s. My grandparents, aunts, uncles, and cousins regularly visited us in the city. My closeness with my maternal family and relatives in rural areas enable my nuanced understanding of rural residents and their Internet use. My sincere wish for villagers to lead a better life of their choice motivates me to study how this goal might materialize with the introduction of the Internet in rural Vietnam.

To address a possible power dynamic between myself and interviewees, my status as a Ph.D. student educated in the West and overseas resident did not make me adopt a superior tone or attitude toward my interviewees. I left Vietnam to pursue graduate studies in 2008 and had been staying in North America for eight years when I conducted my Vietnam field trips. During these years, the Vietnamese economy grew from 5.2 percent to 7 percent per year (“GDP Growth,” 2018) before COVID-19 started. Most of our friends and family members, who were in their late 30s and early

40s, did well in terms of both economic gains and professional advances in Vietnam, while my husband and I had to struggle to start our family almost from scratch in North America. After about 30 years of Vietnam's door opening and renovation policy, overseas Vietnamese are no longer considered of higher class. Moreover, the interview locations were interviewees' natural settings where I was a guest, so the phrase, "when in Rome, do as the Romans do," rang true to me. I opened myself to curiosity and enjoyed learning local knowledge and practices that the villagers discussed. My status as a graduate student helped me gain sympathy from interviewees who acknowledged the distance we travelled and so went out of their way to help me in this research. The fact that I was a student and resident of Canada, not the United States, was also helpful, and did not bring about extreme caution on the part of the people I interviewed.

Dataset

For the process of selecting villages, my first criterion was that the selected villages have Internet connectivity. The broadband Internet network map (Appendix F) helped me select villages that had broadband Internet coverage. The second criterion was choosing a diversity of locations. As the geographical boundary of the study is Vietnam, I selected locations from the north to the south across the country. Though these specific locations cannot represent the whole country, they represent prominent regions within Vietnam. For example, Nam Dinh and Thanh Hoa provinces are situated in the Northern Delta, where residents' main traditional occupations are growing rice and raising cattle. Da Nang belongs to the central coastal region, where fishing predominates due to the nearby sea. Dak Lak is classified as the Centre Highlands region where the land is fertile and suitable for growing agricultural crops such as coffee, cacao, and pepper. Lastly, Can Tho is the heart of the fruit-growing Mekong delta, surrounded by rivers and canals. The third criterion was the rurality of locations and villagers. For instance, the notion of the rural location in Da Nang is

contested by the Vietnam government's administrative definition since the village administratively belongs to an urban district of the city after its compulsory relocation. However, the choice of location is justified by the traditional occupation of villagers. Moreover, due to rapid urbanization in Vietnam, many villages become encompassed as rural parts within the boundaries of the cities of Ha Noi, Da Nang, and Can Tho. Yet, these villagers retain their traditional ways of making a living, such as fishing in Da Nang, growing fruits and crops and running home-stay businesses in Can Tho, and making porcelains in Hanoi. Therefore, I am able to examine how the broadband Internet connectivity plan works for the villagers who engage in their traditional rural occupations.

My initial plan of recruiting research participants was to advertise at local markets, on local speakers, and on Facebook; however, my plans shifted in the field. Given my family ties in some villages (i.e., those in Nam Dinh and Thanh Hoa provinces), interviewees treated me like an insider, which enabled me to gain access to them more easily. I also had a better understanding of their living contexts. My parents-in-law retired in their home villages in Nam Dinh, so with the help of relatives, I could gain the trust of potential interviewees. Similarly, in the villages in Thanh Hoa province where my mother grew up and my grandparents lived their lives, I was welcomed by my aunt's family, and one interview participant introduced me to the next interview participants, as my mom's daughter, who was doing research for her doctorate. People were extremely helpful and willing to share information about their Internet use, though a few villagers viewed me differently depending on their situated living contexts. Some who travelled little were curious about life abroad, and even viewed foreign countries as superior to Vietnam. One person said doing a doctorate abroad was smart and asked me to tell her which was real or fake news on YouTube. Some joked that they would want to go with me to Canada, where they thought life would be easier. Another person, a medical student, asked me about the methodology of my dissertation in order to compare it with

what they conducted at his university. I addressed their concerns and questions in an honest and humble way. I felt grateful to them for teaching me their way of life, and for sharing with me how they used the Internet without any compensation. In Dak Lak and Can Tho, where my husband's cousins lived, they briefed us about their local specifics and suggested villages that I could visit for the interview. The ceramics village in Ha Noi was my favourite place when I lived in the capital, and I was somewhat familiar with its shops, workshops, and vendors. The fishing village in Da Nang was the only place to which I did not have any personal connections, but a local teashop owner oriented me and provided directions when my husband rode with me on a scooter along the ocean coast. With a genuine interest in villagers' lives and their Internet use, and a journalism background in Vietnam, I enjoyed approaching locals and actively listening to their stories.

I used a snowball method to select participants in the villages, and also aimed to achieve a diverse range of perspectives by considering age, gender, occupation, and Internet connectivity devices. I am aware that choosing interviewees only based on their Internet access devices can limit the diversity of Internet users. For example, if I had focused only on smartphone users who were using their phones visibly within my sight, I would not have been able to reach those who only used computers in their houses or used Internet devices in their private spaces. However, when asking strangers if they used the Internet and received several 'no' answers, I targeted those in a village seen with smartphones. Since some electronic devices have more functionality than others, I also asked interviewees with smartphones if they used other devices and how and when they chose to use a certain device but not others. In Internet cafés, I observed that most customers were school pupils playing games on high-speed computers. Thus, I did not invite more than two of these pupils per Internet café and stopped seeking to interview them when their responses became repetitive. For the

sake of diversity, I made an effort to find interviewees who used computers or other devices at home.

Many of the interviews lasted about one hour; however, a few lasted up to three hours, and a few interviews were only 15 minutes due to some interviewees' limited availability. In cultural anthropology research, Spradley (1976) suggests choosing interviewees who have sufficient time for research, or, if time is more limited for participants, it might be better to interview a number of people who have the same knowledge for a shorter interview time. I argue that, given the mobility of interviewees in an integrated world and their time limit, interviewing a number of participants who share similar knowledge about broadband Internet in their villages can make up for lack of rigidly required interview time. Moreover, sometimes shorter interviews were the only option for me to capture the voices of those who worked long hours, worked on the go, or had large families. Those interviewees could not have afforded longer interview time, so if I had insisted that they all participate in one-hour-long interviews, their voices would have been excluded in the dataset of this research. I made an effort to interview several shop sellers and riders or drivers until they started repeating similar patterns of Internet use and adoption—in other words, until data saturation occurred. On the other hand, retirees and low peak business owners usually spent more time with me, sometimes telling me about their lives and their history in Vietnam, and how it has shaped their Internet use and views. Those who were only able to conduct interviews while waiting for scooter customers—or waiting for boats to come to transport papayas to the buyers, or serving their customers in noodle shops—faced regular interruptions and had to continue their jobs on the flow. If I had been rigid with one-hour interview requirements, I would have never brought those voices into the research because a fixed time appointment was a luxury for these manual labourers, some of whom were using the Internet during their short breaks and were not at a fixed location. As a result,

I included data from these 15-minute meetings because the Internet was part of their distinctive way of life on the go, and they could not afford more time due to the nature of their work.

After all, interview time duration was important, but what interviewees said and did with their Internet use were more important factors when deciding whether to include an interview in the dataset or not. For instance, I interviewed an Ede¹³-ethnicity woman, who stated that she used the Internet—but after almost two hours of talking with each other (a rain shower deterred customers from coming in to her small tea shop), I found out that she did not use the Internet at all. Eighty five percent of Vietnamese people speak Vietnamese as their first language; Ede is one of 53 ethnicities who learn Vietnamese at school to speak it as the official language (National Ethnic Committee, n.d.). The misunderstanding arose partly because Vietnamese, which I spoke with all my interviewees, was not her first language, and I could not speak the Ede language. As a result, the Ede way of life she described to me served as a background to ask about Internet users in her village, but I did not include her interview in my dataset.

In the villages in Nam Dinh and Thanh Hoa, the first locations in the itinerary, my family and relatives introduced me to local Internet users. These users introduced me to other users in the villages for my interviews. The villagers in these traditional and established villages all know and relate to each other from generation to generation, and news travels fast by word of mouth. While using this snowball method, the venues of the interviews were often interviewees' houses. Acknowledging that I might end up with a homogeneous group of interviewees using this snowball

¹³ Ede is one of 54 ethnicities in Vietnam (Vietnam's 54 ethnicities, n.d.). Ede's people live in Central Highland and its nearby provinces, have their own language, and practice matriarchy ("Ede Ethnic Minority," n.d.).

method, I made efforts to bike around and asked villagers outside these networks for interviews at their offices, in Internet cafés, and in their shops. When I introduced myself as a Ph.D. student whose family and relatives lived in the villages, the interviewees treated me cordially and helpfully. My understanding of these villages where my family and relatives live enabled me to have a nuanced understanding of what interviewees said.

In the villages in Ha Noi, Da Nang, Dak Lak, and Can Tho, I mostly adopted a convenience approach: for example, asking a stranger for an interview where Internet use was visible (people using smartphones or Internet cafés), or wherever I saw someone who was willing to talk with me in a village. The snowball method adopted in the very first stops in my itinerary helped me gain confidence in asking villagers for interviews and helped me adjust my approach to recruiting interviewees. Local geography, customs, and weather also helped me adjust ways to ask people for interviews. For example, before I conducted the field trips, I envisioned I would set up a desk at a local market to attract and interview people. However, markets in rural areas are not open on a daily basis or during early morning hours as people rush to go to their fields after shopping, so it is not realistic to ask for an interview in this context. Instead, for example, in a village, I ended up finding interviewees in a pagoda where people have more time and where Wi-Fi is free. On average, for every four people I asked, one granted me an interview. I did not offer interviewees financial incentives to compensate for their time; however, I gave them a pen and a notebook after an interview or offered to pay for their tea or coffee if the interviews occurred in a tea shop or a street restaurant.

This convenience approach was challenging, especially in Dak Lak villages where Ede people live. My inability to speak Ede perhaps limited my understanding of what Ede people said in Vietnamese about their living contexts, and also resulted in less acceptance to interview invitations.

Some Ede women were using the Internet on their phones but refused to participate in interviews as they assumed I was trying to sell them something. Thus, I had to make further efforts to approach people, such as asking people in other provinces to participate in an interview or waiting a longer time to start conducting an interview depending on a participants' availability schedule. I managed to conduct interviews with six Ede people, which amounts to 7.6% of the interview sample.

Interestingly, given that Ede ethnicity is matriarchal and my efforts to ask more Ede women for an interview than men, I only had one female Ede interviewee after waiting about two hours in her office.

In general, I found a convenience approach was effective in all these villages because, if an interviewee referred me to other houses which had access to the Internet, I usually could not identify these houses or meet anyone inside. Though I could ask for multiple interviews at an Internet café at rush hour, I opted to ask several people until their answers seemed to lead to the same ideas. Thus, I spent time going around and approaching people in the street or at their own homes to ask if they used the Internet and were willing to grant me an interview.

Building rapport and trust with interviewees is an important ethical consideration in Vietnam, since the government uses surveillance and censorship to maintain and reinforce ruling party power. After introducing myself, asking some questions about participants, and answering their questions, I frequently asked if they agreed to the interviews, adding that they could withdraw their consent at any time during the interview. If they agreed, I would ask them to sign a consent form in Vietnamese, turn on the recorder, and start taking notes. None of my interviewees withdrew from a consent that they had given. However, one ended the interview suddenly when he felt scared of a scenario that I might use his words to send to the authorities in the Central Highlands. This is the region where the government cracked down against an ethnic uprising that occurred in the early

2000s due to local land disputes and religious freedom (“The Guardian”, 2020). Another interviewee, a student at a pharmacy college in Can Tho who opened her house to me after meeting me on the street, said she did not have an email address when I asked about sending her my research results. I have decided that she might be concealing her identity due to state surveillance. A man who was the head of a neighbourhood in a village in Dak Lak, first insisted on me coming to the local People’s Committee to obtain approval for interviewing him and the members of his village. Knowing how local Vietnamese governments worked, taking this route would perhaps never have resulted in interviews as I had to comply with academic ethical standards of not giving bribes, which were prevalent in the system. Moreover, officers are usually very cautious of foreign research conducted on their land. However, after informing the man that I was a graduate student conducting research for my dissertation, and that I had no external sponsorship or affiliations and the study was approved by Canadian ethical standards, he agreed to a one-hour interview and then gave me a tour of his farm where pigs, buffalos, and chickens roamed.

Individual and group interviews

In total, between November 2016 and January 2017, I conducted 45 individual interviews and 17 group interviews. Of my total interviewees, 35 were female and 44 were male (Appendix D). I adopted both interview methods for practical reasons on the field trips, and to provide a more nuanced understanding of the research questions, as discussed by Lambert and Loiselle (2008). Many group interviews took place in a household with family members where it would be challenging in terms of family relations if I had asked to interview one member of a family but not the other. However, since the interviewees knew each other very well and continued in their family relationships, family hierarchy and member relations could influence what a daughter could say to me about her Internet use in the presence of her father. However, this type of group interviews

reveals how the Internet is appropriated in the household's established everyday patterns, and promotes a deeper understanding of my research questions that individual interviews may not have facilitated. I take a stance that individual Internet use is situated in a user's family's established and negotiable patterns of everyday life, and thus family members' participation in an interview manifests and reflects these patterns. Thus, following Lambert and Loiselle (2008), I do not presume that individual or group interviews are more valid to compare and contrast; instead, I take a stance that both kinds of interviews help shed better light and together provide a more comprehensive understanding to my research phenomenon.

Coding scheme

Data analysis consisted of thematic analysis with both deductive and inductive approaches. Existing research questions and theories help to elaborate the themes using a deductive approach (Braun & Clark, 2006; Corbin & Strauss, 2008). At the same time, the inductive approach is useful for topics and issues that emerge from the data in the process of analysis (LeCompte & Schensul, 2010). I followed the phases delineated by Braun and Clark (2006) to conduct a thematic analysis of the data of ethnographic interviews.

I chose not to code individual and group interviews differently in order to validate each other, because I adopted the view that using both kinds of interviews enables a more comprehensive interpretation of broadband Internet use and adoption in rural Vietnam. From a constructivist perspective, "there is no such thing as a single, immutable reality waiting to be observed and measured" (Merriam, 1995, p. 54), and thus no kind of interview is superior to others, or can serve as a basis for validity. However, I recognized that some group interviews emphasized how Internet use is incorporated and regulated in everyday life of a household when interviewees are in the same household, while other group interviews served as an opportunity for participants to discuss

common concerns of Internet accessibility and shared use patterns. Meanwhile, individual interviews offered a chance for participants to share their individual use patterns and their unique Internet adoption story in depth, as a result of their privacy and narrative flows. I coded both types of interviews based on the above-mentioned phases of thematic analysis.

I familiarized myself with my data in phase 1. This occurred during the field trips when I talked with interviewees and compared the results with previous interviews for context as I moved to the next interviews. I listened to all the recordings and carefully reviewed my notes from the first eight interviews when my recorder had failed to work. I transcribed the interviews in Vietnamese, and participants' voices in different dialects echoed and brought back vivid memories about interview sites, interviewees' faces, and frequently unforgettable words coming from deep within their hearts. I did not translate all the transcriptions into English but I summarized the key information from each interviewee in Appendix C. During the interview process, I started developing ideas about the meanings and patterns interviewees communicated, and noticing emergent themes—particularly when considering my research's theoretical framework—and I took notes of these insights when transcribing the interviews.

Codes were generated in phase 2. I coded the data's latent content, not their semantic content. I had some deductively constructed codes deriving from my interview questions, selected theories, and literature review. However, this phase was challenging because interviewees discussed many facets of their lives, while I tried to add inductively emerging codes that were not foreseen by my interview questions, selected theories, and literature review. Thus, I deliberately chose a coding unit to be either a paragraph or a combination of several paragraphs that reveal a pattern of the coded data. For example, a few interviewees had life-long reflections about how they became who they were, tracing decades of their lives preceding the arrival of broadband Internet. I did not think

these accounts were irrelevant in latent content analysis, but coding everything in the coding units of individual paragraphs or a turn in the interview direction was overwhelming. Thus, I structured the statements into common patterns that emerged in all the interviews. I copied each part representing a code, an excerpt, in an NVivo node, which allowed me to backtrack to an original transcription of an entire interview with a click of a hyperlink. Following Braun and Clark (2006), I did not limit putting a coded unit in a node but put it in its context in several nodes if applicable in case I were to use it later in analyzing a theme—which in turn could be a node or a combination of several nodes.

Based on the codes, I searched for the themes in phase 3. I reread all the codes and their primary classifications in nodes in phase 2. I re-examined them twice to determine if they belonged together or should be in another node and rearranged the nodes accordingly. I then named each node, thereby keeping track of all excerpts, and labelled the different themes.

In phase 4, I refined and reviewed the themes by examining the coherence of all extracts within a theme and then made distinctions among the themes of the entire dataset. This review step can lead to broader and fewer themes. However, these themes should be instrumental to answering my research questions and demonstrate themselves as independent and justifiable themes emerging from the dataset. I conducted separate thematic analyses in interviewing 79 rural residents. These rural residents' interviews were analyzed with NVivo in Table 1.

Table 1

Thematic analysis of rural residents' interviews.

Name	Files	Reference
Broadband internet and government rollout plan	62	66
Entertainment	55	102
Broadband internet & personal development	48	75
Empowering & concerns regarding the Internet	48	91
Broadband internet & professional development	38	57
Secondary internet users	37	49
Internet use deriving from local contexts	31	54
Alternative news & surveillance	30	54
Recommendations for better broadband internet services	29	41
Telecommunications cost saving	26	37
Education motivation for internet use and subscription	23	38
Pay whole subscription	23	25
Internet-infused clashes	22	34
Broadband internet & local development	15	20
Medical information	13	16

While some nodes became themes by themselves after I conducted all phases of the data analysis—particularly when these nodes derived from my interview questions, selected theories, and literature review—some nodes belong to larger themes. For example, *broadband Internet and government rollout plan*, *empowering and concern regarding the Internet*, and *broadband Internet and (personal, professional, and local) development* are deductively-analyzed themes. Emerging nodes from the data are *entertainment*, *secondary Internet users*, *Internet use deriving from local contexts*, *alternative news and surveillance*, *pay the whole subscription*, *education motivation for Internet use and subscription*, *Internet-infused clashes*, and *medical information*. For example, entertainment and medical information belong to the umbrella of personal development, and involve both positive and negative connotations. To illustrate a different point, another example would be when I counted what an interviewee said in both personal and professional development. In one

case, a man said he allowed his children to study online, and he also used the Internet for work at home. I, therefore, counted such occurrences of overlapping themes based on the paragraph units.

Although a node that the biggest number of interviewees discusses comes first—and the order of the nodes is based on the number of interviewees mentioning them—the order of nodes in the table does not reveal their absolute comparison rank. I asked all 79 residents if they know what broadband Internet is and if they are aware of the government's broadband Internet rollout plan to rural areas; however, only 62 interviewees answered these questions. Other nodes, including *entertainment*, *secondary Internet users*, *Internet use deriving from local contexts*, *education motivation for Internet use and subscription*, *Internet-infused clashes*, and *medical information* are often what the interviewees spontaneously brought up when asked what they used the Internet for. As a result, these spontaneously answered nodes can probably be compared with each other in terms of the number of interviewees mentioning them.

According to phase 3 of coding the data, I examined these nodes and considered how to combine them for overarching themes. As a result, I widened the definitions of some deductive themes while ensuring the distinctiveness of each theme, and these inductive nodes became sub-themes of deductive themes, as discussed in-depth in Chapter 7 and Chapter 8.

Method Triangulation: How Methods Complement Each Other

My goal in this section is to explain why I need to use three methods—thematic analysis, expert interview, and ethnographic interview—and how these methods complement each other to answer the research questions. The common thread among these three methods is that they belong to qualitative methodology. I resort to the concept of triangulation to demonstrate the necessity of these three methods and various datasets and to explain how the methods complement each other in answering the research questions in light of theoretical frameworks.

The term ‘triangulation’ originates from land surveying and refers to the ability to locate a geographical area based on the intersections of different linings (Patton, 1999). The implication of triangulation in research methods is that multiple methods help reveal “the gist of [the] research mill” (Patton, 1999, p. 1192). Thus, in qualitative research, triangulation is the combined use of various methods and data to enable a comprehensive understanding of research problems (Patton, 1999). Triangulation types in qualitative research include triangulation of data sources and methods (Carter, Bryant-Lukosius, DiCenso, Blythe & Neville, 2014).

A frequently used combination of methods in qualitative research is between expert interviews and documentation analysis (Natow, 2020).¹⁴ Reviewing about 120 peer-reviewed articles discussing expert interviews, about two-thirds of these articles use both expert interviews and document analysis as a triangulation of methods (Natow, 2020). Since experts’ views present one aspect of reality that is likely to reflect their power and privilege, triangulation with other sources can challenge experts’ perspectives and provide insight into various aspects of reality (Kezar, 2003). To avoid biased and inaccurate information that experts may provide, researchers should use method triangulation (Natow, 2020). Document analysis about the issues discussed in the interviews with experts provides background information and subject knowledge for interviewers (Stephens, 2007).

When conducting a thematic analysis of Vietnam ICT policy documents, I located emergent themes of these documents. These themes serve as foundational knowledge about ICT and

¹⁴ Natow (2020) uses the term “elites” which refer to people who hold powerful positions that supply them unique and knowledgeable views on the issues pertinent to their jobs. Elites, who include policy makers, macroeconomists, and journalists, can be understood as experts as used in my research.

broadband Internet development in Vietnam. However, many questions were left unanswered about broadband Internet rollout in rural Vietnam, such as information about pre-existing broadband Internet network infrastructure, and details about cooperation with the corporate sector in implementing the network. The policy documents and newspaper coverage did not discuss these matters, and international literature on these issues cannot be applied. Therefore, expert interviews with Vietnam ICT policy makers provide insight into these questions and shed light on directions for future policy. As Bogner, Littig, and Menz (2018) posit, experts possess specialized knowledge that is not available to researchers through public accounts. On the other hand, my technical knowledge gained from thematic analysis of ICT policy documents facilitated the creation of in-depth questions and enhanced my conversational stance with the policy makers and content developers.

In addition to this triangulation method combining document analysis and expert interviews, interviews with alternative publics were also conducted to produce local and lay-people knowledge (Meuser & Nagel, 2009). In Vietnam, governmental policy documents are not exposed for widespread public criticism due to the Communist Party of Vietnam's leadership and state-owned media system (London, 2014). Thus, in order to examine how rural residents view, adopt, and experience broadband Internet rollout in their villages, interviewing rural residents in their habitats helps bring in marginalized voices.

Ethnographic interviews with Vietnamese rural residents elucidate how they appropriate, domesticate, adopt, and use the Internet in their villages in their everyday life. The thick description of ethnographic interview data helps unveil a discrepancy between the top-down broadband Internet rollout approach and the various needs of rural residents if their Internet use is to increase their informational and central human capabilities. Researchers adopt triangulation of document analysis,

expert interviews, and non-expert in-depth interviews to challenge the power imbalance between experts and non-experts (Natow, 2020). For instance, Murtagh (2015) examines barriers faced by cross-ethnicity parties in post-conflict communities, and uses triangulation to combine analyses of election and party documents with elite interviews and focus groups consisting of members of civil societies and voters. The triangulation method provides insight into various aspects of formal and informal barriers these parties face; it helps challenge top-down institutional design from bottom-up civil society perspectives (Murtagh, 2015). I use a similar triangulation to compare and contrast the top-down policy-making approach, which focuses mainly on Internet connectivity, with bottom-up rural residents' needs to enlarge their Internet-infused capabilities and use patterns, which in turn shape broadband Internet use in rural Vietnam.

In conclusion, triangulation of methods and data improves the *internal validity*, *credibility*, and *external validity* of qualitative research (Merriam, 1995). *Internal validity* refers to the trustfulness of measurement—in other words, whether or not researchers are measuring the things they think they are measuring (Merriam, 1995). Adopting triangulation of methods and data helps researchers link and compare different datasets and methods in order to examine the measurement trustfulness. This also rings true to the second quality of qualitative research in the sense that triangulation enhances *credibility*, which might be described as consistency between study results and collected data (Merriam, 1995). For example, by observing an Internet gaming café and interviewing pupils who play games there, as well as reading newspaper coverage about these cafés, I could form a coherent reality about the main groups of customers there and explain what draw them in the cafés. Finally, *external validity* includes concrete universals that “are based on the notion that particular situations convey insights that transcend the situation from which they emerge” (Merriam, 1995, p. 58). Ethnographic interviews regarding Internet use, conducted at

various mobile sites, represent variations in research sites and situations, thus allowing results applicable to a larger range of similar contexts. To sum up, triangulation of methods and data demonstrates how the methods complement each other, thus enhancing qualitative research's rigour.

Chapter 5: Vietnam Internet Policy

In 2011, Vietnam approved a national telecommunication and information plan (Decision 119, 2011) that included building a 7 trillion Vietnamese dong (or the equivalent of \$397 million CAD) broadband network infrastructure to link all communes (the smallest administrative units) in rural Vietnam by 2015. However, the country did not meet its 2015 goal of connecting all rural communities, and had extended the deadline to 2020. In January 2019, the government announced that all rural communes have been connected by mobile broadband Internet (ICT News, 2019). At the same time, the top-down Internet diffusion approach reveals some shortcomings even if mobile broadband Internet connectivity works in all communes. First, Internet connectivity does not translate automatically into users' enlarged capabilities. Second, broadband Internet diffusion policy does not take into account users' needs and wants, or communicate to them that the Internet is a multi-purpose technology¹⁵. Third, users do not have any say in shaping broadband Internet or monitoring telecoms implementing the policy. This chapter aims to review Internet policy in Vietnam to delineate historical accounts of the policy and to analyze how broadband Internet permeates rural areas in the context of the modernization discourse. In order to achieve these goals, this chapter

¹⁵ I am using the term "multi-purpose technology" in the sense of a technology that has characteristics of both general-purpose technology and polymedia. I do not adopt "general-purpose technology" because it is widely used in the field of economics and emphasizes economic growth enabled by the technology (Bresnahan & Trajtemberg, 1995; Jovanic & Rosseau, 2005), with classic examples being the steam engine and the use of electricity, which have transformed the way people live their lives. Broadband internet has some characteristics of a general-purpose technology as delineated by Bresnahan and Trajtemberg (1995), namely its pervasiveness, improvement, and innovation. Households and businesses use its applications for various purposes and switch between media to serve certain communication purposes. Madianou and Miller (2013) coined the term "polymedia" to encapsulate the essence of internet-enabling multiple apps and communication media that are co-existent and complement each other. Broadband internet evolves over time, with progressively faster speeds and lower costs. The technology serves as a catalyst for innovation for its future generations and other sectors in economic and social life (Kelly & Rossotto, 2012).

- traces the course of Vietnamese Internet policy since the introduction of the Internet in the 1990s,
- illustrates the influence of the modernization paradigm,
- delineates the problems that the paradigm has caused, and
- analyzes how broadband Internet diffuses in rural areas in the interactions among the central government, local governments, and telecommunication companies.

Two articles in the literature review about Internet policy provide ideas for this chapter. The first article is “The political economy of Internet innovation policy in Vietnam” by Boymal, Martin, and Lam (2007), and the second article is “An evaluation of China's evolving broadband policy: An ecosystem’s perspective” by Liu (2017). Because these two articles discuss historical accounts of Internet diffusion in Vietnam and China, respectively, they serve as a model for me to delineate the historical accounts of Vietnam’s Internet policy from the 1990s to 2020. China is similar to Vietnam in the sense that both are led by a sole communist party, and both maintain love-hate relationships with the Internet for the sake of keeping political stability and fostering economic growth (London, 2014). However, while I adopt historical accounts of Internet policy, my analytical framework is different from that of these two articles. While the first article adopts political economy literature and discusses Vietnam’s Internet policy by 2007, I find that the modernization paradigm has now been thoroughly entrenched in the philosophy of Vietnamese policy makers and in the minds of average citizens from both a top-down economic approach and a psychological perspective. I chose not to follow a market saturation model as an analysis framework, which was adopted by the second article, as my focus in this chapter is the impact and consequences of the modernization paradigm in Internet policy and use in Vietnam. Historical accounts of Internet policy in Vietnam—particularly

in the absence of official Internet use data in different segments of the population—highlight the importance of researching how the Internet policy plays out in actuality among rural residents.

In this chapter, while reviewing Vietnam Internet policy from the 1990s to 2020, I briefly summarize Vietnamese history, from 1986 when the country started its renovation process, to now. I focus on the Communist Party of Vietnam's (CPV) resolutions and documents, including directions and milestones for information and communication sector development, as well as national government Internet policies echoing these CPV documents. In Vietnam, the party's documentations influence policy and policy making in all facets of economic and social lives (Mai, 2016; Nguyen, 2010).

First, I delineate the Vietnamese context and its cautious Internet policy up to 2000. Second, I analyze Internet policy from 2001 to 2010, when the telecommunications market was no longer monopolized by Vietnam Posts and Telecommunications and became more competitive with the entry of telecommunications services providers, including Viettel, a key player and game changer in telecommunications services. Third, I study the period from 2011 to 2020 to show that the government's focus on developing broadband Internet infrastructure in rural areas is part of its efforts to modernize and industrialize the country. A broadband Internet definition that resonates with the Vietnamese context is discussed and adopted. I argue that Vietnamese Internet policy across these periods has oscillated between economic growth, international integration, and political stability, and has centred on four main themes: incentives for industry, projected economic benefits, government censorship, and anticipated rural community/residents' benefits. Moreover, I discuss Vietnam's digital transformation policy and its 2030 goals to examine how such policy plays out in agriculture and facilitates smartphone use training and online rural content development.

The Vietnam government's broadband policy is aligned with modernization development theories for growing the economy. Technology is considered to increase productivity and efficiency in the process of the country's international integration and industrialization (Communist Party of Vietnam Resolution Session IX, 2001). This rationale for economic development and international integration has triumphed over conservative fears of "hostile" information spread by the Internet and the threat of "peace evolution"¹⁶ in the communist-ruled country. I argue that the economic growth-centred modernization paradigm helped facilitate Internet uptake into Vietnam at earlier stages of the development, but subsequently, its top-down approach has lost momentum.

Weaknesses in this approach were revealed when the country committed to opening its markets as a signatory of the ASEAN Free Trade Area (AFTA), a US-Vietnam bilateral trade agreement, and the World Trade Organization accession. As a signatory of these agreements, Vietnam has legally committed to worldwide integration journeys, from which there is no coming back to pre-renovation policies. Closing its doors in the face of capitalist countries is no longer an option. The top-down Internet diffusion approach, as part of the modernization paradigm, apparently resonates with the CPV's ideology preservation efforts in cyberspace. Governmental officials and telecommunication companies are used to implementing ICT policies with administrative instructions from the top (Do & Falch, 2018). However, this approach fosters non-

¹⁶ According to Nguyen (2018), the general secretary of the Communist Party of Vietnam's Central Council, "peace evolution" first appeared in a letter sent by Dean Acheson, the U.S. Secretary of State to U.S. President Harry Truman in 1949. The term originally refers to the transformation of socialist countries into capitalist countries by non-military measures. In a mid-term meeting by the CPV Central Committee Session VII in 1991, peace evolution was one of the four biggest challenges CPV faced. Currently, peace evolution refers to either citizens or especially party members questioning and opposing the CPV ideology, Ho Chi Minh's thought, and government policies after being exposed to various sources of information particularly on the internet (Cohen, 2009; Nguyen, 2018).

transparency in public-funded Internet broadband development projects, ignores users' needs for content and design of the multi-purpose technology, and fails to take human capability development as a goal of technology diffusion and adoption.

Information Communication Technology Diffusion in the Modernization Paradigm and Vietnam's Internet Policy

The modernization school of thought took root after World War II, and especially in the 1960s, when developed countries provided aid to developing countries in order to apply Western economic models to the decolonization and development process (Melkote & Steeves, 2001). From an economic perspective, this school—which is derived from the neoclassical approach—focuses on economic growth and fosters elements such as private ownership, liberalization, capital, technology, and scientific intensive industries to increase Gross National Product (Melkote & Steeves, 2001, Zhao, 2008). Studies adopting stages of economic growth perspective (Rostow, 1991) and diffusion of innovation theory (Rogers, 1962/2003) share the following underlying assumptions: information and communication technology is instrumental in increasing productivity, efficiency, and economic growth in developing countries, and technology tends to determine its own course of development based on its advances and functions (Igboaka, 2010; Zhao, 2008; Lam, Boymal & Martin, 2004; Andre, Cuberes, Diouf, & Serebrisky, 2010; Cecchini & Scott, 2003; James, 2010a; Pentland, Fletcher, & Hasson, 2004; Belanger, 2006; Bradshaw, Fallon, & Viterna, 2005; Dewan & Kraemer, 2000).

Assuming that technology is a figurative silver bullet to all the problems in society, ICT development projects are made and implemented with the focus of bringing connectivity to a population that should see the need to adopt and adapt to the technology as part of a modernization mentality (Melkote & Steeves, 2015). When certain users take longer to adopt a new technology,

they are called “laggards” (Rogers, 1995). Weiner (1966) points out that modernization theories require individual change as a prerequisite to development. Since modernization is seen as a unilinear process imposed from outside, technology users are perceived as those who need to change their backward mentality and improve their skills to embrace technological wonders. Therefore, the perspectives and voices of users—especially “laggards”—in shaping technology are largely neglected, particularly in studies on ICTs in developing countries. In other words, ICT development projects are developed and implemented from the top level with assumptions of positive trickle-down effects on users who are expected to change their ways of life to adapt to the technology, and not the other way around.

The studies on Vietnam Internet policy adopt the modernization assumption that information and communication technology is crucial for socio-economic development at the macro and meso-level. They focus on technological and economic policy at the governmental level and on the business aspects of the telecommunication industry (Do & Falch, 2018; Do, Falch, & William, 2018; Vu, 2017; Vu & Hartley, 2018). Most of these studies aim to propose solutions to the government for promoting Internet use and access in the country by comparing telecommunications performance in multiple countries, reviewing Vietnamese Internet user statistics over time, or examining a business model for broadband Internet rollout in rural areas of the country. Vu (2017) examines the status of information and communication technology diffusion in 10 countries in Southeast Asia, including Vietnam, and proposes solutions and strategies for those governments to better embrace revolutionary technology for economic growth. Boymal et al. (2007) attribute the limited number of Internet users in Vietnam’s early stage of Internet development to the government’s ideological and political choices, rather than to its technical resources. Lam et al. (2004) map out Internet use patterns from 1997-2002 with an S-shape, and delineate factors that

hindered Internet diffusion in Vietnam. Although Nguyen (2013) conducts surveys asking domestic information and communication technology companies to recommend Internet governance policy to the government, her study focuses on Internet governance issues that prevent these businesses from thriving. Nguyen's research thus raises concerns over content censorship and surveillance, which incur costs for companies and discourage business. In another study, Tran and Winley (2018) examined the skills and knowledge of information technology professionals in 51 organizations and companies in Vietnam to determine what technological and personal skills are needed at present and in the future.

Taking into account users' perspectives, Tapanainen, Dao, and Nguyen (2018) used a snowball method to conduct surveys among Vietnamese college students and the general population. To analyze their 345 completed surveys, they used multivariate analysis to examine factors that influence participants in their intention and attitude towards adopting and using 3G mobile Internet technology in Vietnam. The authors found that the perceived usefulness of 3G is the strongest factor influencing individuals' attitude and intention to adopt and use 3G, but social influence does not impact 3G adoption. However, the study was only conducted in the nation's capital of Hanoi, which comprised about 35 percent of participants from a national university and the other 65 percent of participants who were identified with a snowball method; thus, rural residents were not the focus of this research.

One study included residents' partnership in diffusing WiMAX in a rural area; however, the study focuses on the organizational level and does not include residents' voices. Fife and Hosman (2007) study a multi-stakeholder partnership in ICT development in Lao Cai, a province in northern Vietnam, as a business solution seeking to provide sustainable Internet diffusion for the low-income population. Their proposed multi-stakeholder partnership model includes VDC (a Vietnamese state-

owned telecommunication company), Intel, USAID, and local residents. USAID, a non-profit organization, played a mediating role between Intel and VDC, and also worked with local residents in an area of the province immediately adjacent to the Chinese border in order to learn about their needs and educate them about broadband Internet's use and advantages. However, Fife and Hosman (2007) do not delineate what local residents need from the technology, or if and how VDC and Intel might provide Internet connectivity and services in response to their needs. A press release by Intel (2007) and the project information page by USAID (n.d.) does not mention local residents as partners and does not explain how the extended public-private partnership addresses any discrepancies that residents may face.

Thus, all these studies on Vietnam Internet policy, except the research by Fife and Hosman (2007), assume that all stakeholders aim for Internet diffusion for the sake of socio-economic development without considering rural users' perspectives on Internet access, affordability, and use. The majority of the studies adopt an assumption of the automatic superiority of technology—i.e., that once the government and telecommunication companies put Internet infrastructure in place and facilitate connectivity, the Internet will automatically have a positive impact on users' lives. With this philosophy of technology development, the Internet rollout approaches in most of the studies are governmentally and organizationally centred while average users remain on the periphery. These users are supposed to embrace technological advances in their everyday life and practices without being expected to talk back to the institutions.

None of these studies analyze Internet policy, use, and adoption from end users' perspectives. This dissertation—which draws on critical constructivism, the capabilities approach, and the domestication model—argues that the broadband Internet development plan should engage with rural residents and allow their participation in broadband Internet rollout policy. With more

participatory power, rural residents will have access to and use of a technology that properly reflects their needs and wants and, in turn, enhances their informational and human capabilities.

Since the 1990s, Vietnam's Internet policy has been characterized by a modernization rationale to promote Internet diffusion among the population—even while the government remained cautious about public use of the Internet. The following section will cover Internet policy in the periods of 1992–2000, 2001–2010, and 2011–2020, which were marked by stages of the state's determinism and commitment vis à vis Internet development in the country.

Testing the Waters: Vietnam Internet Policy from 1990 to 2000

During this period, Vietnam's Internet policy was characterized by modernizing the out-of-date information communication system, thus gradually liberalizing the sector and bringing in increasing competitiveness as a way to promote a level-playing field¹⁷ in telecommunications while also enforcing political control and censorship. The country's overall socio-economic picture at that time helps to provide context for its ongoing telecommunications policy.

Vietnam's modern history is defined by a reformist policy in the late 1980s when the Soviet Bloc was dismantled as a result of political transformations in the Soviet Union. After the Resistance War against America (known as The Vietnam War in the United States of America) ended in 1975, the Vietnamese government pursued economic planning, subsidies, and rationing systems similar to those in the former Soviet Union and other Soviet Bloc countries (Nguyen, 2010). However, the country failed to achieve many of its socio-economic objectives and suffered

¹⁷ To allow all economic sectors including private enterprises to participate in the telecommunications market.

hunger, crisis, and stagnation (“Vietnam History Overview,” n.d.). Inflation rates reached a peak of 774.7 % in 1986 (Duong, 2010), which made people’s lives very challenging. Unlike other former socialist states, the Communist Party of Vietnam did not yield power to open the stage for a pluralist democratic system but followed the Chinese model and retained its position as the ruling political power in the country. Remaining at the helm, the CPV undertook a series of economic reforms with the goal to create a market economy encompassing all economic sectors. The so-called Doi Moi (reform) policy was introduced at the 6th Congress of the Communist Party in 1986.

The stated goals of Doi Moi have been to improve people’s lives, curb inflation, increase productivity, and motivate people to work under the leadership of the ruling Communist Party. The key change was to initiate and implement a multi-sector economy, with the official participation of households and private enterprises as independent entities. Farmers were allocated lands and encouraged to take initiatives to farm, both for subsistence and for profit. Private enterprises were also allowed to do their own business for profit and accumulate capital (McGrath, 1994; Thai, 2008).

The economic reform policy was foundational in this economically-troubled country’s transformation into a vibrant international market system, which maintains a cooperative relationship with major capitalist countries and international organizations (World Bank, n.d.). According to the World Bank (2017), Vietnam has become one of the largest rice exporters in the world—a major turnaround from its famine troubles only a few decades ago. The World Bank reported that “since 1990, Vietnam’s GDP per capita growth has been among the fastest in the world, averaging 6.4 percent a year in the 2000s” (World Bank, n.d., para. 2). The United States also lifted its embargo on the country in 1994 (Jehl, 1994), and normalized bilateral relations with Vietnam in 1995 (“U.S. Department of State,” 2020) when Bill Clinton became the first president to

visit since the war. In the same year, Vietnam also joined ASEAN—the Association of Southeast Asian Nations—which promotes economic, social, and cultural cooperation to maintain prosperity and peace in Southeast Asia (“About ASEAN,” n.d). Thus, international integration, technological availability, and the Communist Party’s open-door policy paved the way for Internet uptake in the country.

At the very first stage of Vietnamese Internet connectivity, the government initiated a systematic diffusion of the Internet through administrative measures and market regulations. The Institute of Information Technology, an academic organization, was the first to have dial-up Internet connection in the country (Boymal et al., 2007). Academic and research organizations were also the earliest Internet adopters allowed in Vietnam while the country was looking for technical solutions to establish the network (Boymal et al., 2007). The country was cautious with the technology, as it enables cross-border and unmonitored communication at high speeds (Boymal et al., 2007).

According to Decree 21¹⁸ (1997), no online content is allowed to criticize the Vietnamese government or damage public unity, distort the truth and history of the country, deny revolutionary results, or defame national heroes. The decree also made organizations and individuals connecting to the Internet fully responsible for preventive measures to ensure appropriate content online. The government exerted control on the Internet’s infrastructure, services, and content. Decree 21 noted that “all entities and enterprises wishing to connect to the Internet must install their main computers in Vietnam to go through a local gateway to the international lines” (p. 1). At the time, VDC—

¹⁸ A decree is a legal document on regulations or guidance to implement a law or a policy, which is issued by the Vietnamese government (“Hoa Tieu,” n.d.)

which is a subsidiary of the state-owned communications company Vietnam Post and Telecommunication (VNPT)—had monopoly status as the sole Internet access provider. It was tasked with providing secure international gateways and installing firewalls to prevent access to inappropriate content (Boymal et al., 2007). This status gave VDC a competitive advantage not only as one of the five Internet service providers licensed to provide Internet to end users: the company also provided international Internet access to the other four state-owned Internet service providers¹⁹. At that time, the main position of the Directorate General of Post and Telematics—a predecessor of the current Ministry of Information and Communication—and the Vietnam government was that Internet services should be expanded only if the ministry’s “ability to manage and control the network allows [Internet diffusion],” due to the fear of online threats against the political regime in Vietnam (Tan, 2017, para. 5).

Academic research institutes and high-income populations, such as Western expatriates and local businesses, were the first groups in the country to use the Internet due to administrative and surveillance barriers, which led to high costs (Boymal et al., 2007). At the end of 2000, Vietnam had just over 100,000 Internet dial-up subscriptions, or about 200,000 Internet users, meaning that one out of every 389 people had access to the Internet at that time (“Vietnam Internet,” 2002). Foreign and local businesses were the main organizational Internet adopters in the early 2000s (Boymal et al., 2007). Around 2000, a 64 kbps leased line—which allowed seven phone lines to be in use at the same time and could be used to transmit fax, telex, and data (Dang, Personal Communication,

¹⁹ They are SaigonPostel, Viettel, FPT, and NetNam (Boymal et al., 2007).

February 13, 2019)—cost about 20.5 million Vietnamese dong (or \$2,100 CAD)²⁰ per month at a time when the average income of Vietnamese people was 283,355 Vietnamese dong (or \$29 CAD) per month (General Statistics Office, n.d.). Thus, a 64-kbps leased line cost 72 times more than a person's average income per month in 1999. A 2 Mbps line cost 245 million Vietnamese dong (or \$25,161 CAD) per month ("Vietnam Internet," 2002). For this reason, in the early 2000s, only expatriates and high-income individuals could afford Internet subscriptions at home, while Internet cafés that charged per minute were venues for middle-income individuals (Dang, Personal Communication, February 13, 2019). In 2003, a private Internet subscription for 35 hours per month was 261,000 VND (or \$26.76 CAD), which is equal to the whole average monthly income of a Vietnamese person at that time. This cost is 1.5 times higher than a similar Internet subscription in Thailand (Dang, Personal Communication, February 13, 2019).

To recap, at first Vietnamese leadership was ambivalent about the Internet due to its non-state-approved content, as well as potential threats such as cyber security, and concerns with children and youth wasting time on online gaming, etc. However, the government began opening the Internet to the public when it weighed the economic gains against potential negative cultural effects as well as threats to political instability. In other words, the CPV views the Internet as an integral part of its overall modernization strategy. The modernization paradigm thus played out effectively in the Party's decision to embrace the Internet with caution and control while the war-torn and poverty-stricken country continued to reform its economy and integrate with the world

²⁰ All currency exchange rates in the past were calculated on the website <http://fxtop.com/en/historical-currency-converter.php>

community. In the section that follows, I argue that the country's modernization motivation was key to the liberalization of its telecommunications market, which aimed to significantly reduce subscription fees and to boost the growth of Internet users. Specifically, in 2010, the number of Internet subscribers grew to 26.8 million in Vietnam, which was a nine-fold increase in subscribers from 2003 (Vietnam NetCitizens Report, 2011).

Vietnam's Internet Expansion for Modernization from 2001 to 2010

This period saw the opening of Vietnam's telecommunications market. As the Communist Party of Vietnam (CPV) began to support Internet popularization, it created more state-owned Internet providers and began the gradual implementation of its economic level-playing field commitments. This resulted in an increase in the number of Internet users due to more competitiveness in Internet service and more affordable subscription costs.

The CPV adopted an open and supportive attitude to the Internet for the sake of modernizing and industrializing the country. As the CPV remains the sole ruling party, the guidelines it generates during the Party's National Congress—which is held every five years—impact and direct Vietnam's course of development for the next five or ten years. Each time the congress meets, they produce a five-year political report. However, every second meeting (when they meet in years ending in “1”—i.e., 2001, 2011, 2121), they produce a 10-year as well as a five-year report. The Party's political report by the Central Committee at the 10th National Party Congress in 2001 emphasized the concepts of “industrialization” and “modernization” in order to bring Vietnam out of its underdeveloped status (Communist Party Resolution, 2001). This report also placed science and technology as one of the country's top priorities, which they view as a foundation and catalyst for Vietnam's modernization and industrialization (2001). To implement party guidelines in support of five- or 10-year reports, the Vietnamese government issues decrees and other documentation. In

2001, the Vietnamese government issued Decree 55, which adopted an official Internet management philosophy that stated, “[M]anagement capacity must keep pace with development requirements.” Decree 55 replaced Decree 21 (1997). In Decree 55, the government took into account the unavoidable trend of opening up the Internet for the sake of the country’s economic development and international integration. While the government exercised systematic measures to prevent “Internet-abusing activities compromising national security and violating ethical and cultural standards” (p. 1), Decree 55 stipulated that, due to technical and financial limitations, related ministries must adapt their policies to embrace this trend, rather than to try and keep the Internet under control. Decree 55 was a continuation of Directive 58 (2000)—a guideline document on a specific topic issued by the Central Committee of the CPV in which ICT development is aimed at quickening economic reform to transition the country’s economy towards industrialization and modernization.

Vietnam is a country ruled by one party; consequently, the government’s initial formation of an Internet policy was discussed but was compromised by different views within the party. The question as to what extent the Internet should be opened to the public remains a controversial issue. The two main factions are generally known and labelled by political analysts and researchers as “hardliners” and “reformists” (Duong, 2016; London, 2014). By opening Vietnam’s Internet to the rest of the world, the conservative leaders, or “hardliners” within the party, worried about risking state secrets, losing control of its propaganda rigour, encountering questions about the regime’s legitimacy, and embracing a “peace evolution” once the Internet provided open access to various non-approved information and sources to Vietnamese users. The reformists, on the other hand, were those who believed that the Internet could be put under control, and that its economic gains could contribute to the reform (Duong, 2016).

The trajectory of Vietnamese Internet policy was marked by two milestones: Decree 21 (1997), which mirrored the hardliners' Internet suppression, and Decree 55 (2001), which reflected the reformists' cautious embrace of the Internet. However, technocrats led by Mai Liem Truc—the former Head of the Directorate General of Post and Telematics—were successful in persuading the party and the government's progressive leadership to connect Vietnam to the World Wide Web. In the context of repairing a war-devastated country, Truc believed in the importance of a fast communication method that could promote the country's renovation, and to encourage foreign investment opportunities to the rest of the world (Tan, 2017). His approach received the support of the leadership to facilitate Internet access more widely nationally and internationally. The traditional way of spreading their message was to send Vietnamese print newspapers and magazines abroad; this was both expensive and slow (Tan, 2017). Truc argued that the Internet would be a much faster and inexpensive way to convey the message of socialist-oriented economic reform—specifically that Vietnam was pursuing a market economy under the Communist Party of Vietnam's leadership, and was now open for businesses by private companies and foreign investors (Tan, 2017). Thus, with the arguments of Internet-infused economic gains and the country's modernization, the “reformists” managed to achieve political consensus to expand the Internet among the population. This outcome is another manifestation of Decree 55 (2001), which crafted Internet management policy to accommodate development requirements.

Since the 2000s, Vietnam has allowed some telecom companies under the umbrella of various government industries to compete against VNPT, the incumbent Internet provider (ITU, 2002). This has lowered Internet subscription costs and boosted the number of Internet users in the country. The Military Electronic Telecom company (Viettel), which belongs to the Ministry of Defense, gained a license to provide some telecommunications services in 1998 (“Vietnam

Internet,” 2002). In spite of some barriers from VNPT in the Voice over the Internet Protocol (VoIP) market, Viettel began offering VoIP services nation-wide starting 2002 (Boymal et al., 2007). Thanks to the VoIP service, Viettel reduced interprovincial and international phone call tariffs significantly, thus boosting telephone and cellphone subscriptions (according to a government official in charge of promoting information and communication technology applications in Vietnam) (Thai, personal communication, 2017 January 5). The government licensed some Internet Services Providers in Vietnam, including VDC, FPT, NetNam, SPT, and Vietel (ITU, 2002), to compete on Internet subscription incentives and quality, while facing a reduced growth rate of Internet subscription (only 0.25% of the Vietnamese population were Internet subscribers in 2002) (Lam et al., 2004). Decree 55 (2001) also removed monopoly status for VDC as the sole Internet Access Provider (or “Internet Exchange Provider” as used in the decree). In 2004, the Ministry of Information and Communication allowed Internet companies to decide their own service tariffs, independent from that of the lion-share of telecommunications businesses (Dinh, 2004). Internet and telephone tariffs were reduced significantly by between 10 percent and 40 percent in 2003, which helped boost the number of Internet users (P., 2017). In big cities and towns, patrons paid as much as thirty Canadian cents an hour in Internet cafes in 2005 (Dapice, 2005). Dapice (2005) attributed reduced Internet costs to the government’s decision to increase competitiveness in the telecommunications sector by allowing more ISPs in the market.

Vietnam abides by the international agreements covering the telecommunications sector, which it signed. This, in turn, served to entrench foreign interests in the sector and helped expand Internet use among the population. The US-Vietnam Bilateral Trade Agreement, which went into effect in December 2001, has gradually realized Vietnamese commitments in opening up the telecommunications market for American investors. In a timeframe of several years, American

businesses have been allowed to enter, cooperate, and compete (on certain conditions) in the Vietnamese telecommunications sector in exchange for lower tariffs on Vietnamese goods entering the American market (“Summary of the Agreement between the U.S. and Vietnam,” n.d.). In 2007, the country joined the World Trade Organization (WTO), whose mission is to implement trade and economic liberalization around the globe. Vietnam committed to allowing foreign companies to participate in Internet access services markets gradually (World Trade Organization Working Party, 2006). By joining these organizations, Vietnam has committed to international cooperation treaties in its integration process, i.e., it will not be able to unilaterally turn back to its closed-door policy, or shut down the Internet for the public.

Moreover, Vietnam’s relevant laws and regulations must be amended and implemented in accordance with these international commitments (The People, 2004). As a result of these international commitments—not to mention that the Internet has been deeply embedded in the social and economic operations of governmental offices, businesses, and almost 27 million users in Vietnam (Vietnam NetCitizens Report, 2011)—the country is also not able to arbitrarily reverse its policy of popularizing the Internet. Thai, a policy maker at the Ministry of Information and Communication, states that the government would not shut down the Internet though it has concerns about political stability in the face of online criticism and alternative news (Thai, personal communication, 2017 January 2).

In summary, after the modernization of the country became a central tenet of CPV’s guidelines on Vietnam’s development, the government has embraced an Internet market liberalization policy while exercising political scrutiny and caution. The government allowed domestic companies to enter the telecommunications market for increased competition and signed international agreements to open up various sectors for foreign investments and foster a level

playing field among companies. The telecommunications sector gradually opened up to foreign investors in certain conditions. The Internet uptake rate increased rapidly as a result, with 31 percent of the population using the Internet by 2010, compared to 4 percent in 2003 (Vietnam Netcitizens Report, 2011), thanks mainly to the price drop brought about by ISP market competition (Dapice, 2005). However, some segments of the population, such as men, young people, and high-income people, used the Internet more than some other segments (Vietnam Netcitizens Report, 2011). According to a 2011 Vietnam Netcitizens report conducted by Cimigo—a market research company that reportedly researched 3,000 people in 12 provinces—more people with high income used the Internet than low-income people; people in the age range of 15 to 24 used the Internet the most; and more males used the Internet than females. Yet this report, which is available to the public, did not discuss Internet use disparity between urban and rural areas. Cimigo does not specify how it selected “representative” participants and what methodology the company used in this report. With an overall increase of Internet users over the years, the CPV hoped that the Internet would undoubtedly help modernize the country, despite the political and social risks it posed. Therefore, the Party chose not to continue inhibiting Internet technology through administrative measures and inflated costs that were previously imposed due to the fear of political instability the Internet might induce.

Problematic Modernization Discourse Around Broadband Internet 2011-2020 and Beyond

In this section, I will provide an overview of broadband Internet definitions and broadband policy in Vietnam since 2011. I will argue that the modernization discourse, characterized by a focus on economic growth and its top-down broadband Internet rollout approach, helped lead to Internet connectivity in rural areas by 2020 but failed to promote broadband Internet as a multi-purpose technology.

Broadband Internet definition

Given that there is no single one-size-fits-all definition for broadband Internet despite its increasing popularity in both developed and developing countries (Kelly & Rossotto, 2012), I will review how broadband Internet is defined in various countries in order to establish a definition that is comprehensive and applicable in Vietnam's broadband Internet rollout.

Internet speed was a key element in defining broadband Internet in some countries. In these countries, Internet speed has continued to be upgraded over time due to technological advancements. In 2015, the Federal Communications Commission, a U.S. government independent agency overseeing interstate and international communications, raised the minimum download speed of broadband Internet from 4 Mbps to 25 Mbps and the minimum upload speed from 1 Mbps to 3 Mbps in order to facilitate some applications including Netflix's Ultra High Definition streaming service (Singleton, 2015). In Canada, the Canadian Radio-television and Telecommunications Commission (CRTC) set a target for minimum broadband Internet download speeds of 50 Mbps and minimum upload speeds of 10 Mbps for all Canadians (CRTC, 2017). However, Vietnam does not currently have a definition for broadband Internet, and the concept has changed over time and context (Tran, 2011). In 2012, the Vietnamese government set 256 kbps and up as the download speed for broadband Internet (Vietnam News, 2012). In 2014, the MIC issued a circular which defined the national technical regulations for the quality of fixed land broadband Internet. This publication stipulated a minimum download speed of 256 kbps, specified timeframe indicators for accessing websites, and indicated set up and repair times for Internet service customers (Circular 34, 2014). Then, in 2016, Decision 149 indicated a 2Mb/s minimum download speed as the lowest available speed for 3G/4G broadband Internet in rural areas.

Since broadband Internet is not only defined by its speed threshold, it is necessary to develop a broader definition that aligns with Vietnam's broadband Internet development rollout. The ITU also included uptake rate and pricing as additional attributes of broadband apart from speed (International Telecommunication Union, 2012). When asked about the Vietnamese government's position, a governmental policymaker stated that, "at the moment when we mention the Internet, it means broadband Internet. We talked about narrowband [and dial-up modems] and broadband Internet in the past; however, currently, in Vietnam, the Internet means broadband Internet. Because [Internet] applications now need broadband to be opened and used, [the applications are] not the same as once upon a time" (Thai, personal communication, 2017 January 1). Following Yamakawa, Cadillo, and Tornero (2012), and being sensitive to the Vietnamese context, I partly adopt their definition of broadband as "a service capable of transmitting data at high speeds and allowing the use of interactive applications and to access...online activities..." (p. 561). Some online activities might involve downloading music, videos, and images, or participating in web conferencing, tele-education, and telehealth (Yamakawa, Cadillo, & Tornero, 2012). In addition to broadband Internet's status as a telecommunication medium and a physical infrastructure, the technology is also spoken of as being synonymous with the "services and applications available via broadband networks" (Kelly & Rossotto, 2012, p. 3). This is the broad definition of broadband Internet in terms of both its infrastructure and content, which echoes the non-duality argument by Harrold Innis (Innis, 1952) and Marshall McLuhan (McLuhan & Fiore, 1967): that a communication medium embeds in itself the applications and messages it transmits. This broad definition of broadband Internet's infrastructure and content similarly aligns with the Internet Society's (2017) observation that the Internet is not only a communication medium that provides emails, websites, applications, and so on, but something that gives rise to its own social and economic ecosystem.

Broadband Internet network rollout in rural Vietnam

Broadband Internet infrastructure upgrade and expansion

In Vietnam, the construction of a broadband telecommunication network—which required infrastructure rollout to all rural communes, especially those in remote, border, and islands areas—was included in a government public utility (or universal service) provision program (Decision 11, 2014; Decision 1168, 2015; Decision 868, 2018). Broadband Internet access is defined as a public utility—i.e., a service that the government considers essential for everyday public use, such as electricity, and clean water, etc. (Decision 1168, 2015)—and is to be provided to more than 99% of rural communes by 2020. Thus, broadband Internet can be considered on par with other basic services such as water, electricity, and public transportation (Njoh, 2018). As a result, in a lower middle-income country²¹ such as Vietnam (Vietnam Overview, 2016), the government must provide funding initiatives and subsidies for universal services provisions from the state budget and Official Development Aids²². These funding and financial initiatives are introduced in order to make broadband Internet infrastructure available, accessible, and affordable in rural and non-profit making areas (Decision 119, 2011).

²¹ The World Bank categorizes countries into groups based on income per capita, and a lower-middle income country has a gross national capital income per capita between \$1,036 and \$4,045 USD (World Bank Country and Income Groups, n.d.). The World Bank uses the Atlas conversion factor to compare national incomes among countries. This factor helps reduce exchange rate fluctuations in cross-country comparisons (“World Bank Country and Lending Groups,” n.d.).

²² Developed countries provide developing countries official develop aids (ODA) in their bilateral or multilateral agreements. ODA is a loan with concessional interest rates with an aim to improve economic growth and well being in developing countries (Official Development Assistance, 2003).

In brief, the Ministry of Information and Communication established the Vietnam Public Utility Telecommunication Service (VTF) in 2005 to fund telecom companies in a timely and effective manner so that together they might provide universal services in Vietnam (Do & Falch, 2018). The VTF collects obligatory contributions (equal to a certain percentage of revenue) from telecom companies, and financially supports them in the development of telecommunications infrastructure, including broadband Internet networks nation-wide—especially in challenging areas such as rural locations where telecom companies would not otherwise be able to do profitable business in the market economy (Decision 11, 2014; Decision 868, 2018). The VTF is a solution by the Vietnam government in implementing WTO commitments, which ban single-company subsidies in order to avoid monopolies and other conflicts of interest (Do & Falch, 2018). For this reason, the VTF permits multiple telecom companies to provide universal services to rural areas in Vietnam (Decision 1168, 2015). For example, to develop broadband Internet infrastructure in rural areas, the Ministry of Information and Communication instructs provincial Departments of Information and Communication to list projects and their projected costs in respective provinces. The costs are estimated by telecom companies, which work with the provincial departments in proposed telecommunications infrastructure development projects. The Ministry of Information and Communication reviews the list of projects and projected costs and then selects certain telecom companies. Those companies then receive subsidies from VTF to implement telecommunication infrastructure projects in provinces (Decision 1168, 2015). Since 2018, the subsidies from the VTF to telecom companies to help roll out telecommunications infrastructure projects in non-profitable areas amount to 3,650,000,000,000 dong (three trillion six hundred fifty billion dong, or about \$305 million CAD) (Decision 868, 2018).

Rural broadband Internet rollout has been carried out mainly to bridge the digital divide between rural and urban areas and to promote economic growth. According to Decision 119 (2011) and Decision 149 (2016), the rationale for broadband Internet development is that information and communication technology is not only one of the infrastructures needed for development, but is also a “spearhead” sector that requires priority in its development. Vietnam cites several motivations for developing its rural broadband network, including economic growth, poverty reduction and hunger eradication, rural education improvement, two-way communication, and national security and defence (Decision 119, 2011). In Directive 58 (2000), the Central Committee of the CPV affirms that ICT is crucial for Vietnam’s move from a labour-intensive country to a knowledge-intensive one, securing its goal of modernization. Do et al. (2018) and Do and Falch (2018) describe the creation of VTF and its funding mechanism for universal services programs as an adaptive measure, created to comply with the WTO’s commitments against cross-subsidizing²³ VNPT, a state-owned telecommunication company that implements such universal service programs. Complying with WTO, Vietnam can still subsidize high-cost serving areas. However, under WTO regulation, the government cannot provide all subsidies through VNPT, which used to receive all the subsidies until 2005. The government now needs to pass its subsidies through several telecommunication companies that each compete with each other to receive those subsidies through VTF (Do & Falch, 2018). Do et al. (2018) argue that the CPV plays a guaranteed role in implementing international commitments.

²³ Cross-subsidizing refers to Vietnam’s governmental practice of subsidizing one company (Do & Falch, 2018).

Vietnam does not aim to build a unified and shared broadband network. Instead, telecommunication businesses have built, developed, and managed their own broadband infrastructure in profitable areas, while the government has provided initiatives and financial back-up for those businesses to extend these infrastructures to non-profit making areas (Decision 119, 2011; Decision 868, 2018). According to these decisions, the telecom businesses are offered government financial support so that they can roll out the broadband network in rural and border areas and islands, where the sparse market does not generate profits. The broadband networks in place include a festoon network offshore, an inland infrastructure on the 500-kilovolt electricity line, a network along national highway 1, and separate lines for the ministry of defence and ministry of public security (Appendix F) (Dang, Personal Communication, March 8, 2017). These networks are interconnected with each other (Tran, 2011), and it is impossible to separate what has been constructed under these policies since 2011 because the telecom companies have upgraded their own existing networks to broadband. According to Dang (personal communication, February 13, 2019), the ISPs increased their transmission capacity of fibre optic lines thanks to better technology, while the basic physical fibre optic cables stayed in place in order to ensure redundancy and transmission diversity. In general, Vietnam's international Internet bandwidth has increased 36 times between 2005 and 2010 (Tran, 2011) and risen to 1,450Gb/s in 2016, more than 12 times higher than in 2010 (Dang, Personal Communication, March 8, 2017).

Again, while market competition exists in more profitable areas, government funding has been crucial for telecommunication companies to connect non-profitable geographic areas. The World Bank has proposed that Vietnam is suitable for mobile broadband technologies such as 3G and 4G for rural areas, thanks to (1) a very competitive mobile market with seven service providers, (2) reasonably priced devices, and (3) relatively affordable prices (Hoa, 2012). On the other hand,

the fixed land broadband market, of which VNPT has accounted for 70 percent of the market share, remains much less competitive (Hoa, 2012). In addition to 3G networks, VNPT has suggested that the government should consider television cables and satellites as broadband Internet technologies to deploy (Hoa, 2012). Both VNPT and Viettel—the biggest Internet and cellphone providers—stress that the most important goal for companies is to make a profit, and so they need governmental support to roll out broadband Internet networks in rural areas (Hoa, 2012).

On the other hand, the broadband Internet spectrum, essential for mobile broadband Internet development, raises issues of limited resources and market transparency in telecommunications. In Vietnam, the number of mobile broadband subscriptions increased to approximately 36.2 million subscribers in 2016 from about 31.9 million in 2015 (Vietnam ICT White Book, 2017). In 2009, four telecom companies—Viettel, Mobifone, Vinaphone, and a joint venture between EVN Telecom and Ha Noi Telecom—were issued licenses as 3G providers, while two other applicants were refused as they failed to fall within the limited spectrum in the 1900-2200 MHz frequency band (Tran, 2011). As 4G service providers, Viettel, Mobifone, Vinaphone, and GTel, have been licensed to use the 1800 MHz frequency band; however, the frequency band is not sufficient for all four providers, which has led to poor 4G service quality (ICT News, 2017). As a result, the government has assigned the Ministry of Information and Communication to allocate the 2.6 GHz frequency band to selected 4G auction bidders (Khang, 2018). The auction for 2.6 GHz spectrum will set the stage for an auction for a 700 MHz frequency band, dubbed the “diamond spectrum,” which will enable affordable 4G transmission to rural areas once television stations retire it as they transfer from analog to digital technology (Nguyen, 2018; Dinh, 2019).

Consequently, broadband Internet providers in rural areas remain state-owned telecommunications that are major players in the country as the Vietnam government has not

adopted a similar initiative to Canada's unlicensed spectrum Rural Remote Broadband Systems (RRBSs). Though this initiative does not result in exuberant service to rural Canada, due to annual renewal requirements and the high price of required electronics, RRBSs allow new market players an opportunity to pay a small fee to provide fixed wireless access in the 600 MHz band—a spectrum once used for television broadcasts—to provide fixed wireless in the hinterlands (Taylor, 2015, 2018). In Vietnam, on the other hand, state-owned telecom companies continue to dominate the rural broadband Internet market and compete with each other in bandwidth allocations and market shares.

Vietnam's Internet network infrastructure ranks quite well among developing countries. In Vietnam, the international Internet bandwidth per user was about 91,000 bits/second, which is 1.7 times higher than that of combined developing countries, 6.2 times higher than China, and 1.9 times higher than Thailand, according to the ICT Development Index 2017 (ITU, n.d.). The ICT Development Index 2017 is the most recent annual index because the ITU, which had published the index every year, is considering adopting other measurements that need all countries' consent (ITU, n.d.). The index aims to monitor and compare ICT developments in several categories, including *ICT access*, *use*, and *skills* among countries since 2009 when the index was first published (ITU, n.d.). *ICT access* comprises fixed-telephone subscriptions per 100 inhabitants, mobile-cellular telephone subscriptions per 100 inhabitants, international Internet bandwidth per Internet user, the percentage of households with a computer, and the percentage of households with Internet access (ITU, n.d.). Similarly, *ICT use* consists of the percentage of individuals using the Internet, fixed-broadband subscriptions per 100 inhabitants, and active mobile-broadband subscriptions per 100 inhabitants (ITU, n.d.). Conversely, *ICT skills* are measured by years of schooling and secondary and tertiary gross enrolment ratio (ITU, n.d.). Vietnam ranks 108th among 176 countries in the

world. Compared with Thailand and China, which both had higher IDI 2017 values than Vietnam, Vietnam lagged behind these two countries in terms of some ICT access sub-indexes, and in all Internet use and skills sub-indexes. From 2017 to 2020, ITU did not release comparable and new ICT development indexes, so it is challenging to compare the countries in recent years.

However, in Vietnam in 2019, the percentage of individuals using the Internet was 68.7 percent, which was lower than 2018's 69.8 percent (World Bank Data, n.d.). This drop is attributed to the Vietnam government's crackdown on fierce promotion campaigns among telecommunication providers (Dang, personal communication, October 26, 2020). These companies gave out free sim cards to mobile phone users; thus, many users have several sim cards at the same time. As a result, the actual number of individuals using the Internet in the country is not on the decrease (Dang, personal communication, October 26, 2020).

Given the upgrade of existing telecommunications infrastructure to broadband Internet, and the co-existence of multiple technologies in the same lines, the Vietnam government plans to eliminate 2G, which only allows users to text and make phone calls. Beginning in 2022, the government will remove it to save telecom companies' maintenance costs, which will release enough bandwidth to expand 3G, 4G, and 5G, or to spread even more broadband infrastructure over Vietnam (Mai, 2019; Tuan, 2019). Because telecom companies have to pay high maintenance costs for antenna poles, which bear the heavy weight of 2G, 3G, 4G, and soon-to-be 5G, cutting out 2G—whose depreciation costs have become zero—will save business costs for telecom companies (Dang, personal communication, February 4, 2020). The elimination of 2G technology will also release “golden bandwidth” for 3G, 4G, and 5G, particularly 1,800 MHz for 4G (Tuan, 2019). The government will exempt 5G bandwidth fees for telecom companies in the first few years of 5G

diffusion in Vietnam, and partially or entirely subsidize 3G and 4G devices and subscriptions for impoverished households for some time (Dang, personal communication, February 4, 2020).

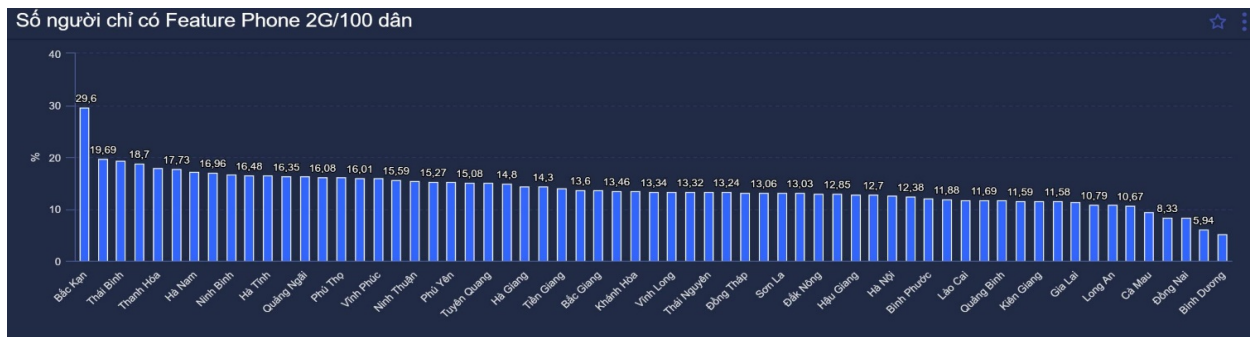
The government plans to use the VTF and to endorse domestically manufactured smartphones to support rural residents, and help low-income 2G users transition to 3G (Tuan, 2019). According to the Ministry of Information and Communication, 30 million 2G subscribers will be impacted if 2G is turned off in 2022 (Tuan, 2019). They are rural residents, low-income users, pupils who are not permitted to use smartphones at schools, and elderly people who do not know how to use smartphones (X.C., 2020). The Vietnam government is slated to cut off 2G gradually in areas where 2G users make up less than 10 percent of the local population (Dang, Personal Communication, February 4, 2020). Additionally, the Ministry of Information and Communication is establishing a support plan for impacted populations, bringing in funding from many sources, including the VTF, end-user device manufacturers, and telecom companies that subsidize subscriptions (Tuan, 2019). The Vietnamese Minister of Information and Communication pledges to disseminate smartphones, which cost 500,000 dongs (\$28 CAD) to all Vietnamese people (ICT News, 2020). The manufacturing cost of a smartphone made in Vietnam is \$65 CAD; however, an Internet services provider will subsidize \$13 CAD, and each preset app will lessen the device cost paid by users by \$1.3 CAD per smartphone (ICT News, 2020). The Vietnam government also plans to license telecommunication companies to provide a Mobile Money service that allows smartphone users to conduct monetary transactions on their phones' accounts, even if they do not have a bank account (Decision 749, 2020; ICT News, 2020). According to the Minister of Information and Communication, Mobile Money promotes e-commerce, agricultural commodity transactions; as a result, this application would help the economy grow by 0.5 percent (ICT News, 2020). Since the percent of cell phone subscribers per the entire Vietnamese population is 37 percent in 2018

(Vietnam ICT White Book, 2019), if Vietnam proves successful in converting all cell phone subscribers into 3G, 4G, and 5G users starting in 2022, the country will have remarkably increased the number of mobile broadband Internet subscribers and smartphones.

The following table demonstrates the percentage of users, in various provinces across Vietnam, who have only one 2G phone device, as of July 2020. In October 2020, Dang, a senior policymaker in the Ministry of Information and Communication, permitted me to use this internal data for academic analysis purposes in my dissertation. This table shows that 2G-only users vary from 6 percent to 30 percent of the population across different provinces in the country. Dang has indicated that those areas where 2G-only users make up less than 10 % of their local populations will be the first to be removed from 2G networks.

Table 2.

Number of people who only have 2G-feature-only phone/100 people



Note. The vertical line demonstrates the percentage of 2G-only users per 100 people across respective provinces in Vietnam. The horizontal line demonstrates the names of these provinces.

In short, the top-down broadband Internet rollout—which the central and local governments and telecom companies coordinate for the purposes of economic growth, modernization, and industrialization—excludes rural residents in both policy making and rollout process. The modernization discourse does not promote dialogue or transparency in its rollout of broadband

Internet, and yet uses public funding to build the infrastructure in rural areas. Users are denied the confidence to participate in technology design and rollout, and the broadband Internet rollout neglects users' Internet-infused empowerment and informational and human capabilities. In summarizing an overall funding model between the government and private sector in expanding and supplying broadband Internet coverage in Vietnam, I present the following diagram or Figure 3:

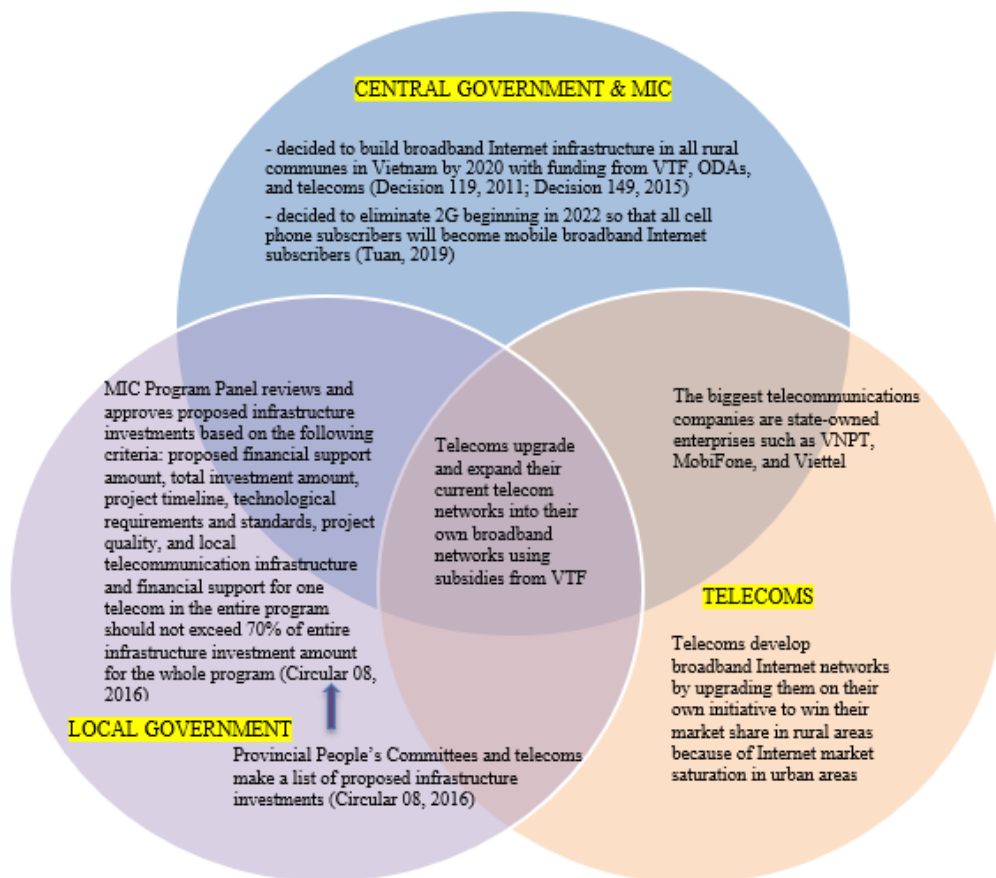


Figure 3. Interrelationships among Vietnam's central government, local governments, and telecom companies in rolling out broadband Internet in rural Vietnam.

Broadband Internet uptake, economic growth, and digital transformation targets

In addition to its main objective of developing broadband Internet infrastructure nation-wide, the Vietnamese government also set targets for uptake, economic growth, and online public service delivery in rural Vietnam. In 2011, the Vietnam government first introduced a program for developing rural communication by 2020, which included the rollout of broadband Internet in rural areas. The overall objective of the program was to develop modern and synchronous information and communication infrastructures and networks to help

- promote an economic structure shift; develop manufacturing and services
- alleviate poverty and eradicate hunger
- increase public education in rural areas
- popularize post and telecommunication services
- diffuse television, radio, books, and newspapers to narrow the rural and urban divide
- digitize all-faceted content online to enable rural residents to access and retrieve information fast and effectively,
- ensure two-way information from the centre to the base and vice versa so that rural residents can contribute their ideas, convey their wishes and desires, so as to jointly develop grassroots democracy (Decision 119, 2011).

The program aims to enable rural residents to search for information and use public administration services to support socio-economic development, to establish health, agriculture, and related content information portals. The program also seeks to train rural residents on how to use computers at post offices, commune cultural houses, community information communication centres, and libraries (Decision 119, 2011). However, these locations can pose accessibility challenges for rural residents

during the locations' opening hours, and they only provide online skills training on computers, which many rural residents do not use because they only have access to smartphones.

As established, the Vietnam government approved a program in 2016 to roll out broadband Internet infrastructure nation-wide by 2020, which also aims to connect more than 99 percent of libraries, education facilities, and health clinics and 100 percent of CPV and governmental websites and public administration services (Decision 149, 2016). A year earlier, in 2015, Vietnam's Prime Minister also approved the provisioning of public telecommunications services to rural and remote areas via a public telecommunications utility program to be implemented by 2020 (Decision 1168, 2015). This program focuses on the VTF's broadband rollout investments (Decision 1168, 2015). However, Decision 1168 does not mention broadband Internet content development and rural residents' online skills training. The only content provision belongs to digital television, which is sometimes packaged with broadband Internet subscriptions "to ensure citizens across the country, especially poor and impoverished, and social welfare households in remote and difficult areas, borders, islands to watch television programs serving political tasks, essential propaganda via terrestrial or satellite digital television" (Decision 1168, 2015, p. 6).

In short, the Vietnam government's policy on broadband Internet development in rural areas focuses on infrastructure and network rollout, while content development and rural residents' training are not included in the nation-wide program until after 2020. In 2020, the Vietnam government approved a national digital transformation program that they plan to implement by 2025 and which will last until 2030. The program's vision by 2030 is to make Vietnam a digital, stable, and prosperous country that is at the forefront of new technologies, and is in the midst of reforming government management and business activities, while promoting citizens' ways of living and working comprehensively (Decision 749, 2020). The program's targets include online public

services and national databases, electronic governance, an increase in national labour productivity, and digital economic growth (Decision 749, 2020).

The digital transformation program is implemented based on the assumption that smartphones are the main devices citizens use to participate in the digital world, and that one's mindset plays an important role in digital transformation (Decision 749, 2020). To try to change people's mindsets, some pioneering individuals and organizations will demonstrate the necessity and urgency of digital transformation in society—that citizens should, at large, follow the pioneers. To be specific, the Vietnam government will select and train at least 1,000 experts on digital transformation for the purpose of mindset change. These experts will then train their co-workers in their respective fields, who will therefore become the core group to lead the digital transformation process across the country. For example, each province will select a commune to train residents in basic digital skills, including how to use the Internet, emails, e-commerce, e-payment, e-public services, telehealth, and to ensure individual information security (Decision 749, 2020). These 1,000 experts seem to be a very modest number to start training 63.1 million rural residents (General Statistics Office, 2019c).

The priority of training and content to be transformed digitally for local development are also pre-defined by local governments. For instance, in a pilot digital transformation project, the administration of each selected commune suggests a product and service representative whose business will be partly supported digitally. The Ministry of Information and Communication cooperates with some local enterprises to digitize the transaction and production processes of the recommended product, such as dehydrated bananas or bamboo, in selected impoverished and remote villages (Anh, 2020). Though the government's motto is that citizens are centered in digital transformation that leaves no one behind (Decision 749, 2020), the top-down approach is what

decides which line of business is supported in the digital transformation process. Additionally, economic growth is the purpose of digital transformation in agriculture, which manifests how the modernization paradigm impacts development philosophy in Vietnam. Decision 749 (2020) suggests implementing an initiative that “each farmer is a businessperson; each cooperative is an enterprise that adopts digital technology” (p. 16). The objective is to train farmers how to use digital technology in growing and supplying agricultural produce using e-commerce (Decision, 749).

The broadband Internet rollout by 2020, which focuses mostly on infrastructure expansion and upgrades to rural areas, does not emphasize the importance of rural residents’ digital training to use broadband Internet as means to promote their spectrum of needs and the effectively possible beings and doings that they have reason to value. The top-down rollout approach aims to diffuse the Internet to rural areas for economic growth and business purposes; however, it ignores other usages that can lead to rural residents’ enhanced informational and human capabilities, especially given that broadband Internet is a multi-purpose technology. Rural residents face infrastructure and social inequalities in a vicious circle, which I will discuss in the next section.

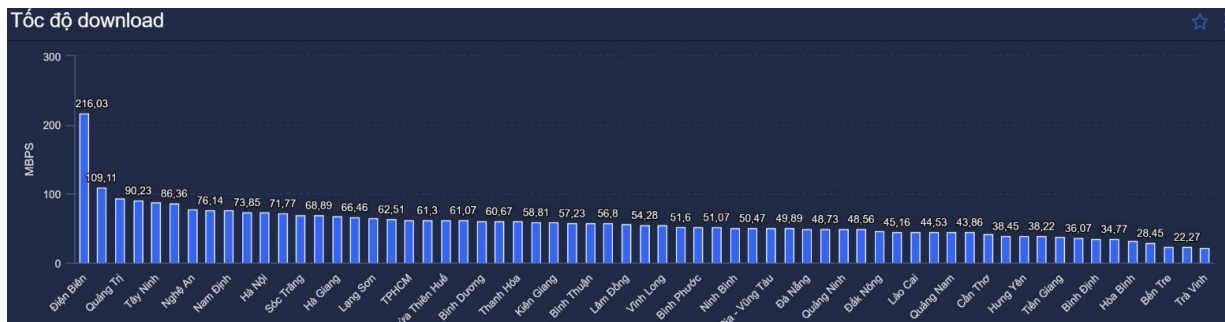
Rural and urban divide, categorical inequalities in a digital age

In addition to the network infrastructure rollout, the Vietnam government has initiated and pursued some broadband Internet and digital transformation policies that prioritize and support Internet adoption and use for modernization purposes in rural areas. However, there is a lack of official Internet use data between rural and urban areas, men and women, and among differences in age, income, and education-level. The International Telecommunication Union does not have these data in its publications. The closest estimation of Internet use discrepancy between social groups is

that more men than women use the Internet in Vietnam,²⁴ and the gender gap is wider in 2019 in the Asia and Pacific region and in developing countries than it was in 2013 (ITU, 2019). Dang, a senior government official with extensive knowledge about broadband Internet in Vietnam, said the government does not collect Internet use data among social groups and between rural and urban areas (Dang, personal communication, February 4, 2021). Dang provided the Ministry of Information and Communication's internal data of Internet download and upload speeds measured in July 2020 in provinces across Vietnam; however, the data do not reveal the divide between urban and rural areas as each province in itself has urban and rural parts.

Table 3.

Internet upload speed in Vietnamese provinces as of July 2020 (Source: Dang, personal communication, October 28, 2020)

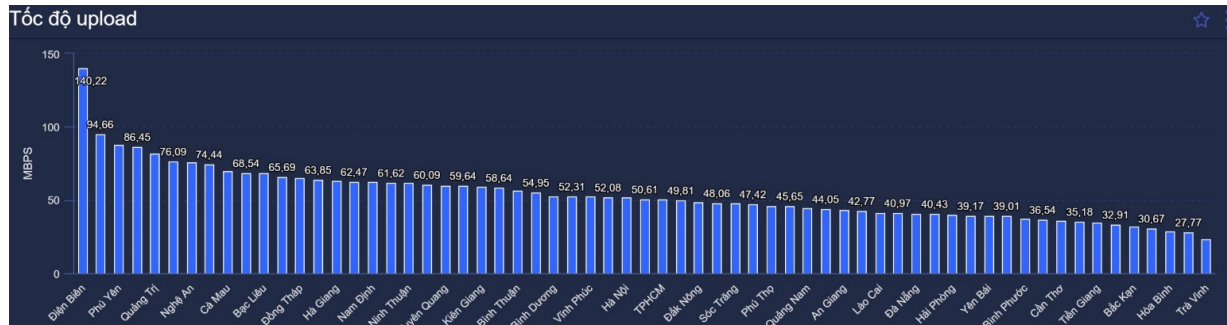


Note. The vertical line demonstrates upload speed [megabyte per second] and the horizontal line demonstrates the names of these provinces across Vietnam.

²⁴ According to ITU Statistics (2019), Vietnam's Internet users by gender data are not available; however, in an ITU report titled "Measuring digital development: Facts and figures 2019," a map shows ITU estimated that more men used the Internet than women in Vietnam. However, this map and this report did not specify how they obtained the data and what the Internet use by gender numbers are in Vietnam.

Table 4.

Internet download speed in Vietnamese provinces as of July 2020 (Source: Dang, personal communication, October 28, 2020)



Note. The vertical line demonstrates upload speed [megabyte per second] and the horizontal line demonstrates the names of these provinces across Vietnam.

These bar graphs reveal that Ha Noi and Ho Chi Minh City, the two largest cities in Vietnam, have medium upload and download Internet speeds (but it is not clear if the upload and download speeds were measured in rural and/or urban parts of these two cities), while the provinces that have the highest and lowest upload and download speeds are those that contain large rural areas. These graphs reveal that the Internet infrastructure is in place in many mountainous and remote provinces, such as Dien Bien, Ha Giang, Ca Mau, and so on, where I did not have a chance to visit and interview local residents about their Internet use. The timeframe of the Internet speed measurements was in July 2020, during the COVID-19 pandemic. At that time, Vietnam did not have a lockdown or restrict people from going to work or to school within the country, due to its effective control of the pandemic (Hai, 2020). Thus, it's safe to assume that the time of measurement did not create abnormal measurements among Internet use in the provinces and cities. Yet more details about measurement timing are unknown. For one, it is impossible to see if these

download and upload speeds are stable or changing from month to month. Or, perhaps at the time of the speed measurement, very few people were using the Internet in the provinces that posted the highest Internet speeds, and the Internet broadband network did not have enough capacity to serve rural Internet users in the lowest Internet speed provinces.

Because there is no official data on Internet use and adoption divide among social groups and between urban and rural areas, I present data on social groups and geographical divide and adopt categorical inequality concept by van Dijk (2013) to indicate Internet adoption and use divide among these groups.

The divide data between rural and urban areas are collected by the Vietnam household living standards survey (VHLSS), which is conducted annually for policy making and planning purposes (General Statistics Office, 2019b). In 2018, 46,995 households participated in the VHLSS. These households were from 3,133 different communes or wards, “which were representative at national, regional, urban, rural and provincial levels” (General Statistics Office, 2019b). The VHLSS 2019 has not been released yet, but some results of this survey are revealed by the media. The monthly income per capita in rural areas in 2019 was 3.4 million dong (\$192 CAD), which accounted for only 56 percent of the monthly income per capita in urban areas (Duc, 2020). In 2019, the poorest group, or *quintile*²⁵ 1, made an average of 988,000 dong per month per capita (or \$56 CAD), or less than 1 percent of the richest, *quintile* 5 group’s monthly income per capita in Vietnam (Duc, 2020). Almost 10 percent of the rural population, versus 1.5 percent of the urban population, falls under the

²⁵ "Income quintile" refers to the technique that “all surveyed individuals are ascending sorted by income per capita, then divided into 5 groups, each has the same number of individuals (20% of all surveyed individuals), include: Quintile 1: Lowest income per capital group (poorest); Quintile 2: Near poorest; Quintile 3: Middle; Quintile 4: Near richest; Quintile 5: Highest income per capita group (richest)” (General Statistics Office, 2019b, p. 47)

multi-dimensional poverty line (General Statistics Office, 2019b). The multi-dimensional poverty line is adjusted every year, based on the consumer price index. In 2018, those with an average income per capita equal to or less than 1,080,000 dong (\$61 CAD) per month in rural areas fall under the multi-dimensional poverty line, those with an income of equal to less than 1,400,000 dong (\$79 CAD) per month in urban areas fall under the multi-dimensional poverty line (General Statistics Office, 2019b). However, monthly income per capita in rural areas in 2019 increased almost 14 percent compared to 2018, while the increase in urban areas was only 7.1 percent (Duc, 2020). The average expenditure on education and training per schooling person in 2018 in rural areas is about 4.4 million dong (\$248 CAD), which is about 60 percent less than in urban areas during the same timeframe (General Statistics Office, 2019b). In terms of the structure of population aged 15 years old and over by highest certificate, 6.8 percent of this rural population never went to school, while the number in urban areas is only 2.2 percent (General Statistics Office, 2019b). Urban residents have much higher percentages of this population with education certificates at all levels compared to rural residents, except at the primary school level (General Statistics Office, 2019b). This can be explained by the fact that the percentage of students dropping out after finishing primary school is much higher in rural areas compared to urban areas. In terms of health care, about only 37 percent of the rural population had access to health treatment, while 41 percent of the urban population had access to health treatment in 2018 (General Statistics Office, 2019b). The percentage of the urban population with access to health treatment was also more than the percentage of the rural population who had access to health treatment in 2010, 2012, 2016 (General Statistics Office, 2019b).

In short, according to the VHLSS (2018), the divide between urban and rural areas manifests in income, education, and health care gaps. Specifically, monthly income per capita in rural areas

falls behind that of urban areas. Statistically, 10 percent of rural residents fall under Vietnam's multi-dimensional poverty line, while less than two percent of urban residents belong to this same poverty category (General Statistics Office, 2019b). Rural individuals tend to invest less in their education while urban individuals outpace rural residents in all education levels, except at the primary school level (General Statistics Office, 2019b). Since 2010, the percentage of rural residents receiving health treatments was less than that of the urban population. This was perhaps due to rural residents' longer distances to health care facilities, and their more limited income. But it could also be due to better health, as there is less pollution in rural areas.

Approaching the digital divide as *social stratification* or *categorical inequality* is an idea that derives from Marx, Weber, and Durkheim (Ragnedda & Muschert, 2013). Marx (1976) attributes social inequality to the economic aspect of class-based production and ownership. This idea is still important when reflecting on culture and communication in the age of digital media and economy, and how social inequality is reproduced in the face of dominant groups' control of digital production and ownership (Ragnedda & Muschert, 2013). Weber's (1964) social stratification approach disagrees with Marx's theory that economic ownership is itself a sufficient enough lens through which to analyze society. Rather, Weber's approach also includes status, prestige, and political party participation, in addition to what economic resources people own. These three elements of Weber's approach—namely economic class, social status, and political power—intertwine with each other, which creates, perpetuates, and reproduces social hierarchies in society. The digital divide among social groups also impacts this social stratification process (Ragnedda & Muschert, 2013). Durkheim's (2013) view of inequality is grounded on the division of labor that he observed when Europe was industrializing its traditional society in the 19th century. Ragnedda and Muschert (2013) argue that this view can be applied in the digital age. Durkheim's notions of

external inequality (which is based on the social context of one's birth) and *internal inequality* (based on an individuals' achieved status and merits) can shed light on how digital media and communication reinforce and reproduce both types of inequality (Ragnedda & Muschert, 2013).

The idea that categorical inequality and digital divide interweave and perpetuate each other is advanced in theory by van Dijk (2013). This theory of the digital divide adopts as the prime units of analysis individuals' positions, resources, and interrelationships in the society (van Dijk, 2013). Van Dijk (2013) writes: "[i]nequality is not primarily a matter of individual attributes but of categorical differences between groups of people" (p. 29) with regard to income, health, education, etc. The causal model of resources and ICT appropriation theory reveals a vicious circle of interlinks among categorical inequalities, distributed resources, ICT adoption and use, and limited participation in society. In turn, these interlinks perpetuate categorical inequalities so that this circle repeats itself (van Dijk, 2013).

Thus, according to this causal model perspective (in the absence of Internet use data among social groups and between urban and rural areas in Vietnam), the income, education level, and health care gaps between rural and urban areas will probably lead to less distributed resources in adopting and using the Internet, lower access to the Internet, and limited participation in society—all of which in turn perpetuates and reproduces these categorical inequalities.

This missing Internet use data in Vietnam highlights the importance of examining how available and affordable Internet connectivity is and how rural residents might use the Internet in ways that are grounded in their social and biographical contexts, and might be utilized for their personal, professional, local development, and empowerment.

In this section, first, a definition of broadband Internet was adopted, one which is relevant to the Vietnamese context. I then explained how Vietnam has determined to build broadband Internet

networks in rural areas thanks to CPV and the government's political will to prioritize the telecommunications infrastructure and modernize and industrialize the country.

The way in which the public utility telecommunications policy is made and implemented embodies the modernization paradigm. In this paradigm, technology is deemed a key determinant for economic growth. The prominence of the modernization paradigm—which has helped build political consensus to expand the Internet to Vietnamese people since the early 2000s—is attributed to the diffusion of mobile broadband Internet to all rural communes in Vietnam, but reveals its weaknesses in the fact that it doesn't encourage users to make comprehensive use of this multi-purpose technology.

Conclusion

In short, Vietnam's program to implement broadband Internet policy in rural areas by 2020 focuses on a massive infrastructure rollout. The VTF provides subsidies to telecom companies to extend and upgrade their own broadband Internet networks, which they operate, in non-profit making areas. Since technology is perceived to play a catalyst role in economic growth in the dominant modernization paradigm, broadband Internet is considered as a universal service to, by itself, make Vietnam a modernized and industrialized country. The top-down approach is manifested in the Internet use training gap. The government aims to train rural residents computer skills in post offices, public libraries, cultural houses, etc., which are not convenient for rural residents in terms of hours nor distance. Moreover, most rural residents tend to use smartphones to access the Internet, but these governmental and provincial programs train computer skills, and have no program for smartphone skills. As a result, rural residents don't have the means to use the Internet to enlarge their informational and human capabilities.

Beyond 2020, Vietnam's digital transformation policy aims to digitize agriculture and everyday life in rural areas. The Vietnamese governmental plans to eliminate 2G starting in 2022, which would make mobile broadband Internet the only option for mobile phone users. Impoverished rural users who can buy a made-in-Vietnam smartphone for about \$28 CAD do not have a say in what kind of apps they want, but instead, they need to live with pre-installed apps determined by the Vietnam government and companies. During this period, the government has decided that smartphones are essential devices for rural residents in a digital transformation process. Yet, from a critical perspective, smartphones contribute to a vicious circle of rural residents' low-value products and services, due to their affordances and limited capabilities compared to those of computers (Correa, Pavez, & Contreras, 2018). Thus, the prevalence of smartphone use in rural areas is likely to widen the digital divide between those who are able to use computers for high-paying jobs and those who only have access to smartphones. I include digital transformation policy beyond 2020 in this chapter to provide context for my recommendation about broadband Internet policy making and implementation; however, this digital transformation policy is not applicable before 2020 when I conducted field trips and interviewed rural residents.

The chapter that follows moves on to (1) consider the interviewees' perspectives about broadband Internet and the government's plan to roll out broadband Internet networks to rural areas; (2) to delineate weaknesses of the modernization paradigm; and to suggest technology intermediaries to operationalize the capabilities approach in the Vietnamese context. Because I conducted my interviews in 2016 and 2017, I include Vietnam's digital transformation policy from 2020 onwards only to serve a wider context of helping to understand the continuity of modernization discourse in Internet policy making in the country. However, partly drawing on Sen's (1999) capability approach, Couldry (2010) argued that ordinary people's voice—or the “effective

opportunity to have one's voice heard and taken into account" (p. vi) in terms of both a process and a value—is a capability to challenge neoliberalism's view that "market functioning triumph[s] all others" (p. 2). Thus, in the following data analysis chapters, I only compare what rural residents experienced firsthand about broadband Internet in their villages, and how they responded to Vietnam's broadband Internet policy.

Chapter 6: Internet Connectivity in the Visited Villages

The villages I visited belong to rural locations across Vietnam in Ha Noi City, Nam Dinh Province, Thanh Hoa Province, Dak Lak Province, and Can Tho City. Only a fishing village in Da Nang City administratively belongs to an urban district due to its recent relocation to make the land of its old village available for resorts (Appendix E). I have chosen these villages because each possesses distinctive features of their geography, main ways of making a living, tradition, and culture, representing various social-biographical situations of rural residents. These villages all had Internet connectivity at the time of my visits from November 2016 to January 2017. The names of the villages are not mentioned in this thesis to protect the anonymity of interviewees. I will refer to them by the name of the province or the city in which they are located: Ha Noi, Nam Dinh, Thanh Hoa, Da Nang, Dak Lak, and Can Tho. Some of these villages are only the equivalent size of two or three blocks in a North American city, and Internet users are few and easily identified.

The administrative structure of Vietnam comprises 58 provinces subdivided into urban districts “quận” and rural communes “huyện” and is centred in five expanded cities that also consist of urban districts and rural communes.²⁶ All the villages where I conducted fieldwork belong to “huyện” or rural communes in three different provinces and in three cities. The only exception was the fishing village in Da Nang situated in a “quận,” or an urban district. All communities I studied

²⁶ Both these three provinces (Nam Dinh, Thanh Hoa, and Dak Lak) and three expanded cities (Ha Noi, Da Nang, and Can Tho) report directly to the Vietnam central government (“Chinh Phu,” n.d.). The expanded cities—Ha Noi City and Can Tho City—have many villages in their rural communes (Thanh, 2018; Phuc, 2018). The size of Ha Noi City (3,358.9 km²), Da Nang City (1,284.9 km²), and Can Tho City (1,439.2 km²) is somewhat similar to the size of a small or a medium-sized province; for example, Nam Dinh Province has an area of 1,652.6 km² (Kien, 2019). Since Ha Noi City and Can Tho City have been administratively incorporating more areas, including rural communes “huyện,” they are equivalent of a region. For example, Ha Noi City is also called Ha Noi Capital Region, which will include 9 provinces by 2030 (Lam, 2016).

had not been significantly affected by urbanization, demonstrated by the fact that the majority of their residents made a living through traditional handicrafts like ceramics, fishing, farming crops, and raising animals. The economic and infrastructural fabric of these communities was typically rural, and so was the lifestyle of the people living in them.

Ha Noi

A ceramics village is situated on the bank of the Red River about 15 kilometres from the centre of Ha Noi, the only capital in Vietnam. The village had an estimated population²⁷ of about 3,132 people in 2016. In 2010, the population was 2,900 people, according to a story on the Ha Noi People's Committee's official website (H.N.P., 2010). The main modes of transportation between the village and the capital are buses, cars, and motorbikes. Free shuttles to and from various bus stops in Ha Noi are also available. They are provided by the management of a newly established residential complex about a 20-minute walk from the village in an effort to attract potential residents. On the Red River, boats are accessible for villagers, tourists, and porcelain customers for both leisure and business purposes.

²⁷ There is no official figure on population in villages in Vietnam. The population growth rate in the ceramics village is based on the average population growth rate in Vietnam from 2010 to 2017, as there is no major migration recorded in the village during this time. According to the website <https://danso.org/viet-nam/> the Vietnamese population growth rate in the period is $0.079 = (95,414,640 - 88,357,775) / 88,357,775$. Thus, the village's population in 2017 is estimated at 3,132 people ($= 0.07 * 2900$)



Note. Smartphones are essential for shop keepers in the village to conduct business online and watch movies during slow times.

Figure 4. Smartphones in the ceramics village in Hanoi.

The village was established about 1,000 years ago when King Ly Thai To moved the country's capital to Ha Noi, which attracted five families then famous for making porcelains. The village used to have a lot of white clay, an essential ingredient to make porcelain ("Vietnam Tourism," n.d.). According to the villagers, when the white clay ran out, the craftspeople started buying clay from other places and hiring seasonal workers from other villages to produce porcelain. The families in the village are keen on making ceramics and run self-owned porcelain workshops and wholesale and retail shops. The Internet has been accessible to villagers²⁸ for more than a

²⁸ There is no official data of when any particular village in Vietnam started having internet connection. Villagers and interviewees gave their estimations about the time when they started being able to access to the internet in their villages.

decade, first in the form of a dial-up connection and then later with higher speeds that began to allow simultaneous video communication (Binh, a 52-year-old female owner of a ceramics shop and workshop in the village in Hanoi). The village was chosen as an interview venue for my thesis because, administratively, it belongs to a rural area and it produces handcrafted products in a traditional way. The village is situated in a rural commune within Ha Noi City. Though some young villagers do not follow the traditional crafting profession, the village is well known for its locally made ceramics and is home to several national porcelain artists and local ceramics producers. Apart from tourist markets and main roads, the village also contains an ancient temple and a few pagodas, where villagers worship founders of the village, take pride in their profession, and honour educational achievements (“Ha Noi Television,” 2017).

Given the village’s proximity to Vietnam’s capital, ceramics villagers can access the Internet provided by any of the large Internet service providers in the country—including Viettel, VNPT, FPT, MobiFone, Hanoi Telecom—according to ceramics shop owners. However, some shop owners complain that the video tours they give to their customers in order to showcase their products are sometimes suspended due to Internet connectivity. Some villagers switch among different Internet providers for better quality access, or for deals, while others attribute the connectivity issues to the country’s submarine Internet cables.

Nam Dinh

Nam Dinh is a province in Northern Vietnam, about 200 kilometres from Ha Noi. I conducted the interviews in six villages in proximity to each other, each with an estimated

population of 400–500 in 2017.²⁹ These villages all belong to the same commune, which comprises 22 villages in all, with a total population of about 10,000 people (Inh, a 34-year-old director of a health station of the commune in Nam Dinh). It took me about three hours by cab to get from the capital to the village where my parents-in-law have returned to live for their retirement. The national highway roads leading to the province have been repaired recently. A taxi driver attributed the good road conditions to the then minister of transportation, whose home village is in the province. The highway ends inside the villages, where some two-metre wide roads accommodate cars, motorbikes, bicycles, and pedestrians, as well as buffalos and cow carts.

The main occupations for Nam Dinh villagers include farming, small trading in local markets, running local businesses, working at construction sites, and teaching at local schools. In the past decade, garment factories have been established in the villages, ranging from small-scale family businesses to large factories affiliated with nation-wide corporations. Garment workers are recruited locally for an industrial workforce. They perform their tasks in an assembly line, spend most of the daytime hours at the factories, and come home in the evenings. Some villagers work as schoolteachers and need Internet access as part of their job. They have been receiving government subsidies for their Internet subscriptions for some years. Many male villagers between 18 and 55 years old have migrated to nearby cities for seasonal construction work, leaving behind their wives, children, and elderly parents. Some women work as nannies for urban families in order to send

²⁹ The villages' administrative boundaries, and sometimes names, are changed occasionally, and there is no government statistics for villages' population. I estimated the population in the villages at the time I was there based on an estimated number of households in a living area, which coincide with an average number of people in each village according to Inh, a director of a local commune health centre in Nam Dinh. There are 22 villages in the commune whose total population is about 10,000 people, according to him.

money back home to their own children and families. Due to *hộ khẩu*—a governmental residency restriction policy to limit urban immigration, similar to hukou in China—rural children are often refused education at urban public schools even if their parents work in the cities as temporary residents (Thuong, 2020).

The Internet has been offered in the villages for at least 13 years, first in Internet cafes which offer Internet access for a fee (Hanh, a 26-years-old gamer in Nam Dinh). According to Hanh, a regular customer at all of the Internet cafés in Nam Dinh villages visited, Internet cafés at the beginning used dial-up connections for various types of customers, including government officials, teachers, students, and gamers. While many villagers now have wireless Internet at home or on their mobile devices, Internet cafés continue to offer fast-speed broadband Internet that draws pupils and customers to come to play online games.



Note. Regular customers are pupils. The café serves instant noodles, soft drinks, and water at gamers' orders.

Figure 5. An Internet gaming café in Nam Dinh.

Residents in the visited villages in Nam Dinh said they subscribe to the Internet using Viettel, VNPT, and FPT. Some teachers mentioned that their schools have had free Internet access through Viettel for several years, as this provider has tried to gain market share ahead of other providers. I observed many base transceiver stations³⁰ (BTS) in these villages, and the Internet quality was fairly good. My husband had a job interview abroad via Skype at an interviewee's house, and he experienced a good quality connection. Some villagers mentioned their Facebook Messenger video calls with their family members are sometimes not fully synchronous, but they agree that Internet subscription prices have become more affordable over the years.

Thanh Hoa

Thanh Hoa, a North Central Coast province, is about a three-hour drive from Hanoi, the capital. This is the most populated province with an average population density of 314 people per kilometre square after Ha Noi and Ho Chi Minh City ("Thanh Hoa E-Portal," n.d.). The village in Thanh Hoa province that I visited is about 170 kilometres far from Ha Noi and 3 kilometres away from an interprovincial road. The village is not seabound and has a population of about 3,300 people, according to the villagers.

According to Cung, a 30-year-old villager who frequents an Internet café in a town near his village, the villagers could have had Internet access 14 years ago via dial-up, either in private Internet cafés or with restrictions at government's offices and public libraries. However, due to high prices or distance restrictions, most rural Internet users have only been able to connect to broadband

³⁰ Base transceiver stations include antennas, transceivers, duplexers, and amplifiers, and facilitate wireless communication between a device and a network (Technopedia, n.d.)

Internet for the past three years as both subscriptions and devices have become more affordable (Thai [52-years-old governmental policy maker], personal communication, January 5, 2017). In the initial years of Internet services, connecting was expensive (Tran, 2017). Private Internet access points, such as the cafés 2 kilometres away from the village, currently charge a rate of about 3,000 VND, or 15 Canadian cents, per hour. With the same Internet subscription plan on my cell phone, it is slow to play a YouTube video, and video clips are sometimes unexpectedly suspended. The nearest observable stations are close to the interprovincial roads on the other side of a large rice field. Villagers said that Internet service providers are planning to build more base-transceiver stations in this area. Both the villages in Nam Dinh and Thanh Hoa do not belong to a list of poverty-stricken villages that qualify for Vietnam's Public-utility Telecommunication Service Fund's subsidies (Decision 868, 2018). Therefore, broadband Internet connection to these villages depends on the expansion of telecommunications' businesses, which are more active in this region than in the others. For example, public school teachers in Nam Dinh praised Viettel for providing free-of-charge Internet subscriptions at the schools for the last three years.



Figure 6. A base transceiver station across the field in a village in Thanh Hoa.

The average income per person in the province was about \$1,950 CAD per year in 2017, which is lower than the average income per capita of \$2,988 CAD nationwide (Xuan, 2017). Villagers earn a living by growing rice, corn, manioc, and vegetables. They also earn income by buying chickens from local households and selling them for a profit to restaurants in Ha Noi. Many villagers also work in local labour-intensive garment factories, which in recent years were established about 15 minutes away by motorbike from the villages. Many male farmers migrate to cities to do seasonal construction work; some clean up construction sites and work in soft drink factories. A few women join their husbands cooking for workers at construction sites. Some relatives living in Russia and Poland sponsor their families and relatives to go there to work.

Internet connectivity in the village, which is about 80 kilometres further from the capital than Nam Dinh, was not good. Shared Internet households often have to schedule their Internet use to times when others on the network are not using the Internet. Viettel and VNPT were the two available Internet providers, according to the villagers, and Viettel seemed not to offer free Internet for schools. I observed only one BTS—on the other side of a field close to the highway—for the whole village. All interviewed Internet users in the village shared their subscriptions with other households to lower the monthly costs, and some complained about slow Internet speeds.

Da Nang

Da Nang is between the two largest cities in Vietnam—approximately 800 kilometres from Ha Noi and about 900 kilometres from Ho Chi Minh City. Da Nang is well known in the tourism industry for its beautiful beaches, and is easily accessible by air, sea, and highway. The fishing village in Da Nang is the only village in my study that does not qualify as a rural area by Vietnamese administrative regulation. Because many villagers make a living by the traditional means of fishing in the ocean and trading fish, the village was chosen to examine its broadband Internet status and use by villagers. Villagers have been migrating to this newly built village for about a decade due to rapid urbanization and the need for more space from their traditional village 5 kilometres away. Villagers have had access to the Internet for at least eight years, first via dial-up at home, or by using an Internet café established at that time (Ninh [21-years-old Internet café owner's son and a window manufacturing worker in the village], personal communication, December 13, 2016). At the time of my visit, all Internet users had access to broadband Internet, which allowed them to make video calls; in other words, download and upload speeds are effective enough to transmit both image and voice.

Fishermen cross a four-lane road in front of their village to the ocean, where they either join a team to fish in all-four-season boats or hop into engine-powered small boats depending on the season or on the harvesting time of certain kinds of fish or seafood. Residents live in duplex houses or condos and pursue their traditional way of making a living: men go fishing in the ocean and women sell fish and seafood at local markets or to wholesale traders. The village has about 500 residents, according to my estimated calculation of about 120 households at the time of the visit. According to a fisherman's wife interviewee, visitors can tell which homes belong to fishermen by their outdoor altars that are used to worship ancestors and provide safety and peace for their families. Several women knit fishing nets or peel shrimp shells to sell at markets inside the city.

Villagers complain about Internet quality and high prices, and it appears that urban connection loopholes still exist. For example, it costs as much as \$15 CAD for a monthly Internet subscription that links their televisions, computers, smartphones to the global network. The villagers said they had little choice among Internet service providers as only FPT and VNPT provided Internet in their village. Several villagers remarked that after the first few months of their subscription, Internet speed became slow. They then planned to change Internet service providers but discovered they have few choices. Fishermen sometimes gather in coffee shops where they can have free Wi-Fi on their smartphones—which, for some of them, is their sole method of connection. A cup of coffee costs about 4,000 VND (25 Canadian cents) and they can stay at a shop with free Wi-Fi as long as they want. If someone chooses to bring their 3G-subscribed phones during a fishing trip, despite the risk of losing it or dropping it into the ocean, they have access to the Internet within 7 nautical miles (about 13 kilometres) away from the shore (Quan, a 44-years-old fisherman and owner of a fishing ship in Da Nang).



Note. All boats belong to fishermen in the village in Da Nang. Their village is across a four-lane road from this beach.

Figure 7. Fishermen's boats in Da Nang.

Dak Lak

Buon Ma Thuot city, Dak Lak province, is about 350 kilometres from Ho Chi Minh city and about 1,400 kilometres from Ha Noi, the capital. Buon Ma Thuot can be accessible via air and highways, and it takes about 15 minutes to arrive at the village I visited by motorbike from the city centre. The village belongs to a rural commune in the suburb of Buon Ma Thuot city (Dinh, 2018) and has 1,437 people, of which 1,258 people are ethnic minorities (Central Highlands News, 2015). The unique feature of Dak Lak village is that Ede ethnicity, an ethnic minority, lives there while the villages in other provinces comprise *Kinh*, the Vietnamese ethnic majority that accounts for about 90 percent of the national population and speaks the national language.

Ede people practice a matriarchal system in which men live in their wives' houses after marriage, and women's voices are decisive in family and community matters. The ethnicity has its own spoken language but no written language. Children who are sent to public schools to study

Kinh have to pass exams in the official language. Living together with extended families of up to three generations is a popular way of living for Ede people. They raise chickens, cows, pigs, and buffaloes and plant vegetables in the same area where houses are situated. Some families whose wooden houses are built traditionally devote the ground floor underneath their houses for domesticated animals (Figure 8). *Kinh* people have lived together with local ethnic minorities, including Ede in the province for many years as a result of both spontaneous migrations as well as a governmentally planned rehabilitation policy to mobilize more than a million of people' moving from deltas to far-flung mountainous areas from the 1960s to the 1990s.



Note. On the right is a traditional Ede house where people live above the wooden floor and animals live beneath. On the left is a modern type of house the same as that of the *Kinh* people.

Figure 8. Houses in an Ede village in Dak Lak.

On their designated farms, which are usually a few kilometres from their homes, the villagers grow coffee, pepper, and cashews for national consumption and international export. Vietnam is the largest robusta coffee producer in the world, and Dak Lak province is the country's largest coffee grower (Ionova & Nguyen, 2017). Villagers are also known for raising deer (Central

Highland News, 2015). Some villagers work for the provincial and local governments, while others make skilled trades such as carpentry and hairdressing. The villagers gained Internet access in the village around 2013 with broadband connectivity. Though BTSs are available in many ethnic minority villages in Dak Lak, households can seldom afford computers and devices to connect to the Internet (Ba, 2010; Luong, 2018).

Villagers said FPT and Viettel provided Internet services in the village. Those who subscribed to fixed-land Internet services said Internet speed, in general, met their needs of making video calls to their family, friends, and business contacts and watching movies and soccer games online. However, due to relatively high subscription prices compared to villagers' monthly income, some users only paid for the Internet when they had money, and thus did not use the Internet all the time.

Can Tho

Can Tho City is the gateway of Mekong delta, surrounded by rivers and canals that provide nutritional alluvial to grow fruits and crops for nationwide consumption and export. Can Tho is about 1,800 kilometres from Ha Noi. It is easily accessed by air, sea, river, and national highways. I chose the city's suburban area, which is classified as rural, to interview residents living there. The city borders with An Giang, Dong Thap, Vinh Long, Kien Giang, and Hau Giang provinces. Some of my interviewees live only a block away from Can Tho and yet are identified as residents of bordering rural provinces. The borders between these provinces to me as an interviewer are only for administrative purposes. For instance, a resident showed me how to get to households with Internet connections at the other end of a village, and when we arrived, I looked at the street signs to discover that we were in another province. The village, where most of the interviewees are from, has an estimated population of 1,300 people, according to the villagers. It takes about 20 minutes by

motorbike to go from Ninh Kieu, the centre of Can Tho City, to the village. Boats and canoes are also popular modes of transportation in the area. People sell and buy their commodities on floating markets on rivers, as travelling by water is the main mode of transportation in Me Kong delta. Villagers make a living by gardening—growing durians, star apple fruits, pitayas, cacao, etc.—working in offices, doing labour work, driving boats for tourists, and working in the tourism industry.



Figure 9. A floating market in Can Tho.

Villagers started to gain Internet access in 2002. Rung, who used to be a jet fighter maintenance engineer in the South Vietnam Air Force, is reported to have been the first Internet user in the village. A friend of his gave him a computer before moving away, and Rung used a dial-up modem to connect to the Internet from his house where ten generations of his family have lived. His urge to obtain outside news and to explore the Internet for his curiosity justified the expensive subscription. All Internet users in the villages are connecting to broadband Internet at the time of my visit. Rung now provides 24/7 free Wi-Fi for his daytime and homestay visitors, who pay for

entrance and accommodation to visit his family's cacao garden to see how he makes handmade chocolate, and experience the Mekong Delta lifestyle with a host family.

Villagers in Can Tho mentioned that Viettel and VNPT provided Internet services in their villages. Due to the area's geography being inundated by water, it is challenging to set up BTSs in these villages. A noodle shop owner on a floating market, who provides complementary Wi-Fi Internet to customers, complained about the quality of Internet coverage. However, complementary Internet in a pagoda on land seemed reliable, providing dozens of people access to Wi-Fi at the same time. Three interviewees said they used this location for their university assignments and to watch movies. Some villagers also complained about high Internet prices in comparison to their incomes and services they received.

Rural Residents' Perceptions of Vietnam's Broadband Internet

After presenting the villages and their Internet connectivity in the six provinces and cities visited, I discuss the rural residents' perceptions and awareness of broadband Internet and the Vietnam's government's rollout plan. The aim of this section is to answer the following questions:

1. How do rural residents understand broadband Internet, drawing on government promotion on the one hand and their own experience on the other?
2. Are there ways in which policy-making can become more inclusive of the input of rural communities?

Broadband Internet and Vietnamese government's broadband Internet rollout plan

Broadband Internet is translated literally as Internet *băng rộng*, an exotic and technically loaded word in Vietnamese that is not familiar to the average person. Moreover, the Vietnamese government does not make sufficient effort in explaining and promoting broadband Internet and its rollout plan. As a result, none of the rural interviewees were aware of the plan.

Most of the 79 rural residents do not understand what this word means and are not aware of the Vietnamese government's plan to roll out broadband Internet to rural areas. I had four questions for the interviewees in semi-structured interviews:

1. Have you heard about the current 7,000 billion dong government plan to develop broadband Internet for all rural communities?
2. What do you know about broadband Internet?
3. Are you aware of the debate about broadband Internet technologies in rural areas? If yes, can you name some of the technologies and their pros and cons?
4. What do you recommend for making Internet technology respond better to your needs?

Since hardly any of my interviewees knew what broadband Internet meant, I often skipped question 3, but I asked question 4 to most of the interviewees. (As an aside, I did not have a chance to ask all of my broadband Internet questions to about nine people who had to rush away during the interview. A few jumped into their boats and took tourists on already planned trips. After all, this is how they earned their living.)

The Vietnamese government takes superficial steps to post information concerning the broadband Internet rollout plan on its website, which, incidentally, hardly any rural residents visit. All the interviewees said they did not know anything about that plan. A government officer in charge of promoting Internet applications and their use among the population blamed the Vietnamese farmers for not paying attention to and not participating in discussions on any topics but entertainment (Thai, Personal Communication, January 5, 2017). Ta and Tu, fruit growers in Can Tho (ages 26 and 31, respectively), say, “[We] see that Internet Wi-Fi stations are being built here [a village in Can Tho] but do not have any ideas [about the station].” However, Thai acknowledges that the government does not advertise its websites to the public.

Surprisingly, most of the interviewees said they simply do not know about it, without giving concrete reasons. Some people attribute their lack of knowledge to their life circumstances. For example, Ha, a 39-year-old jail officer in Can Tho, said, “It [the plan] may be disseminated at the provincial level first, at the district level second, and at the reporting agencies third. I am in training in Can Tho [a different province from his workplace], so I do not know.” Xoa, a 49-year-old chicken trader in Thanh Hoa province, thought she was dumb for not knowing about the plan. In a focus group in Da Nang, Tuon, a 35-year-old fish trader and fisherman's wife, uttered the proverb, “stupid people, black butts,” as the reason why lay people are considered unworthy of being told about the governmental plan. In Tuon’s words, “It is the government that manages a plan worth thousands of billion dongs, but lay people are stupid people, black butts. We pay for everything from small to big. We spend much if we earn much, and we spend little if we earn little. I haven’t heard of anything free of charge.” Khang, a 76-year-old recently retired commune officer with extensive knowledge about development projects in rural areas, put it bluntly, “Why do they [the government] need to ask [rural residents for its rural broadband Internet plan]?” In short, while the government has some technical standards about broadband Internet and funds telecom companies to roll out the technology to rural areas (which is discussed in Chapter 5), none of the rural residents were aware of such standards. Some of the interviewees internalized the modernization paradigm’s top-down approach in their mindset. In the examples above, Ha and Xoa did not complain about the top-down broadband Internet rollout approach but blame themselves for not being attentive or intelligent enough to know and understand about the plan. That is why they considered their own ignorance about the Vietnamese government’s broadband Internet rollout plan to be the natural state of affairs.

Most of the interviewed rural residents say they do not know, do not hear, and do not have

an opportunity to learn about “broadband Internet,” which seems to be alien to their everyday life. The exotic term “broadband” is translated literally into Vietnamese as *băng [thông] rộng*, an expression that does not convey concrete meaning to many people. Because the word “Internet” is not translated into Vietnamese, when asked about *Internet băng [thông] rộng*, many rural residents think “broadband Internet” is about Internet features such as applications and websites and 24/7 availability, compared to real-time television broadcasting and digital terrestrial television. Some confuse broadband Internet with the terms Wi-Fi, 3G, and 4G—standard terms in telecommunication companies’ advertisements targeting rural residents. Sa, a 57-year-old Internet café owner, made efforts to learn about the term, but he did not understand what it was. He seemed to associate it with incomprehensible websites. He said, “I read them [broadband Internet topics]. I do not understand. When I open [many websites] to read them, I do not understand. When I open some websites about provinces’ [local] updates and rural issues, I understand. I do not know what many websites are talking about.” I argue that the language used in the documents posted on government sites is a manifestation and continuation of the top-down approach, adopting an exotic expression to modern technology without adapting it to the local vocabulary and making any effort to help the public understand.

A few rural residents have their own understanding of broadband Internet, which derives from their needs, encounters, and desires about the Internet, which are embedded in their socio-biographical contexts. When they explained their own understanding of broadband Internet, my interviewees emphasized connectivity to the world, individual expression, and inclusiveness of Internet use. Ga, a 22-year-old male temporary security agent under the Ministry of Defense in Can Tho, thought broadband Internet meant Wi-Fi for everyone, and he understood the governmental plan was to connect part of a city to a Wi-Fi network. Rung, a 61-year-old male cacao grower and

homestay owner in the same province, also understood it as “Wi-Fi for many people to use, [people] have³¹ 3G, now 4G.” Inh, a 32-year-old health station midwife in Dak Lak, attributed broadband Internet to “[Internet that is] broadened to all people.” Khanh, a 32-year-old vice chairwoman of a commune people’s committee in Dak Lak, said, “I haven’t heard about this concept particularly. I feel this is a big Internet network covering all on the earth and accessible to rural, far-flung areas.” While Hanh, a 26-year-old carpenter in Nam Dinh, who was playing online games at an Internet café during the interview, said Internet speed is essential for Internet broadband. When asked about broadband, the head of a commune health station in the province said it brings the possibility of raising issues on the Internet and creating new interactions among people:

Broadband Internet is a website for us to communicate information to many people and for many people to communicate information to us. Transmission and speed are not important, the core is what the website receives and how we process the information...Broadband means if we want to impart a message for many people to gradually understand it, we need to exchange information reciprocally...The most important is that if I want to ask you a question, you need to answer it. Electricity and infrastructure are only hardware to work on.

(In, a 34-year-old, the head of the commune health station in Nam Dinh)

In’s comments illustrated his own understanding of broadband Internet as a means for regular or lower-hierarchy people to ask questions and obtain answers from authorities rather than as a digital infrastructure.

³¹ Though Rung speaks English and trained in the U.S. during the American war as an aircraft maintenance technician, he confused and thought 3G/4G are variations of Wi-Fi. These are two separate wireless technologies.

Many users are more familiar with telecommunication companies' marketing on the Internet rather than the government's broadband Internet promotion. Oa, a 37-year-old male tourist boat driver in Can Tho, asked which company broadband Internet belonged to, saying he did not know what broadband Internet was.

In summary, my rural interviewees were not aware of the broadband Internet plan that the government promoted and implemented, and most of them did not think they knew the term "broadband Internet" when asked. The meaning of the expression "broadband Internet," for them, derived from their desires and wants about an Internet technology that should respond to their needs and imagination.

Although some individuals have their own understanding of what broadband Internet means, most of their answers echo inherent values and principles of the Internet regardless of the numerous applications and technologies that have appeared and disappeared in recent years. These invariants of the Internet blend both infrastructure with the services that the Internet brings to humankind, according to the Internet Society, a non-government organization whose definition of the Internet is "the Internet is for everyone" (Internet Society, n. d., para. 2). In the society's words, these Vietnamese rural residents' versions of understanding fall under principles such as "global reach," or connectivity to everywhere in the world, and "general purpose," or the inclusiveness of the Internet, which enable individuals to speak up and communicate reciprocally online (Internet Society, 2019, p. 14).

In addition, modernization as a discourse (Melkote & Steeves, 2015) may help explain why some rural residents do not have faith in themselves and do not feel they have a legitimate right to have a say in shaping a high-tech rollout plan. This aligns with the views of modernization theorists who call for a change in farmers' traditional values and way of life as a condition for a developing

country to modernize (Rogers & Svenning, 1969). As a result of this modernization discourse—which emphasizes the importance of a modern outlook as compared to a so-called “outdated” outlook—many rural residents internalize their inferiority and perceived incompetence. Wang (2016) finds that the reason Chinese villagers migrate to urbanized locations in China to look for work is not primarily economic but due to their desire to experience modernity, something lacking in their villages. In their social media posts, many of these migrant workers construct a modern identity as a way to escape their mundane life, manual worker hardships, and discrimination by the urban population in big cities (Wang, 2016).

A similar desire for a “modern” lifestyle was discernible in the comments of some of my interviewees. Several Vietnamese interviewees told me that acquiring smartphones with Internet access was a way to catch up to their peers and to learn about the world. This was their way to experience the winds of modernity. The Vietnamese government has also been telling rural people to enter the modern world and learn about modern technologies, including broadband Internet, but to preserve their traditions at the same time (Decision 119, 2011). Some rural people experience anxiety and bewilderment on how to learn and use new technologies; they hardly ever question the accountability of the government and telecom companies in providing the technologies relevant to their needs. More important for them is getting a smartphone and connecting to the Internet than questioning the government’s policy that makes this possible. Modernization discourse ascribes rural residents the role of passive recipients of the government’s handout; they are not expected to question or have any input in the broadband Internet rollout plan.

The perception of farmers’ cultural inferiority, which has roots in Confucianism (Whyte, 2010), has been magnified by the modernization paradigm. Both urban and some rural people view the village as “the locus of backwardness and conservatism” (Nguyen, 2014, p. 19). If someone has

an unrefined look, they are called “rural” (Nguyen, 2014). The modernization discourse includes rural catch-up in technological adoption and use in their community (“Economy Reporters,” 2020). Although belief and myth lead many villagers to feel ambivalent about broadband Internet, some interviewed Internet users chose to catch up and be modernized by the technology.

Critical constructivism unveils the biases embedded in a technology that reinforces and reproduces mainstream rationality in favour of powerful groups in a society. “Substantive bias designates some members of society as inferior for all sorts of specious reasons such as lack of intelligence, self-discipline, ‘blood’ or breeding, accent and dress, and so on” (Feenberg, 2010, p.163). In Vietnam, the majority of rural broadband network users are farmers who are very likely to be considered subordinate to an elite class, either making the broadband policy or building the network. The modernization discourse, which accompanies the introduction of broadband Internet technology, enforces its bias against rural residents. On the one hand, the bias lies in making rural residents feel they need to look up to urban people and to the outside world, and thus adopt modern and advanced values and technology. In response, the residents do not feel they are in a position to point out if broadband Internet does not work for them. Instead, they are inclined to change themselves to learn and adopt the technology. On the other hand, the bias makes them feel incompetent and stupid, thus convincing them that they are not allowed to have a say in how the technology is implemented. By detecting the bias embedded in the technological status-quo in favour of the government’s and corporate interests, critical constructivism puts faith in grassroots people’s agency and values in appropriating broadband Internet.

Rural residents’ voices in shaping broadband Internet policy in Vietnam

Since hardly any rural residents are aware of the Vietnamese government’s broadband Internet policy, the interviewees neither contributed their ideas nor submitted their

recommendations about the broadband Internet policy. From a managerial perspective, the government and telecommunication companies make this policy without incorporating rural residents' take on the policy (Thai, Personal Communication, January 5, 2017). This top-down broadband Internet policy-making approach results in some repercussions:

- rural residents' lack of awareness of broadband Internet technical standards
- their inability to monitor broadband Internet rollout funded by the government to remote and rural areas, which leaves room for business corruption and non-transparency culture
- the Vietnamese government's shortcomings in promoting digital programs to enlarge rural residents' informational and human capabilities in the face of the multi-purpose broadband Internet technology

Though the Vietnamese government has announced its success in connecting all rural communes via mobile broadband Internet in 2019, some problems specific to the Vietnamese context exist. I delineate these issues of broadband Internet rollout due to the top-down modernization paradigm in this section.

Since rural residents are not aware of various types of broadband technologies and their minimum speed requirements set by the government, they are unable to monitor whether the ISPs are providing broadband Internet in their communities. Most of the interviewees who have access to the Internet via their smartphones do not have experience using computers. They use their smartphones to conduct conference calls and watch online television programs and YouTube. Many complain of service interruptions while sending a photo attachment, or of not being able to conduct conference calls due to low speed or intermittent Internet connectivity. For example, Circular 34 (2014) stipulates that fibre optic broadband Internet should have the same upload and download

speed and a maximum time of no more than 60 seconds to get access to a website for all fixed land broadband Internet services. Decision 149 (2016) regulates minimum broadband Internet speeds for public libraries, schools, and households. However, the minimum stipulated Internet speeds are only applied to a certain percentage of these organizations and populations (Decision 149, 2016). For this reason, without aggregate reports from rural residents, the government does not have reliable, accurate, and valid data for broadband Internet speeds and other requirements, which are mandated in Decision 149. That is, without rural people being able to monitor and control the quality of Internet provision in their communities, the government has probably no way to verify that its funding to telecommunication businesses is being properly utilized.

While as much as 7.3 trillion Vietnamese dong (\$420 million CAD) will be provided by the Vietnam Public-utility Telecommunication Service Fund (VTF) for the fixed land broadband Internet infrastructure roll-out to rural areas (Decision 868, 2018), the lack of awareness and monitoring capacity by the public utility program beneficiaries likely fosters telecommunication companies' unaccountability. The VTF is mandated to collect 0.7 percent of revenues from certain services by telecommunication companies, which own telecommunication infrastructure, to help fund public utility activities (Decision 686, 2018). According to Decision 1168 (2015), part of the funding will be used to ensure that 99 percent of the communes get connected to broadband Internet by 2020. However, residents in areas eligible for broadband Internet subsidies may be provided inferior connectivity by telecom companies, given that they have no knowledge of the quality standards and prices stipulated by government programs.

The top-down approach has worked in developing cell phone networks by telecom companies, based on the principle of market competitiveness. The Vietnamese government has succeeded in its cell phone diffusion policy by providing nationwide network coverage and

affordable subscriptions to populations from all walks of life. According to an internal document by the Ministry of Communication and Information, in 2003, mobile networks were only available in cities and towns, and there was no signal in remote areas, (Dang [a 47-years-old broadband policy maker at the ministry], personal communication, February 13, 2019). Similarly, only nine out of every 100 people had a mobile phone connection, according to the same internal document. However, in 2016, for every 100 people, 132 people were mobile phone subscribers, i.e., the average person subscribes to 1.32 cell phone plans (Vietnam ICT White Book, 2019). It was not uncommon to see low-income street vendors and farmers in villages using cell phones during my field trip in 2016 - 2017.

In the absence of public awareness and scrutiny, Vietnam's governmental funding mechanism and telecommunication companies' business models pose some problems for broadband service in rural areas. Though broadband Internet subscriptions increase every year, the broadband network density is far less in rural areas compared to urban areas (Tran, 2011). The question as to whether the broadband infrastructure is built and used in accordance with the broadband Internet development plan is hard to answer. In the past, in an effort to universalize telephone services in rural areas, Viettel gave millions of free telephones to rural residents as part of a top-down administrative measure led by the government; however, many people did not use them at all, and some even threw them away (Thanh, 2014). Broadband Internet dissemination as a public utility faces similar problems. First, VTF, which collects mandatory contributions from telecom companies, funds the companies to build broadband infrastructure in the underprivileged areas identified in MIC's lists. The funding process includes a selection of biddings among the businesses; however, in order to protect confidential information in the biddings, the biddings are not available for the rural residents and the public to view (Thai, personal communication, 2017

January 5). For this reason, the residents do not know if the businesses would deliver broadband Internet services in their areas in accordance with their biddings' commitments. Second, like universal service programs in Vietnam, the public utility telecommunication service policy is made through the government's administrative measures, without consulting local organizations and residents (Do, Falch, & Williams, 2018; Do & Falch, 2018). The government decides which regions need subsidies, and in turn, subsidizes both telecommunication companies and financially fragile communities to obtain standard telephone and Internet coverage. The government focuses on infrastructure rollout in the remote areas without introducing programs to train rural residents on how to use the Internet, or allowing the cooperation of civil society to better provide this universal service (Do, Falch, & Williams, 2018; Do & Falch, 2018).

Both the capabilities approach and critical constructivism question the notion that economic growth is the ultimate goal of a society and instead value the voices and contributions of the regular population with respect to social, personal, and technological developments. Sen's capabilities approach (1999), Kleine's choice framework (2013), and Gigler's informational capabilities (2011, 2015) serve as theoretical lenses to conceptualize an Internet policy that aims at human capabilities and well-being rather than sheer economic growth. Such a policy integrating these approaches would put users and their choices at the centre of broadband Internet rollout.

More Inclusive Policy Making for Rural Residents

The literature on enhancing human capabilities with ICT use, which is informed by the capabilities approach (Gow, 2018), can shed light on policy recommendations. Thus, the Vietnamese government can use these policy recommendations for a broadband Internet user-driven approach, to ensure not only that Internet connectivity is available everywhere at the community level, but also that rural users know how to use the technology meaningfully and effectively.

Given how ICT can effectively enlarge peoples' freedom to live the lives of their choice, an intermediary organization emerges as a solution to move to a higher level of effectiveness in an ICT-use impact chain. Gigler (2011) argues that ICT access does not enhance users' capability automatically and that ICTs improve peoples' lives when "informational capabilities" (p. 2) enhance people's capabilities in all facets of their lives. Informational capabilities include people's capabilities to "find, process, evaluate, and use information," to use ICTs as they want, to communicate effectively, and to generate and share content among their network (Gigler, 2011, pp. 7-8). Discussing marginalized ICT users, Heeks, Amalia, Kintu, and Shah (2013) point out that these peripheral users are excluded in the technology innovation process. Heeks et al. (2014) delineate a ladder of inclusive innovation with six levels of inclusiveness for the excluded population. According to the ladder, ICT connectivity and general use are in the lowest two levels of inclusiveness for marginalized users. Simplifying "achieved functioning" as a proxy for capability, Kleine (2013) argues that degrees of empowerment infused by ICT depend on both structure and agency elements in the choice framework. Though Heeks et al. (2013) and Kleine (2013) use different terms to conceptualize degrees of ICT use enhancement of human capabilities, they agree that users maximally achieve the desired outcome through technology use when institutional and organizational structure supports and includes peripheral users in their technology use and innovation. Considering the gap between ICT use and human capabilities, Gigler (2011, 2015) argues that an intermediary organization plays an important role in enabling ICT users to achieve their desired outcomes to live their worthwhile lives.

Though the government of Vietnam has successfully led a broadband Internet connectivity program to all rural communities with relatively affordable prices, broadband Internet-enhanced human capabilities are not automatically achieved by low connectivity cost. According to Gigler

(2011, 2015) and Gow (2018), intermediaries play a critical role in developing human agency and transforming ICT accessibility for enhanced ICT use, local content, information seeking, interpreting and using skills, communication capabilities, human capabilities at the individual level, and social capabilities at the collective level. The scholars argue that ICT programs need to focus on human development instead of ICT diffusion *per se*. Gow (2018) identifies technology stewards as rural development and agricultural professionals who are both knowledgeable about technology and accessible. The Department of Export Agriculture in Sri Lanka nominates Extension Officers to be technology stewards who use text messages to

1. Make the community aware of the existence of choice,
2. Help the community to develop a clear sense of choice,
3. Facilitate and support the effective use of choice, and
4. Recognize and sustain the achievement of choice (Gow, 2018, p. 48).

These four degrees of empowerment, which derive from Kleine's Choice Framework (Kleine, 2013), are instrumental for Internet users to acquire "achieved functioning" (Appendix A). The first three terms are self-explanatory, while "achievement of choice" refers to a collective level of technology use that is synthesized and encouraged by institutional enablers and fellow users (Kleine, 2013).

Gow (2018) has identified affordable ICT technology, such as text messaging for both technology stewards and users, and has developed training materials on technology stewardships, and implemented technology steward projects in Sri Lanka and Caribbean communities. Projects like these provide food for thought concerning the possibility of creating an intermediary organization in rural Vietnam in the face of broadband Internet diffusion. Currently, most of the informal Internet trainers are members of rural users' existing social networks. These trainers, who

know how to use the Internet and are novice users' friends, fellow villagers, family members, and so on, have helped villagers set up Facebook profiles, given crash courses about devices, and coached them on how to search for information and websites using search engines such as Google and CocCoc (a popular Vietnamese search engine). They represent "warm experts" (Bakardjieva, 2005)—people who are relatively more advanced users of the technology in question—and at the same time, they understand the needs of new users. In addition, some mobile-device sellers and Internet services providers, which emerged as part of the broadband Internet diffusion in rural areas, offer free-of-charge hands-on training services for customers. If new users have technical problems and how-to questions, they can call the companies and get support. None of the interviewees cited institutional initiatives that have helped them out with Internet use except an architecture sophomore who had free Internet access at a commune library in Can Tho (partly funded by the Bill & Melinda Gates Foundation). However, his friends trained him how to use the Internet, and not the commune library. Perhaps the staff at the local farmers' association, the women's union, or other organizations who are accessible and digitally skilful can provide technical support that responds to rural users' specific needs in their local areas.

An intermediary organization should focus on improving informational capabilities for rural users, which cover their content, specific farming and fishing, and other needs. Most rural residents learned how to use the Internet and its devices from their informal channels. An example of training local residents to use broadband Internet is in the case of the above-mentioned sophomore. This 18-year-old male student was the first in his family to go to a university. He cited difficulties when teaching himself how to use an Internet browser to register for a user account to participate in IOE and Violympic (standardized English and math tests, respectively). Fortunately, some friends, who were avid online gamers, helped him out in the registration process and gave him a crash course on

how to use a computer. Another example is a vice-principal of an elementary school, who said he spent one day travelling to a friend in another province to learn how to make PowerPoint slides and upload them online for teaching purposes. Some elders and parents were taught and continuously coached by their grandchildren and children to use notebooks, smartphones, and computers. A pioneering self-learner who speaks English attributed his curiosity about learning how to use a PC to a computer given to him by an expatriate friend in the early 2000s. When asked ten years later if he could refer, for the purpose of my interview, a neighbour or a local friend who is using broadband Internet, the pioneer learner was not able to do so. He explained that hardly anyone could afford and learn how to use the Internet by themselves in his local area. The Bill and Melinda Gates Foundation funded a project to train rural residents to use PCs and access the Internet at public libraries³² (Bill & Melinda Gates Foundation, 2011). However, it is not straightforward to transfer personal computer skills to the use of supposedly intuitive and user-friendly mobile devices. Em, a 55-year-old Internet gaming café owner in Nam Dinh who has 30 PCs in his café and fixes simple PC problems for his customers, thought that using touch screens on mobile devices is difficult and he has not tried to use these devices before. Thus, training particularly on how to effectively use broadband Internet on smartphones—the most popular devices for accessing the Internet by rural interviewees—and also on tablets, and laptops, is currently missing in the country.

³² I reached out to the Bill & Melinda Gates Foundation in 2017 to ask about the current status of the computer and Internet access and training program that the foundation cooperated with Ministry of Information and Communication from 2008 to 2016. The foundation answered that they didn't have staff and resources to answer my questions in June 2017. Only one interviewee mentioned his access to the Internet as part of the program in a public library but attributed his acquired Internet use training to one of his classmates.

The variety of individual values and human capabilities poses a challenge to the design and implementation of a technology intermediary project that can help people increase their capabilities and also create enabling social and economic conditions. For example, entertainment, ranging from Facebook and news consumption to gaming, is the most popular use mentioned by interviewed rural residents in Vietnam. Some government officials criticize farmers for using the Internet for entertainment purposes, or school children for playing games (Thai, personal communication, January 5, 2017). The government urges farmers to adopt broadband Internet to modernize their daily practices and acquire advanced science and technology knowledge (ICT News, 2017). Some parents complain that their children play games so much that they do not have enough time to study, or fail to go to work. However, online entertainment programs and movies have brought new knowledge and perspectives into the lives of many. One of my interviewees, a divorced woman, said she watches nothing but Disney movies in Vietnamese, which helps her overcome her personal mishaps and cope with social stigma in the village because of her marital status. A mother who lost her son to an accident enthusiastically told me about comedies and trivia contests she watched on the Internet. Those online entertainment programs are what she shares with her friends in their daily morning exercise walks in the neighbourhood. Thus, the conversion stage of broadband Internet into their everyday life occurs (Silverstone, Hirsch, & Morley, 1992) while the rural users appropriate the technology. One of the capabilities listed by Nussbaum (2007) is “being able to laugh, play, to enjoy recreational activities” (p. 77). Thus, in Hesmondhalgh’s words (2017), some forms and content of online entertainment can enhance people’s “emotional, imaginative and cognitive capabilities” (p. 214). Technology stewardship ideas by Gow (2018), which emphasize the facilitation and leadership role of stewards in training technology users and responding to their

needs in local contexts, can enlarge rural residents' capabilities in the face of broadband Internet rollout in their communities.

Conclusion

When analyzing the Vietnamese government's report that it accomplished broadband Internet connectivity to all rural communes by 2019, it appears that the top-down approach to rolling out the Internet network was partially successful. However, the modernization banner, crucial for persuading the country's leadership to open the Internet to the general population, also reveals the shortcomings of the policy's top-down approach. This top-down approach needs to be adjusted, given the evolving context of the rollout of broadband Internet and the government's commitment to integrating Vietnam into the international community. By the end of 2016, more than half the Vietnamese population (54.2%) were Internet users (Vietnam ICT White Book, 2017). This meant that these individual users have their own particular needs for this multi-purpose technology, which the government's one-size-fits-all rollout approach does not meet.

In addition, the Internet has been entrenched deeply in the country and Vietnam has been complying with its international commitments to partially open the telecommunications industry to foreign companies (Do, Falch, & Williams, 2018). Moreover, Internet use and access do not translate to increased informational, human, and social capabilities (Gigler, 2011, 2015). Hence, the philosophy driving the government's Internet development should continue to change to meet rural residents' needs in the face of a multi-purpose technology. Because rural residents are excluded from having a say in how broadband Internet has been implemented, in many cases, the government's programs for rural connectivity do not address many rural needs. These needs should be in the realm of government regulation, e.g., credible health care information. All in all, the objectives of broadband Internet-induced economic growth have suppressed the freedom that users

should have in shaping the choices of the technology they want and in actualizing what Miller and Slater (2000) call the “expansive realization”³³ (p. 10) that broadband Internet enables. This chapter suggests using intermediary organizations to help make broadband Internet inclusive of rural residents’ inputs and to enlarge rural users’ capabilities and empowerment. The following chapter will look closely at what actually happens on the ground when broadband internet connectivity enters the lives of rural residents. It will focus on the applications that villagers themselves find for the new technology in their everyday lives.

³³ By this concept, Slater and Miller (2002) mean that people make projections and envision new possibilities for personal advancement and growth thanks to their internet use.

Chapter 7: Broadband Internet-Infused Development: Internet Use Genres and Capabilities

In this data analysis chapter, I analyze rural residents' interview data and organize their answers regarding Internet use in association with themes that emerged about development. These themes demonstrate Internet use genres that emerge across villages and provinces in Vietnam. These genres are distinctive for Vietnamese rural residents because they evolve in similar social situations, creating commonalities in form, content, context, needs, and intention. I aim to answer the following questions: How do rural residents respond to the new technological system as it becomes available to them? How do they account for the role of broadband Internet in their personal, professional, and local economic development? "Development" refers to enlarged capabilities or effectively possible doings and beings that people enjoy in order to do what they want to do and to become whom they want to become (Robeyns, 2005; Sen, 1999). The themes that emerge in answering these questions demonstrate Internet use genres seen through the lenses of critical constructivism, the domestication model, the capabilities approach, and this approach's operationalized choice framework.

Particularly speaking about development, the capabilities approach opens the perspective of development beyond the economic sphere and posits that development refers to all aspects of life that free people pursue in order to achieve the kind of lives they value. Sen (1999) recognized economic growth as a means to pursue freedom, "but freedoms depend on other determinants, such as social and economic arrangements (for example, facilities for education and health care) as well as political and civil rights (for example, the liberty to participate in public discussion and scrutiny)" (p. 3). In this light, I analyze how the Internet plays a role as a communication tool and a resource in three levels of development: local economic development, professional development, and personal development, in terms of informational capabilities and the choice framework.

Local Economic Development and Specific Activities

Specifically, local economic development will be discussed regarding its implication for collective capabilities in a community—namely, agency-freedom and universal benefits, as Ibrahim (2006) discusses—while personal and professional development is interpreted in this chapter as individual capabilities. I argue that agency-freedom—which Sen (1985) defined as pursuing goals, or advocating for or benefiting others rather than one’s own goals—also relates to the personal advantage of individuals by delineating what constitutes local economic development. Thus agency-freedom, in this sense, refers to instrumental agency success (Sen, 1992). Similarly, universal benefits of collective capabilities, in turn, enlarge individual options and open more economic opportunities in a profession that has been geographically characterized, such as in a fishing or ceramics village. In this locality, individuals have both individual and collective capabilities thanks to enhanced agency resources that support and facilitate geographically characterized economic opportunities, thus increasing Internet-infused existence of choice, sense of choice, use of choice, and achievement of choice. For example, social, cultural, and geographical resources (or some agency resources) of a porcelain village provide more opportunities for village residents to support, compete, and promote ceramics trading via the Internet using their known brand name, thus enhancing collective capabilities for the whole village. At the same time, some villagers, who are well beyond the level of ordinary ceramics trading and producing, craft high-quality ancient ceramics and enlarge their own individual capabilities partly by using some forms of non-distracting Internet to effectively maintain their edge. I can therefore apply the concepts of individual capabilities, universal benefits, and agency freedoms when analyzing the data of rural residents’ interviews on local economic development. I will discuss specific activities in light of local

economic development, which also include Internet use that generates useful content for locally specific economic activities.

Internet-infused specific economic activities may overlap with professional development. However, to differentiate these themes, I classify the economic activities in this category when they are at the core of local community, such as coffee and pepper planting in the Central Highlands, or porcelain production and selling at a ceramics-making village. I categorize all other non-locality-specific activities relating to career orientation, maintenance, and development in the professional development theme. For example, Internet use by local health care officials and schoolteachers in various provinces is more common due to their professions; that is why I code these activities as professional development instead of local economic development.

In this section, I focus on the genres that promote economic activities associated with villages' geography and economic history. These Internet use genres are a reproduction of contextualized economic activities. Since the villages in Ha Noi, Can Tho, Dak Lak, and Da Nang possess distinctive economic patterns, Internet use genres in these villages represent a continuity of these specific economic activities and extension of the analogue world. The Internet enables villagers to disseminate useful information about their geographically-specialized crops and products, conduct part of their businesses online, reach more customers, and obtain information pertinent to their markets such as those of porcelain, fruits and cacao, coffee, cashew and pepper, and fish. The villages in Nam Dinh and Thanh Hoa do not have distinct economic activities; thus, all economic activities in villages in these two provinces are discussed with the professional development theme.

Creating useful information

While trade secrets remain part of local business principles, disseminating these secrets to the world could be considered an example of agency freedom of individuals for the good of a larger community. However, this act also satisfies a farmer's wish and realizes one's constructive participation in the community. As one interviewee said:

Local people have been growing cacao for some time, grew and cut, grew and cut [the plants]. Before no one purchased cacao products. [Recently] local government has encouraged cacao growing. They have sent farmers to my house and asked me to train them in processing cacao seeds...Many people know about my cacao processing business online, people from Saigon [Ho Chi Minh City] come here to learn how to grow and process cacao. For about the past two years, I have been helping newly-graduated college students major in economics, engineering, and architecture launch their own businesses. Vietnam now promotes start-up entrepreneurship for students, and I tell them all [about my business know-how]. I used to hide my trade secrets hard when first inventing them. Some teaching faculty at universities looked at them and figured out how to make them, so they said they invented them. I used to hide my trade secrets hard but now I do not [hide them] any longer. (Rung, a 61-year-old farmer and homestay business owner, who grows cacao and makes hand-made chocolate)

At his near retirement age, Rung has decided to share his knowledge about how to grow cacao plants, ferment the seeds, and make hand-made chocolate as a profound gesture of loving the land and his home village where his family has been living for more than 200 years. All his children work in various jobs, but not as farmers. One of his sons has migrated to a city, while another son trades fruits for a living, and his daughter works in a pharmaceutical company. Rung knew he was

qualified to immigrate to the United States as a former aircraft maintenance technician for the U.S.-backed South Vietnam government at the time. However, he has chosen to live and farm on his family land of more than ten generations even after suffering two-year imprisonment due to his previous service to the “old regime.” Rung now aims at helping “farmers to realize the values of cacao plants so that they grow and sell cacao fruits and fermented and dehydrated seeds to alleviate poverty and erase hunger.” The Internet enables Rung to reach out to audiences wherever they are, as he creates various YouTube training videos about cacao growing and processing (Tung Tang TV, 2019).

In light of the capabilities approach, Rung chooses agency freedom to enlarge universal benefits for cacao growers. These growers are not only limited to his village in Can Tho but are extended to other provinces whose climate and land components enable this plant to grow and produce fruits and seeds thanks to Rung’s videos and postings online. In turn, universal benefits that may be gained from Rung’s cacao growing techniques increase the capabilities of cacao growers and enlarge the cacao market in which Rung is a wholesale middleman. Rung’s agency freedom does not conflict with his well-being freedom. Though he does not maintain his business edge, he feels better off sharing his experience and expertise with fellow farmers in the land he commits to and loves. His choice to exercise agency freedom demonstrates his commitment and investment in local economic development that enhances universal benefits for his villagers and cacao growers across Vietnam.

Rung, who created content on the Internet, demonstrates his informational capabilities as defined by Gigler (2011, 2015): his ability to look for information of interest online, to use computers or mobile devices, to communicate with others via the Internet, and to create content. His information and education resources enable him to shape the “useful content” Internet use genres.

He is aware of Internet connectivity (or existence of choice) and functionalities (or sense of choice). Rung is proficient in using the Internet to generate content (or use of choice) and in generating local content generation via the Internet (achievement of choice) for other users to retrieve. Creating and retrieving useful information is important to maintain rural identities in the context of commercial interests and the prevalence of Western and exotic mass culture.

Conducting some parts of businesses online

In this section, I propose the concept of local Internet use genres, which are characterized by common themes of Internet adoption and use that a group of people in a village are identified with based on their shared living, professional, and cultural features. This definition derives from Bakardjieva's "little behaviour genres of the Internet" (2005, p. 134), which refer to the ways in which people use the Internet as continuity and a realization of their everyday life. It also emphasizes the distinctiveness of the communities based on their respective geographies, as the villages represent close-knit communities from generation to generation (Luong, 2003).

Owing to the availability and accessibility of the Internet in the ceramics village in Ha Noi, villagers transform some parts of their traditional businesses online because of both efficiency and customer demand. Domestic customers can take advantage of making orders via email and online shopping instead of coming to the village to buy porcelains.

Customers place orders of my products online. For instance, they ask if I make such products. If I answer yes, I send them quotations [for the products]. If they are ok, they order in a big quantity. I have customers who ask for online quotations every day. At peak, 10 people ask for quotations a day and of course 3 people will place orders via Zalo and [my] website. I have relaunched [my business] website for about a year. (Fuong, a 35-year-old female owner of a ceramics shop and co-owner of a ceramics workshop)

Another woman emphasizes the convenience of reducing physical paperwork in business transactions:

For customers whom I can answer [their requests] directly on Zalo, Facebook, and Viber, [to find out if] they need such products or sometimes while they do not need to archive the receipt and being lazy, [I] take photos of receipts to send to them after selling [them] the products. Sending orders or making contracts is now all via the Internet. (Chi, a 43-year-old female owner of a ceramics shop and co-owner of a ceramics workshop that is also in the village in Hanoi)

Thus, selling and buying ceramics online has become part of the business process in the village in Hanoi, and online transactions have gradually replaced in-person wholesale transactions in brick-and-mortar shops and workshops. Tourists and retail buyers still come in person for a tour of the village, to get to know villagers, and to see and experience firsthand how ceramics are handmade in the village. However, those who want to purchase online are able to do so with very affordable shipping fees: “a small box shipment costs about dozens of thousands of dong” (less than \$5 CAD), according to Fuong. The Internet provides more options for the ceramics villagers to conduct businesses more efficiently and focus on customer niches. Thus, the Internet is not a virtual world separate from its users, but is integrated as part of everyday business life in the evolution of the traditional Vietnamese handcraft. It also allows craftsmen and women in these remote villages to take pride in their products and skills and to reach far beyond their traditional customer base.

In addition, monitoring workers via webcams emerges as an important Internet usage for ceramics shops and workshop owners. Only one out of three Vietnamese adults use banking services, and most people use cash as their main form of monetary transaction (World Bank Group, 2018). Therefore, shop owners depend on cameras to monitor their cashiers. Though cameras are

unable to capture every single transaction, as buyers can pay anywhere at a shop, and it is not mandatory for transactions to occur at a checkout counter, cameras play a critical role in reminding employees of their employers' cyber presence. Panopticon effects conceptualized by Foucault (Mathiesen, 1997) emerge when workers adjust their behaviour when knowing that they are being watched.

The installation of a camera primarily serves this purpose [of cashier monitoring]. Trust is the most important factor in an employee-employer relationship, but I need to avoid regrettable circumstances in which I may lose my employees while my thought is not at ease. (Chi, female, a 43-years old owner of ceramics shop and workshop at the ceramics village in Hanoi)

The same owner has a four-storey workshop and a shop, and she relies on cameras to see how workers at the workshops work and how busy the shop is at a given moment. Cameras also save her customers physical visits by offering screen viewings of what is available at the workshops for their choices and transactions:

In my absence I rely on the Internet and cameras, which are installed both in my workshop and shop. I can see her [a shop assistant] greeting customers and introducing products to them, I can send her the products in need right away. The shop is not large enough to display all products produced in the workshop, so I can send to the shop what is lacking but in demand. (Chi)

Businesspeople like Fuong and Chi in the ceramics village in Hanoi possess both the financial and educational resources to have Internet connectivity, either paying for entire Internet subscriptions and devices themselves, or sharing the costs with their neighbours. Thanks to a close ceramics business community, villagers in the ceramics village—whose brick-and-mortar shops are

next to each other—obtain universal benefits of learning from each other about telecommunications and the best apps to use for their business, and how to use them effectively to achieve their choice of accommodating customers’ needs with fast, reliable, and affordable services online.

Thus, the villagers obtain all four components of informational capabilities as defined by Gigler (2011, 2015). First, they know where to search for information to respond to customers’ needs. Second, they are proficient in using computers and mobile devices to transmit information to the customers. Third, these villagers communicate with customers online via a medium that suits their communication purposes, needs, and situations, i.e., mostly via Zalo—a popular communication platform in Vietnam (“Zalo,” n.d.)—which helps villagers effectively sell their ceramics products to already known customers. Finally, the villagers are able to create content such as videos about new products and provide product consultations for their customers. These local Internet use genres enlarge villagers’ informational capabilities and help them obtain the achievement of choice in effectively conducting their ceramics trading businesses online.

Extending customers’ reach online

In Bang Lang stork sanctuary, which is the only natural birth point of privately-owned storks in Can Tho, its owners use Facebook to advertise the garden. The land was once a rice farm before hundreds of thousands of storks, and pile-headed, white-cheeked, and heron birds started flying to and nesting in Nguyen Ngoc Thuyen’s farmland in 1983 (Nguyen Ngoc Thuyen, personal communication, December 13, 2016; Bang Lang Stork Sanctuary, 2018). Since then, Thuyen did not farm rice any longer and grew bamboos, coconut plants, etc., for the birds to stay. The birds do not stay in his 2-hectare sanctuary year-round; they come for six months to lay and hatch their eggs and then fly to other areas for six months to search for food. At the time of my visit to the sanctuary in 2017, it cost about \$3 CAD for an entrance ticket to view the birds inside the garden. Thuyen’s

grandson, Ba, a 14-year-old, and his sister post photos and information about the wild birds on Facebook to extend the reach to tourists. For example, some posts revealed the wild birds' discipline in staying within Thuyen's sanctuary without landing on his next-door neighbour's plants. Thus, many tourists are curious to see the wild birds and observe their habits and habitats. Ba said he sometimes receives online questions about the birds and the sanctuary and replies to people who are interested in visiting the sanctuary.

Homestay businesses, which provide homemade food services and lodging with local people in fruit orchards, target these tourists to the bird sanctuary as their customers, and use the Internet for advertising their facilities and promotions as a way of attracting traffic in order to survive and grow financially.

[The] Danida program came to this commune, helping this commune construct new rurality and start tourism businesses to alleviate poverty and erase hunger. [At the beginning] there were 17 [participating] households. They all closed after one year and only mine still exists. It is a must to have tourism product such as [home-made] processing cacao, thus [we can] attract customers who come to see the product. Thanks to advertisements online, on Facebook, and word of mouth, [people know that] in Can Tho, there are floating market, cacao, strawberry and star apple orchards. Western customers do not like fruit orchards but [they like] mine. (Rung, a 61-year-old cacao grower and homestay business owner in Can Tho)

Similarly, Chinh, a 52-year-old orchard owner of an all-season fruit garden in Can Tho who was expanding his homestay business, estimated his revenue of about 1.7 billion Vietnamese dong (approximately \$100,000 CAD a year). He said, "Vàm Sáng [the name of his family business] is advertised online a lot, on Facebook, via email and mass media." Rung and Chinh are few among

their peer farmers in these age ranges who know how to use the Internet in a way that helps spread the word about their businesses to customers near and far.

The Internet has expanded rural residents' business advertisement reach to domestic and global customers, who are physically out of reach, but it also has intensified economic and social inequality in villages. According to Rung, many home-stay businesses failed to be financially sustainable when the Danish program's assistance dwindled. Their business owners were not proficient in using the Internet, and those without skills in Internet connectivity, use, communication, and content creation—which belong to informational capabilities—are probably left behind in business competitions.

For those who are able to use the Internet to spread the word about their businesses, from a single business perspective, these online advertisements compete to bring customers to each business. However, from a local economic development perspective, these online outreaches create and maintain brand names of local products and services pertaining to some villages and provinces and not others.

These rural businesspeople have enhanced their informational capabilities, as Gigler (2011, 2015) defines, in terms of ICT, communication, and content creation capabilities. They know how to use Internet devices and functionalities, how to communicate with potential customers online, and have been making use of the Internet in disseminating information about their businesses online via various channels such as Facebook, websites, and online newspaper coverages.

Obtaining online weather forecast and business information

While rural residents may not be able to tune in to programmed television and radio news broadcasts, the Internet has made available important real-time information concerning their business interests and markets. Internet users can obtain both short-term and long-term weather

forecasts at their fingertips, look for ways to improve harvest productivity and treat some plant diseases, interact with their peer farmers around the globe, and monitor commodity prices when making calls about selling agricultural products.

In a fishing village in Da Nang, weather forecasts online provide 5 to 10-day forecasts for fishermen while television broadcasts provide 2-day forecasts only. However, a few fishermen bring their smartphones on fishing trips despite the risks of damage or of dropping these valuable assets into the sea, as a 3G subscription phone can work within 7 nautical miles or 13-kilometres offshore. This longer-term online forecast brings some advantages for fishermen:

The state supports the fishing sector well: if fishermen sail to a sheltered place when a storm comes, each person is granted 5 million Vietnamese dongs (about \$300 CAD) (laugh). So hearing about a coming storm, [fishermen] compete with each other to shelter. Because of the Internet, [the weather information] is precise, if not precise, they do not support anything. (Tinh, a 43-year-old fisherman's wife)

Weather forecasts are undeniably crucial for rural residents everywhere; moreover, they are a matter of life and death for fishermen who work and contribute to this specific activity.

In a village in Can Tho, on the other hand, where the land and climate are fertile enough to grow durians and apple fruits—the specialties of the region—farmers use the Internet to look for ways to treat some plant disease and increase the harvest. Ta, a 26-year-old farmer, and Tu, a 31-year-old farmer, had a lunch break together at a coffee shop on the side of a road in Can Tho, which provides free Wi-Fi for them to surf the Internet on their smartphones. These two men praised Internet search functions for enabling them to access useful information for growing durians and apple fruits:

Me: Does the Internet help with growing techniques?

Tu: By typing online

Ta: Plants have pests and diseases and [I] do not know how to treat dry leaves, I search [online]. People, [who are] agricultural engineers, instruct us to use [certain] drugs

Tu: [Thanks to] Wi-Fi, if I want to have durians off season, people instruct which fertilizers to use

Ta: Off season is February and March; on season in June and July, [durian] prices are low

Though not all instructions and information are useful and helpful, Ta and Tu emphasize that they need to differentiate between what is wrong and what is right and trust agriculture engineers more than peer farmers who post instructions on YouTube. The men also appreciate having access to 5- to 6-day weather forecasts at their fingertips at any time, which helps them plan to fertilize their farm when it is not expected to rain, so they can make the most use of their fertilizer.

In the ceramics village, apart from connecting with business partners online, villagers use the Internet to understand designs and drawings on ceramics, as buyers believe decorative ceramics can bring either good luck or bad luck to the families. Another co-owner of a ceramics shop, which displays many ceramics vases more than 5-feet tall with sophisticated drawings, finds the Internet helpful in understanding *feng shui*³⁴, a crucial aspect for some customers to consider when buying decoration ceramics:

Many things that I must search online, [such as ceramics] designs and meanings of drawing strokes. Design is part of my products, but I have to get to know feng shui [aspects] of the

³⁴ Feng shui, which has been a Chinese practice and technique for thousands of years, aims at creating harmony, good health, and prosperity for human owners of a house, a place, a land lot etc., by combining astrology, and magnetic features of structures and things inside and outside of the property (Eng, 2019).

drawings to explain to customers so that they know how good the products are [spiritually] for them to use. (Chi, a 43-year-old female co-owner of also a ceramics workshop)

Once rural residents know how to search for needed information online, the Internet opens a horizon of possibilities that relate to the cultural and social context in which the Internet users live. These realized possibilities are instrumental in the development of specific economic activities pertaining to each region. Before having access to the Internet, Chi only learnt some basic rules of feng shui from her elderly family members. Due to continuous changes in ceramics designs and drawings, the Internet has enabled Chi to enrich her knowledge about how certain ceramic vases and other products may suit certain buyers based on feng shui principles. This continuously updated knowledge about feng shui that Chi and many other ceramic producers learn on the Internet helps them increase ceramics sales and develop this high-end handcraft-making industry in the village. At the same time, those who do not exercise this sense of choice of learning about feng shui online mostly sell popular, affordable, and necessary ceramic products in modest-looking shops, which do not generate much profit. As a result, the Internet deepens product line division and income inequality among villagers in the ceramics village in Hanoi.

Thus, not all rural residents recognize and deliberately use the Internet to facilitate their everyday economic activities that are associated with their geographical areas. Some of these rural residents find that their traditional way of doing business, such as selling fruits directly to wholesale purchasers who come to buy the produce onsite, serves their family business model. For example, some fisherman families do not see the need to advertise their freshly caught seafood online due to limited quantity and lack of means of transportation to a distance buyer. Yet, some of these families use the Internet to advance their children's vocational training with the hope they can find jobs other than fishing for a living. This type of Internet use is included in the professional and personal

development themes under the umbrella of individual development, which I will discuss in the following section.

Individual development refers to a person's freedom to lead a worthwhile life (Sen, 1999). This freedom involves a person's opportunities to effectively pursue activities of their choice, or to become who they want to be (Robeyns, 2005). In this sense, individual development includes professional development and personal development based on the purposes or intentions of activities that individuals realize when using the Internet. Professional development includes how rural residents use the Internet to maintain and grow their individual businesses, to conduct their tasks in the work sphere, and to prepare for their future careers. Personal development includes how people navigate among technical configurations of the Internet in the context of their situation, their needs, and their use intention for reasons such as entertainment, online education, medical information, and online news.

Internet use in the villages I visited was mostly conducted in Vietnamese. Many adult villagers, in particular, do not know how to speak English. If children learn English at school, or if their parents want them to improve their use of this international language, the children have access to online resources in English. A few adult villagers know how to use Google Translate if they happen to see a foreign language and want to know what it means in Vietnamese; however, this online translation tool does not guarantee language accuracy. None of the 53 ethnic minorities who account for less than 15 percent of the population speak Vietnamese as their mother tongue; rather, they learn Vietnamese as the official language (General Statistics Office, 2019a). However, many ethnic minorities, such as Ede people, whom I interviewed during my field trip, do not have a written language, and thus they access the Internet in Vietnamese.

Professional Development

The professional development theme denotes rural residents' Internet use for their and their family members' career development. The analysis examines this type of use in all researched villages in Vietnam. I will discuss three sub-themes in this category: home-based business, Internet use for work, and career-related online preparation. Miller and Slater (2000) conceptualized the dynamics of objectification in which Internet users reinforce or renew their identity using the Internet to express culturally and socially embedded values and practices. Applying this concept in the context of Vietnam, the Internet provides rural residents with both a means of communication, as well as resources to enable their *expansive realization* in developing traditional careers, and their *expansive potential* in creating and sustaining new Internet-created jobs for villagers. Moreover, through the lens of Kleine's (2013) choice framework, these rural Internet users exercise their use of choice to obtain achieved functioning—a proxy of capabilities on the professional front. For example, some rural residents have access to the Internet, know the Internet functionalities they need for their job, and are able to conduct required job tasks online and achieve what they have planned to do online to deliver in their work. Thus, these residents exercise all four degrees of choice in the choice framework.

Home-based businesses

With the growing number of Internet users in rural areas, and demand from customers to have the Internet, many home-based businesses where customers purchase goods and services provide free Wi-Fi as a complementary service to sustain and grow the businesses. For example, a coffee shop in Da Nang, which sells a cup of coffee for 3,000 Vietnamese dong (17 Canadian cents), offers free Wi-Fi to customers even if they sit for hours accessing the Internet. A fisherman,

who does not partake in the partying and drinking common to many Vietnamese men³⁵, enjoys his coffee and Internet time at a local coffee shop in his fishing village:

I rarely use [the Internet], [I] read Legal newspaper [(Note: Legal is the name of the newspaper, which covers sensational and criminal news)] and soccer [news online], [I] asked [them] a password [for Wi-Fi]. In the morning, I come to drink coffee, the same every day [onshore]. A day [I use the Internet] about 1.5 [or] 2 hours, playing games and cards, [I do] not use Facebook. (Son, 27-years-old, in Da Nang)

In the same vein, other types of businesses with customer seating and spaces, which are commonly associated with Wi-Fi, provide this complimentary service as part of running the businesses. Loan, a 37-year-old karaoke shop male owner in Nam Dinh, emphasizes the importance of free Wi-Fi for his customers

Customers are young people who work in the villages and come to have a drink in the evening. Rural areas' specific feature is that people go afar to work so villages are crowded only on holidays such as Tet. Most of [my] customers are young people, few old people [come here]. In villages, Internet use is not popular, [my customers] sing karaoke and use [their] phones to access the Internet...Internet game cafés are noisy, the sitting space is not the same as a coffee [karaoke] shop. (Loan, karaoke shop owner in Nam Dinh)

In the above anecdotes by Son and Loan, the Internet becomes part of café and karaoke business models to attract rural customers, who belong to one of the first groups to take advantage

³⁵ In Vietnam, the so-called “drinking culture” denotes prevalence of drinking in restaurants, at both private and public places, where men insist each other in drinking together: “if you do not drink these cups I invite, it means you look down on me” (Lan, 2020, para. 11). Moreover, in business, drinking is a route to lead to business deals. Many companies hire best drinking people to drink on behalf of their bosses to win business deals with partners (Lan, 2020).

of free Wi-Fi in their villages while sipping a cup of coffee, a glass of juice, or a drink in a more quiet space. Some cafés do not need to look modern to provide free Wi-Fi, as many customers ask all shop owners about Wi-Fi as soon as they sit down to enjoy beverages in the tropical country.

Some businesses that would otherwise be in nature, such as Bang Lang Stork Sanctuary, where people come to see the wild birds, also provide free Wi-Fi. Since many visitors to this natural preserve do not have 3G or 4G on their phones, or want to save their data for later use, they have demanded free wireless Internet as a complementary service. Yet, home-based businesses also tap into the demand for free Wi-Fi to attract visitors and thus sustain and grow Internet access in the villages.

Recognizing a niche of customers—specifically the pupils and young people who like playing online games—Internet game cafés exist in all the villages. The Internet has provided a new means of making a living for the owners of rural online game cafés. A couple, who own an Internet game café, share their businesses within their home. The wife is mainly a farmer and a producer of fake money for death ceremonies, who also helps with the business when it gets busy or when the husband is not at home. The husband chose to run the online game café after a health problem disrupted his previous job as a carpenter. The couple has invested about 500 million dong (about \$30,200 CAD) since 2014 for 30 computers and their repairs and upgrades. People are asked to pay 3,000 dong (17 Canadian cents) an hour to use a computer. The couple's income from the Internet café has not paid back the principal investment:

You see [I] collected 1,000 or 2,000 dongs, they [the pupils] also delay payment, we [haven't made profit] at all, they delay payment a lot. We lost up to 30,000 [or] 50,000 dong per [certain] customer. They sat until 9 pm, they stood up and said, hey today I don't have [money]. What could I do? Can I eat them? I couldn't beat them either (laugh). [Em, a 55-

year-old husband and a co-owner of the Internet café)

Thus, though the Internet game café has not made a profit for Em and his 53-year-old wife, Ep it is a way of investing and working a job that is more suitable to Em's health. This job was not available before the adoption of the Internet in rural Vietnam, which has also been a trial and learning experience for another peer Internet game café owner, Sa. He opened his Internet café in 2012 and gradually learnt how to save hardware costs for his Internet café by doing research on the Internet. He has 17 computers, and each cost 8 million dong (\$480 CAD):

First, I didn't know so [I] rushed buying 10 computers. After that I looked at which computers [to buy]. First, I used CPUs which caused a loss of 20 million dong. I went online to research; people taught to remove CPUs and use a server [to save on money] ... It is very interesting to look at market prices [online] when [I] want to do business. (Sa, a 57-year-old Internet game café owner in Can Tho)

At the same rate of 3,000 dong (17 Canadian cents) per computer per hour, the Internet game café has provided a steady income for Sa and his family. The Internet has brought business opportunities for Internet café owners in rural areas and extended their informational capabilities as Internet users looking for necessary business information. Internet game cafés have proliferated in rural areas, mostly serving pupils who seek high-speed Internet and company with peers, or those who do not have Internet access on their own.

These Internet use genres of business owners' offering Internet access at an hourly rate, or as a complimentary service for their customers, demonstrate the choice framework's four degrees of empowerment for business owners. First, the owners are aware of Internet access and use this existence of choice to add value or make profit for their businesses. Second, they offer Internet access, taking into account their sense of choice for the specific business purpose, such as providing

complimentary Wi-Fi or high-speed Internet on computers prefigured for game playing. Third, the business owners exercise their use of choice in delivering these chosen modes of Internet services to their customers. This results in the fourth degree of empowerment: achievement of choice in running their businesses effectively with these Internet services. In the next section, I will discuss Internet use at healthcare stations, schools, a public security office, a people's committee on a commune, and at home for formal work purposes, to examine how the Internet facilitates public service provisions in rural areas.

Internet use for work

Healthcare stations in rural areas subscribe to the Internet, representing one of the reasons central and provincial governments decided to roll out broadband Internet in order to provide critical online services. The head of a healthcare station for a commune in Nam Dinh province said the station has been connecting to the Internet since 2010, and the Internet has since become part of his team's daily operations. The station, which serves about 500 patients a month, has two nurses, a midwife, and three nurse aides, including Inh, who explained how the Internet streamlines their daily operations:

Using the Internet, we receive all documents via email. My vertical channel is healthcare management centre, healthcare stations, and specialized hospitals, which all send documents via email. Implementing directions by the Ministry of Health and [Nam Dinh] Department of Health, we [document] health consultations via a software – HIT software for health care. We are using this software now and reporting to the central health insurance [agency via this software]. If we did not find [an] insurance card number the first time, we have to enter all information. The next time, we find it right away when we search it. Then we report

[consultations] to Vietnam Insurance [via this software]. (Inh, 34-year-old nurse aide, in Nam Dinh)

Though telehealth services are not provided online in the healthcare station, all consultations are recorded and transmitted online for insurance payment purposes. At the time of the field visit, this procedure was similar to another healthcare station in Dak Lak province, which is 1,400 kilometres away from Nam Dinh province. A midwife named In, who works at a health station in Dak Lak, also uses online software to report prescriptions and retrieve patient information:

The office does prescriptions and report patients [online], [we] enter prescriptions at a computer, at the end of the day, [we] upload on the computer [online] immediately. [We] can search for patients online if [the patients] come next time. Electricity is rarely cut off, before [electricity] outage [occurred] once or twice per week. If so, [we] do uploading the following day. About 4.30 pm, [we] upload [the data] on the network. (In, 32-year-old, in Dak Lak)

Due to its proximity to the village, many villagers go to the hospital directly, and the healthcare station—which has a medical doctor, two nurses, an oriental medicine nurse, a nurse aide, a pharmacist, and In—receives 4 or 5 patients a day for consultations, and runs some vaccination and healthcare community programs. The Internet facilitates standardized patient reporting on the insurance system and electronic communications with hospitals and other healthcare offices. Medical staff also search and study online to update their medical knowledge to consult and prescribe for the patients.

Similar to the healthcare system, some schools in rural areas encourage teachers to use the Internet to prepare their syllabi and materials to teach pupils. A husband and a wife, who are a

primary school assistant principal and junior high school teacher in literature, respectively, emphasized that the Internet becomes part of a teaching job for most teachers in their village:

For example, many teachers are good at computers. Except some teachers who teach very auxiliary subjects³⁶ do not have to study these and those materials, junior high school teachers who teach principal subjects keep logging in [the Internet], keep logging in to look for materials to teach pupils. Teachers from one school exchange [teaching] materials with teachers from other schools via email. Each year we also upload teaching notes on “connecting school” [software] addressing Ministry or Department [of Education], still participate [in those initiatives]. Teaching members in a team need to upload their notes. (Phu, a 35-year-old female teacher in Nam Dinh).

Rural teachers catch up with their peers by researching teaching materials and enriching their syllabus online. The Internet enables these rural teachers to meet their schools’ teaching requirements, and provides professional development opportunities for teachers as well as the opportunity for pupils to participate in national award competitions. The husband’s school has 20 computers connected to the Internet, and these computers make a significant difference in enabling students to participate at the same level as students in other schools nation-wide. The husband commented as follows:

Eight pupils in my school have received national awards. My daughter [who studies in the same school where Phu teaches] has obtained a national encouraging prize. One of my

³⁶ In Vietnam, the subjects that are considered auxiliary at public schools are music, history, geography, physical education, fine arts, citizen education, technology, and more. Those are apart from so-called main subjects that include mathematics, literature, foreign languages, physics, and chemistry (Tung, 2020).

students received a national silver award, which increases my school's motivation for learning and parents' trust in the school. This helps make the school brand, and [the Internet] is instrumental. (Phong, a 39-year-old vice principal of an elementary school in Nam Dinh)

However, in an office of public security in Can Tho, the leadership has prioritized confidentiality and security of information and only started allowing some officers to use the Internet starting in 2013. Yet, once the leadership saw the importance of the Internet for supporting professional development, and for allowing staff to download official documents like the criminal code, they allowed everyone to use the Internet in a separate network at the office:

After that, the leadership recognizes that Internet use is effective in staff learning so they allow staff to use [the Internet] but they have separate computers installed and do not use the units' computers for the Internet. The [police] office unit have two systems: internal computers and Internet computers. (Ha, a 39-year-old jail police officer in Can Tho)

In a less security-concerned office, such as in a rural people's committee at the commune level, the Internet not only facilitates retrieving official documents but also allows communication on a social networking site with citizens. Khanh, a 32-year-old Ede woman, who is the vice chair of a commune people's committee in Dak Lak, attributes to the Internet her ability to reach out to citizens and address their concerns in a timely manner:

When they [the citizens] condemn family and child violence [on Facebook], locality [her commune people's committee] would intervene. [If the location is not within the commune], I will ask competent authorities in [the relevant area] to deal with it. (Khanh)

For many of these salaried staff, Internet use for work purposes is not only limited to their work premises but also naturally occurs at home. Due to the limited number of computers at schools, it is common practice for some teachers to use their computers at home that are connected

to the Internet to make class lists, search for teaching materials, and modify their syllabi. Phong confirmed that all 25 computers at his primary school are prioritized for pupils, not teachers. Both Phong and his wife, Phu, use the Internet at home partly for schoolwork, which is common among rural teachers. Ha, the jail officer, and Khanh, the vice chairwoman of the commune people's committee, routinely make use of the Internet at home for work purposes, which is the same for other salaried workers I met and interviewed during my field trips. These salaried workers do not complain at all about the blurred boundaries between work and home, once their homes are wired to the global network at their own cost. In the bigger picture, blending work time and supposed private time for work happens regularly for these salaried workers. Some rural teachers also work at their schools during weekends without overtime payment to prepare pupils for upcoming exams and to allow students access to the computer room to study on the computers. A karaoke café owner, whose son studies at Phong's school, appreciates teachers' work out of office hours. He attributes their after-hours work to the rural working culture that blurs the boundary between domestic life and work:

In rural areas, [salaried] people are characterized [within rural work culture as having no boundaries of domestic and occupational life]. [So, if] people have Saturdays and Sundays off [from work], they are at home, but at home they do not rest; it is mostly so. Thus, [if they] go to school and class for activities, [this work] activity is ongoing [and replaces their activities at home]. (Loan, a 37-year-old man, in Nam Dinh)

Work life and home life do not have dichotomous boundaries in rural areas where non-formal work such as agricultural activities occur perhaps in the same home or in the continuity of a family's field work (Venkatraman, 2017). Thus, the Internet, in this case, does not challenge the work-home boundary due to its ability to bring office work to home, which is perceived as one of

the working activities rural residents need to tackle in the context of the rural agricultural production culture. However, the work-related Internet use genres either at work or at home can pose inequalities between teachers and government staff who know how to use the Internet effectively, and those who do not. For example, some older teachers who teach so-called “auxiliary subjects” at rural public schools are not required to use the Internet in their teaching and do not use it. These teachers may fall behind their colleagues who use the Internet at the same school, and thus fail to update their knowledge compared with their peers in urban areas.

In short, government-funded rural offices from schools to security offices have adopted the Internet in their everyday workflow so that teachers and staff can use the technology to deliver their services, as well as participate in research for professional development. Teachers and government staff also use the Internet at home to accomplish work tasks, which do not pose work-home boundary challenges in the context of rural work culture. Given that some measures are implemented to mitigate the shortcomings of Internet use, the Internet helps increase the informational capabilities of teachers and various government staff in retrieving materials and information online, using computers and Internet devices, communicating with students and their horizontal and vertical organizations, and creating content effectively to deliver online. In other words, the Internet, which is accessed at work or at home for formal work purposes, helps enlarge the capabilities of these salaried workers in maintaining and developing their professional work. Particularly, the Internet encourages teachers’ and government staff’s self-learning for better performance in their jobs, and offers a new communication tool for communicating with students, and relating to other organizations and the public in the face of the physical remoteness of their schools and offices in rural areas.

Career-related online preparation

Many rural residents who regularly commit to Internet subscription payments attribute Internet use to enhancing their capabilities in preparing and pursuing vocational training and advancing themselves and their family members—particularly their children and grandchildren—on professional fronts. Though almost half of the rural interviewees indicated that Internet use for educational purposes is a common reason for connecting to the Internet, in this section, I will only discuss Internet use for education that leads to or is part of vocational training and career development.

Some fishermen expressed their desire to encourage their children to pursue other careers that are less tough and less dangerous than fishing, and thus subscribe to the Internet so that their children can have more career choices and pursue education and training online. A fisherman, whose wife is a seafood trader, has devoted part of their modest income for their children's Internet use since 2009 when his wife's sister gave his family a used computer. The couple makes between 2 and 3 million dong per month (\$120 to \$180 CAD) but pays for 165,000 dong per month (\$10 CAD) for an Internet subscription. Though acknowledging that the Internet subscription and devices are very expensive when compared to his family income, the man thinks it is worth it for their children's future opportunities.

...we buy used stuff [because] we do not have money, [we] use 2 [to] 3 million dong devices, [we] do not have money, it is difficult to make [money]. They [the children] need to learn and get to know [stuff online]. It is also difficult to borrow from [their] friends so [we] buy used stuff for them to use...My daughter, a grade 12 student, going to contests on mathematics, chemistry, typography at the city level, achieved a second prize. Her [study] on literature is ok. She once received a compliment from the Prime Minister. She cried when

receiving the 2nd prize, trying hard to achieve 1st prize but didn't get it. I try to allow her to study and [I] skip some meals. We are very poor...(Phung, a 41-year-old fisherman, in Da Nang)

Phung's daughter plans to become a policewoman if she gets accepted to a public security university upon her high school graduation. Phung's 21-year-old son is waiting for an official offer to work as a chef in a nearby hotel, as Da Nang has quickly urbanized to attract tourists to its gorgeous beaches. Quan and Quang, who make almost ten times more than Phung's family (partly due to owning a big boat in the same fishing village), also connect to the Internet so that their four children have more opportunities to pursue other careers. Though Quan and Quang have a comfortable life economically in the village, they do not want their children to follow fishing—a traditional career in their family for generations—because of its hardship. Therefore, the Internet opens a new horizon for their children to get to know other professional opportunities available outside the village and to pursue some education and training online for their future jobs.

Other groups of rural residents, not only fishing families, invest money and time in Internet accessibility for themselves and their children to pursue educational vocations and training. Internet access enabled the architecture sophomore, Yeu, to practice drawing online, and to participate in math and English online competitions in order to prepare for university entrance exams. After several months of Internet access at a public library, his uncle from Ho Chi Minh City gave him a used laptop, and his parents—a barber and a tailor—managed to subscribe to the Internet at home for his studies.

[The Internet] helped a lot in researching mathematics, physics, and chemistry, learning English, practicing drawings through many online homework [when I was studying for

university entrance exams]. It is the same when I am studying at the university. (Yeu, a 19-year-old university student in Can Tho)

Most college students in rural areas must use the Internet as part of their training program requirements to prepare for their careers in the future. Phai, a 26-year-old medical resident in Can Tho, goes to a local pagoda regularly to make use of free Wi-Fi in a quiet study space: “[My fellow] students must access other pages written by foreign [authors] and medical organizations.” Hence, the Internet is a resource that is widely used by many high-school pupils and students to further their education in becoming whom they want to be professionally. The pupils and students obtain four degrees of empowerment within Kleine’s (2013) choice framework. They have access to the Internet at schools, universities, at home or at public places like pagodas. They know what the Internet has to offer for their studies, due to their information literacy skills and ICT capabilities. These users exercise their use of choice in downloading, watching, or reading studying materials online. Some obtain the achievement of professional choice. For example, Yeu gained acceptance to the architecture university partly due to the Internet, which enabled him to pursue the career of his choice and to become the first person in his family to study at a university.

In conclusion, rural residents use the Internet for their professional development by enlarging their informational capabilities to prepare for or to further a career of their choice, which is sometimes associated with economic gains. When residents use the Internet for education that does not directly lead to a career or a job, I discuss this usage in the following section about personal development.

Personal Development

Internet use for personal development is not less important than professional and local economic development. I define personal development as the enlarging of people’s capabilities in

the personal sphere—as in, not directly concerned with earning a living or improving and contributing to the local economy, society, and culture. The personal development category includes subthemes such as entertainment, education motivation, medical information, Internet-based telecommunications services to maintain family relations, alternative news, and surveillance. Thus, personal development aims to look at development at the individual level from a broader non-utilitarian perspective with reference to cultural, emotional, civic, and other interests and pursuits.

Entertainment

Entertainment is an activity that 71 out of my 79 interviewees cited doing when they accessed the Internet. I classify rural residents' uses as entertainment in two cases: first, when the interviewees themselves used the word “entertainment” when describing their online activities; second, when they mentioned certain activities such as surfing Facebook, chatting with family and friends via Zalo, watching comedies, or listening to music on YouTube. Thus, entertainment in my study goes beyond its primary definition by Zerlang (2015) as “entertainment is play, but play put on display” or “the commercialization of the pursuit of happiness” (p. 669). Entertainment, in my definition, deriving from what rural residents mentioned, leans more toward “leisure online activities” (Pantea & Martens, 2016, p. 16), which include Internet-mediated activities on websites for leisure purposes and on social media.

Thus, Vietnamese leisure online activities include gaming, surfing news to pass the time or to go to sleep, Facebooking, YouTubing, Zaloing, etc., for non-work and non-research purposes. Facebook, Zalo, and YouTube are popular among all rural residents. Many junior high and high school students and young people in rural areas have more than 1,000 friends on Facebook; many of these friends these young people do not know in real life. These free-of-charge leisure activities online either help the Internet users pass the time or entertain them or both.

These online leisure activities may not directly be in line with the Vietnamese government's prioritized objective of rolling out broadband Internet so that Internet users can create economic values when using it. However, looking from the perspective of the capabilities approach, I view online entertainment for rural residents in Vietnam as personal development in the sense that it enriches and reinforces some sets of capabilities that Nussbaum (2007) argues that a government should enable for their citizens at a basic level. As a feminist philosopher, Nussbaum (2000) delineates these capabilities to be applied in a developing country that would make them universal values. The capabilities that Nussbaum (2007) advocates can also relate to how entertainment can help build, maintain, and grow personal development in rural Vietnam in which rural residents use the entertainment to be able "to use the senses,... imagination" and reason, "to form attachments to things and people," to engage in social interaction, and "to enjoy recreational activities" (Nussbaum, 2007, pp. 76 – 77).

Entertainment sometimes plays out as a joyful distraction for people to help them cope with their struggles. For example, a divorced woman enjoys watching Disney movie cartoons in almost all of her free time:

I watch cartoons, Disney movies on YouTube...Disney cartoons in Vietnamese. There is no movie that I like the best, just that they be cartoons. I like them all...Indeed, I was married, but divorced, and now I live by myself. Everyone [in my community] criticizes that a 28-year-old watches cartoons all day long. (Xa, a 28-year-old kumquat and apple-star fruit grower in Can Tho)

Chuong, a 59-year-old farmer, does not watch cartoons like Xa, but after losing her only son to a road accident, instead watches trivia contests and Korean dramas, and follows comedians' personal lives. "The Internet makes life less sad," Chuong says. Hence, either in a globalized or

locally made form, the entertainment industry provides fun and relief for a mass audience (Zerlang, 2015), and is accessible even to a remote village, thanks to Internet connectivity.

In light of Nussbaum's (2007) list of capabilities in which individuals should be able to enjoy recreational activities, Xa's and Chuong's online leisure activities allow them to acquire some degrees of empowerment delineated within Kleine's (2013) choice framework. The women obtain existence of choice by having access to the Internet. They are aware of movies and entertainment programs that suit their tastes on the Internet (in terms of their sense of choice). They watch these movies and programs and obtain somewhat of achievement of choice by engaging in recreational activities to forget their mishaps in real life. These recreational activities may help the women escape their sorrows while they are watching them. However, watching Disney movies and Korean dramas can erode villagers' traditional culture and values and can lead to passive consumerism, as Albirini (2008) posits about the prevalent cultural colonialization of developing countries by developed countries. Thanks to the popularity of Korean dramas and music, many Vietnamese people wear Korean fashion, eat Korean food, and travel to Korea on holidays (Lan, 2018). I am not in a position to judge what these two women do online, particularly given their afflictions; however, in my own belief, I suggest that taking refuge in these recreational activities might not enable Xa and Chuong to look deep into their sufferings and to be mindful of these mishaps such that they may begin to cultivate inner peace.

Online gaming is another popular form of entertainment for school-age students despite some online government restrictions to prevent certain access both at home and Internet cafés. After school hours, many pupils come to Internet cafés for online gaming with their friends before heading home. An Internet café owner describes what such students do, apart from gaming, when

they are using the shop's computers. His challenge is to prevent the pupils from accessing content pages that contravene Vietnamese governmental regulations on Internet content:

The students are very progressive. I can control and manage them by opening their screens to see what they are playing. Particularly when I allow them to play games online, if they go to crap [porn] pages, I have to stop them because I can control these pages. But they know that if they go to personal pages, I can't close those ones. If I close them, I won't have customers...I go to website management training courses every year [organized by] culture and information [authorities]. I have just come back from this course and have been instructed that I shouldn't let children see porn and pages hostile [to the government]. I can see if they go to pages of defamatory information [about the government], I can close those pages on the main computer...I have to pay 70,000 dong per month for the management software [that enables this]. (Sa, a 57-year-old man in Can Tho)

Though online gaming has some concerns, as Sa observes, many students are motivated to become proficient at Internet use because of their gaming interests; they then train their parents and peers how to use the Internet.

Since the Internet's introduction to the country in 1997, Vietnamese mainstream media have discussed the negative aspects of the Internet, such as online pornography and information hostile to the Vietnamese government, (Decree 21, 1997). Of the adults interviewed, none discussed watching pornography as entertainment except Rung, a 61-year-old cacao grower and exporter who can speak fluent English and spent his youth in the U.S. Parents condemn pornography and try to find ways to protect and filter their children's online activities.

Just as with Xa's and Chuong's entertainment watching, I posit that gaming and pornography watching can take away rural culture and values. Adopting McLuhan's (1964)

perspective that technologies are not only machines but also bring about social change, I agree with Albirini's (2008) argument that the Internet, which originates from developed countries, may homogenize cultural patterns and erode local cultural traditions.

In light of cultural resources reflected in Kleine's (2013) take on Bourdieu's (Bourdieu, 1986) cultural capital concept, and in the face of the dominant modernization paradigm in Vietnam, I posit that consuming global mass culture products and dominant cultural symbols on the Internet may be a way for rural residents' perspectives to keep up with modernity trends in the face of systematic discrimination due to their rural origins. In my observation, in real life, this online consumption materializes in the sense that many young rural men and women, including Ede ethnic minority people, choose to wear jeans and baseball caps in their villages—which are definitely not their traditional outfits. Thus, entertainment use genres may enable the residents, from their perspectives, to obtain an achievement of choice of a perceived higher social status in the society through the interplay of cultural capital's "objectified state"—dressing like global citizens—and its "institutionalized state"—consuming and knowing about currently trendy culture beyond villages' physical boundaries (Bourdieu, 1986, p. 20).

However, the Internet is not a totally new media in rural areas but a continuity of ICT technologies that may promote passive consumerism. Before, some older adults in Vietnam would tune into the radio or read books before falling asleep. Today, however, some have formed the habit of reading news on their smartphone before going to bed:

[I] read newspapers on the phone etc. (laugh) until falling asleep...I use [the Internet] quite long, sometimes spending hours [online] until my eyes get tired, the phone says the news has run out [so] I turn it off (laugh). (Chinh, a 52-year-old owner of an all-season fruit garden for visitors and his homestay businesses in Can Tho)

Online news reading, in this case, is more a leisure activity to help induce sleep rather than a means of increasing knowledge or awareness.

Internet use is not restricted to adults but also can be accessed by children in rural areas. Many pre-school age children know how to access their parents' or siblings' devices to use the Internet for their favourite entertainment programs online. For example, a 5-year-old boy who knows how to access all family devices for cartoons:

At home [if we] ask our son to open the computer, he can open it. He watches games. Even with a telephone, though he is illiterate, he remembers well the password his dad types. He opens a laptop, he opens Google. He doesn't know the letters, but he clicks on the images he likes to see. He accesses the Internet only watching cartoons [that way]. (Khanh, a 32-year-old mother and vice chairwoman of her local commune's people's committee in Dak Lak)

The Internet provides an entertainment venue for children. Some parents and grandparents use the Internet as an electronic nanny for the children. For example, a man and his wife help take care of their granddaughter while her parents are at work, and the family uses the Internet as entertainment for the girl so that they can carry on with daily housework.

The girl who stays with my wife and me is my daughter's child. She [her mother] goes to work. We have to take her to the school in the morning and pick her up home in the afternoon. Her father goes to work, her mom goes to work. Her mom [pays for the Internet so that] she can watch it. It is boring so we need to let her watch ... We cut ourselves some slack, we let her watch so that we can do the chores. If she doesn't stay with us, we won't have the Internet that costs money...We cook rice, do laundry, run an errand [when she is on the Internet]. (Iyn, a 50-year-old scooter taxi driver in Can Tho)

Iyn said his grandchild watches cartoons on the Internet from one to two hours a day, which is a reasonable amount of time to allow her grandparents to do the housework. Similarly, Em, a 29-year-old worker, who forms ceramics clay in mold at the ceramics village, attributes the Internet to helping his 3-year-old child eat her food, saying, “my child only eats when watching [online] advertisements.” In contemporary Vietnam, after devastating wars and the poverty-stricken period as a result of a planned economy, parents and grandparents try hard to spoon-feed their young children and grandchildren with as much good food and nutrition as they can. The children become picky, and advertisements on the Internet are employed as a distraction to make the children eat whatever they are fed.

Thus, from an elder’s online readings to induce sleep, to a child’s babysitting herself through Internet surfing, passive consumptions of the Internet repeatedly occur in everyday life. Without parental guidance, and without users’ critical reflection when consuming news, developed countries’ cultural domination on the Internet may influence a passive audience who do not critically reflect on their situations, purposes, and needs.

For some rural residents, searching online knowledge—which can also often be non-economic—is important for their spiritual and psychological development. A woman who has just had her three-storey house built finds it important to look for *feng shui* information online:

I asked something simple, something that I do not know...I asked about feng shui for our house...Thus, it has some good sides. For example, if I do not know, there are many things people instruct me such as how to place an altar and an incense bowl or how to juxtapose ornaments and things in the house. If I do not know [everything], that is ok. When I receive their instructions, I follow them. If I accidentally did it before and it turned out incorrect, that is ok too. (Vinh, a 48-year-old primary school teacher in Thanh Hoa)

Knowing about feng shui gives Vinh peace of mind, and belief in the good luck that certain juxtaposition of things in the house can bring her family. Thus, Internet access to this information helps benefit Vinh's personal psychology, an agency resource within the choice framework.

Thus, many rural residents acquire four degrees of empowerment: (1) accessing the Internet; (2) knowing Internet functionalities; (3) exercising use of choice, such as searching for information of personal interest online; and (4) obtaining achievement of choice partly and entirely. Though being able to enjoy recreational activities is considered as part of human capabilities (Nussbaum, 2007), some problematic patterns arise and hamper personal development in the passive consumption of Western and exotic culture at the expense of rural values and culture. Passive consumptions to pass the time on the Internet, by both children and adults, may hamper information literacy (or the ability to look for information critically), as well as skills related to Internet device use, communication, and content creation skills, the four components of informational capabilities as defined by Gigler (2011, 2015). These concerns of passive consumption and harmful contents linger in parents' minds while they allow their children to get access to the Internet. However, in the section that follows, I discuss how the Internet changes the rural education and learning landscape and enables students and teachers to have instant access to educational resources in their remote locations, and the implications of informational capabilities' inequality within villages.

Online education and learning

One of my interviewees was the co-founder of the two most popular education websites in math and English nationwide. Now retired, during his career he travelled to countless villages to promote the use of these standardized competition websites since 2009 when his mathematics competition website Violympic was launched. According to him, the strong desire to enable school students, from the elementary level and up, to participate in national competitions in mathematics

and English was a strong factor in promoting Internet use in rural areas. When he came to Ninh Binh province for the websites' introduction and promotion, a representative of VNPT—one of the biggest telecommunication companies in Vietnam that provide Internet connectivity to rural areas—shook his hand, saying:

Hi brother Nhat, thanks to your competitions, individual households are connecting to the Internet a lot...It is different from [Ninh Binh] to our [city] where we can have Internet immediately if we want it. They [people in Ninh Binh] feel that because parents are blue collar workers, what do they need the Internet for? But their sons insist on the connectivity, parents need to save money monthly to buy computers for their children. Thus computers [and Internet connectivity] are not only bought by schools but [thanks to the online competitions], households have a concept to buy computers for their children to study.

(Nhat, a 68-year-old Ph.D. in mathematics and the retired co-founder of the websites)

He also met with many rural households who told him that the online competitions impacted their decision of whether to buy computers and connect to the Internet.

Some parents have touched me by telling me that they initially planned to buy a motorbike such as a Chinese Wave to commute. However, [they have now found that] online learning is very interesting, so the families have decided to buy affordable computers. At that time, computers were rare. They bought computers to connect to the Internet for their children at the end of 2008 or at the beginning of 2009. (Nhat)

When I was on my field trips in the villages in 2016 and 2017, many parents told me the same thing regarding their decision to invest in the Internet for their children. However, I also met with some parents, particularly in Can Tho and Dak Lak, who allowed their children to drop out of school to help with family farming due to both economic and cultural circumstances. My targeted

groups of interviewees were Internet users who had Internet connectivity at the time of the interviews, yet I deliberately included the interview with Jay's family's in my research even though no one in the family uses the Internet anymore. As the oldest child in the family, Jay used to have the Internet at school as part of his studies in grade 6 and did not have a chance to access the Internet when he was in grade 7, as his school only allowed certain groups of students to access the computer room each year and his family could not afford computers.

For example, if we had used [the Internet] every month, I could have paid some hundreds of thousands of dong per year [less than \$70 CAD]. That is it for a year [and I could probably pay once or twice a year in congruent with harvest income]. If I have to pay more than 100,000 dong per month [\$7 CAD that Internet service providers require monthly payments], we do not make [a lot] of income [monthly]. We have to pay for electricity, daily food, and expenses. [If we included the Internet, it would be] too much, we couldn't afford that...I want my children to have what others' children have...We also have demand [for the Internet], but [we] couldn't afford it...My children's cousin is at college and good at software and English. He is their aunt's child in Can Tho city. If my kids can study like him, [one day they will have jobs] on the computers, light [work that is better than farming], but [I] am afraid they can't study like him [without a computer]. (Jay's mom, a 41-year-old fruit garden farmer in a village in Can Tho).

Jay continued his grade 7 and helped work for the family. He said dropouts were common at his school. In his grade 6 class, there were more than 40 pupils, but in grade 7, the number of pupils dropped to about 20 per class. However, he has a mother who strongly supports his and his brother's study for a better future.

Thus, while some rural children obtain Internet connectivity thanks to their parents' investment in their education, other children do not have access to the Internet as their families need to prioritize freedoms to obtain basic capabilities³⁷. As a result, online education and learning Internet use genres reveal potential inequality within villages where some children use the Internet to enlarge Internet-infused capabilities in their education and future career fronts, and others do not have the luxury of connecting to the Internet at all.

On the other hand, while it seems that families earning a stable income can afford to pay for the Internet for their children's education purposes, Internet access does not necessarily correlate with the better study.

Some in a rural commune are more enthusiastic and pay more attention to studies than [their peers] in the [urban] city because they [rural pupils] have less access to the Internet and progressive games. Here [in the town], some children use smartphones, and parents do not pay attention to [their use]; their study capacity decreases in grade 11, [they] mainly play.

(Khanh, a 32-year-old Vice Chairwoman of her Commune People's Committee in Dak Lak)

Khanh thinks that it is not the technology, but how families orient and educate their children, which helps them study and develop themselves. In some families with salaried parents and good income, parents invest in their children—both their time and the Internet access—to better equip them with the online study that is not available in rural areas. As Ha speaks of his son,

³⁷ According to Sen (1992), the term “basic capabilities” (p. 45) was intended to separate the ability to satisfy certain elementary and crucially important functionings up to certain levels. For example, freedoms to do some basic things such as being safe, having enough food to eat, clean water to drink, and remedies to treat diseases are some basic capabilities, which are used to decide a cut-off line to assess poverty and deprivation (Robeyns, 2000, p. 8).

[He] mainly watches cartoons, plays games, gets to know teaching approaches, [and] learns how to pronounce with online software. How to pronounce “mau vang” in Vietnamese in English “yellow.” He sees a lion, and [he] clicks on [the animal] and learns how to pronounce lion [in English]. (Ha, a 39-year-old jail police officer in Can Tho)

The online learning that Ha’s son engages in is not possible in person in rural areas, where English teachers are few. Learning how to pronounce English words from a native speaker is perhaps the best approach from a young age. In my research, Ha’s experience with his child’s online learning resonates with many rural residents because the Internet has enabled users to expand their learning and catch up with the world beyond their rural boundaries.

To conclude this section, I delineate that inequality in education and future career opportunities may exist between children whose families can afford Internet connectivity and those whose families cannot, given their priority on basic capabilities and their constrained budget. Thus far, children who have access to the Internet for educational purposes can enhance their informational capabilities: they know how to look for educational resources online, how to use Internet devices effectively to access national online contests, how to communicate with teachers and peers online in preparing for these contests, and how to create online answers in these contests. However, Internet connectivity does not lead to enhanced informational capabilities in education as some children are attracted to playing games and accessing entertainment content at the expense of study time.

Yet one common Internet use that rural residents adopt, which helps narrow the distance of remote areas to the cities, is seeking information regarding healthcare. While hospitals in towns and urban areas can be overloaded, rural residents make use of Google and Coc Coc search engines for

medical information. I will now discuss how and which medical information rural residents resort to online for their and their family health issues.

Medical information

On average, more than one in six interviewees said they used the Internet to seek medical information. The lack of a primary healthcare system in Vietnam, and the lack of coverage of travel-related costs to hospitals outside the villages, creates the need for rural residents to search online for medical information to understand the symptoms, diagnostics, and treatments of some diseases. Vietnamese pharmacies sell all drugs without prescriptions (Hoai & Linh, 2019), which, on the one hand, allows rural residents to prescribe medicine for themselves, but, on the other hand, poses some health risks. It is common for people in Vietnam to buy antibiotics when they have a fever or a cough, or sore throat. Since much medicine is imported and the instructions for its use are in foreign languages, the Internet helps drug users translate the instructions into Vietnamese to understand better how the drug works and how to take it.

Though commune health centres, usually located in a village, have an Internet connection, telehealth is not yet an option in Vietnam. In a patient-related mode, these centres only use the Internet to transmit patient consultation notes and prescription information for insurance purposes. Telehealth and virtual health are not built into the formal healthcare systems yet due to a lack of healthcare resources, dominance of personal relations, and nation-wide under-the-table tip culture for healthcare personnel³⁸. Appointment bookings are not standard either: patients just show up to

³⁸ Because “giving envelopes” (or under-the-table tips in cash) to doctors and health care professionals has been existing in hospitals and health care facilities in Vietnam’s public health system for very long time, leaders of Ministry of Health have accepted that it will take long time to erase this practice as it has become an “untreatable disease” in the context of overloads in health care system and low official salaries and benefits for health professionals in public health facilities

see specialists on a so-called “first-come-first-serve” basis in which interpersonal relations can interfere with which doctor can be seen and when a patient is seen (Benh Vien Cho Ray, n.d.). To avoid these practices and skip physical travel distance, rural residents rely on medical information on the Internet to cure and nurse their family members and themselves.

Women make up more than two thirds of rural residents who discuss in the interviews their online medical information-seeking activities. Rural residents look for medical information online based on the current needs of their family members and themselves. Since women play a major role in raising children and taking care of family health, they make use of the Internet in searching and enlarging their medical knowledge for their needs.

Sometimes I go online, for example, if the children are sick and cough, I search what I can do. [I search] how to wean my son and raising materials for my small child. Before I did not have [this] condition [the Internet], now I have it so I search [online for the information]. I research which kind of formula is good, its original, and its fit [with my son]. (Truong, a 34-year-old teacher in Thanh Hoa; has three sons: 1-year-old, 7-year-old, and 9-year-old)

The daughter-in-law of Chinh—a 52-year-old owner of an all-season fruits garden in Can Tho—would also research online for recommended food to eat when she was expecting Chinh’s grandchild, and then breastfeeding the baby. This type of information is inherent and essential to what mothers of young children need to know. For this reason, these gender-oriented Internet use

(Thanh, 2020, para. 8). Thus, telehealth needs an overhaul policy of health professionals’ official income and benefits so that they can work for patients in an online environment where bribery in cash is not facilitated.

genres emerge to respond to the social contexts of both the patriarchal society and gender roles of women in domestic work in rural areas in Vietnam³⁹.

As individual Internet users, rural residents look for medical information when they have some health issues or maintain and adopt some habits to improve personal and family health. Em, a 29-year-old mold worker in Ha Noi concerned about the overuse of antibiotics, searches the Internet for alternative medical treatment. Em said, “[When we are] sick coughing, I go online to research ways to avoid medicine because most of the medicine is antibiotics.” Similarly, when Sun, a 35-year old chicken trader, has a chance to use the Internet on her neighbour’s smartphone, she searches for online information to remedy her chronic stomach-aches as a result of her job schedule. She usually wakes up at 3 a.m. each day, skipping breakfasts, and rides on her motorbike with her husband to remote corners to buy chickens and resell them to chicken retailers or restaurants for a small profit.

I go online and type about health [in the search box] to research what disease I have. I click on experts’ advice, for example, advice on what I can do with stomach-ache. Experts say things both right and wrong but right things exceed wrong things: food, thinking, and psychology influence stomach-ache. Many people, including children in contemporary times, have stomach-aches. (Sun, a 35-year-old chicken trader in Thanh Hoa)

³⁹ As a result of more than 1,000 years of Chinese occupation in Vietnam, Confucianism—an influential ideology positing that women are inferior in men, and have restricted roles within their households—has been deeply entrenched in Vietnamese society, impacting its social hierarchy and gender roles (Lam & Laura, 2016). Despite programs and campaigns to educate husbands, wives, and families on the importance of sharing household works, women—who either participate in the workforce or stay at home—still take on the majority of responsibilities of taking care of the families and doing chores, which prevent them from undertaking professional and employment opportunities (Lam & Laura, 2017).

Sun has changed her eating habits, refraining from hot and spicy food based on online recommendations, while she still skips breakfast due to her daily job. Another man, also seeing the importance of online resources for health care, considered medical seeking as one of his essential online activities:

I know [more about] oriental [herbal] medicine there [on the Internet]. If I need to seek [Western] medicine doses that I did not understand, I type in and I understand. For example, how antibiotics have primary and side effects [so that] I refrain [from certain food and activities]. Here, they [the pharmacies] sell whatever drugs you want to buy so I have to self-research [the medicine]. (Ngoc, a 52-year-old retiree in Nam Dinh)

In the face of important health issues that are not addressed by in-person public and private healthcare systems, the Internet enables rural residents to either look for medical information to increase their health knowledge or to find medical information and suggested ways to cure a disease.

Though online medical information is not credible and correct all the time, people use it as an alternative means to understand a health issue, to suggest a possible solution, and to check drug doses and benefits. None of the rural residents mentioned experiencing any harm due to online medical information. None of the interviewees quoted above—Truong, Chinh's daughter, Sun, Em, and Ngoc—have a reliable medical information website to refer to, and they are not trained in medicine to judge if the medical information they find on the website is true or false. Do people enhance their informational capabilities when they look for health information on the Internet if they are not capable of distinguishing true from false information? The simple answer is no. Though the residents know that they can look for information of medical interest on the Internet, they are not qualified to inspect and evaluate the medical information, meaning they are missing part of the

information literacy component of Gigler's (2011, 2015) informational capabilities. As a result, rural residents might take risks treating their and their family members' ailments according to inaccurate online information in the absence of medical professionals and prescribed medicine purchased at pharmacies.

On the other hand, with some luck—according to Truong, Chinh's daughter, Sun, Em, and Ngoc—seeking online medical information is part of personal development in the sense that it helps contribute to their better knowledge of health, allowing them to adopt lifestyle changes and treat some diseases despite not having access to available healthcare provision in villages. Through the lens of the choice framework proposed by Kleine (2013), the medical information obtained on the Internet contributes to enhancing aspects of agency—namely, information and health—which are instrumental to rural residents' empowerment and choices of medical treatments. Therefore, online medical information may be considered an alternative approach to real-life healthcare provision in some cases of non-life-threatening chronic diseases, cold, and nutrition information. In the section that follows, I discuss Internet-based telecommunication services that help enlarge residents' informational and human capabilities in the face of increased mobility and widened integration beyond village boundaries.

Maintaining family relationships

When villagers migrate to the cities or other countries for work and family reasons, these rural residents choose cost-saving telecommunication services via online calls and videocalls with their family members and friends. With an affordable payment of a fixed Internet cost per month, rural residents can call and see their beloved ones thousands of kilometres away or in another hemisphere. Sung, a woman seeking a public-school teaching job, stays with her mother-in-law in Thanh Hoa while her husband works as a realtor in Ho Chi Minh City.

My neighbour gives me free Wi-Fi a bit, they have 24 hour a day Internet for their computers and television...I go to Facebook, talk to my husband, video our daughter, and call him without costing any money. Seeing each other [via video calls] is knowing the reality [of the husband's living and working conditions] (Sung, 35-year-old mother of a newly born baby)

Similarly, another woman, who started using the Internet only a month before her interview, only uses it to call her son, who works as a shop assistant in Moscow, Russia.

I only have a smartphone. It cost 3 or 4 million dong, so that I can call abroad and see my son. He also uses a phone to talk comfortably. He closes the shop at 6 pm there, he talks with me about 10 or 15 minutes every day...He calls me every day, we see each other's face to miss each other less. He has been calling me for a month. He was born in 1999. He is big and tall, going [to Russia] with our relatives (Xoa, a 49-year-old chicken trader in Thanh Hoa)

Another woman uses her phone to communicate with her aunt, who is married in Taiwan, and her boyfriend living in another village:

My aunt calls from abroad from Taiwan every week or every other day to talk with [us]. If my mom is here [at the store], I will hand her my phone. I have a boyfriend in Phu Thanh some kilometres away from my village. I see him once a week with Zalo. He works near his village, making ice boxes ... (Uy, a 23-year-old convenience store owner)

Uy's habit of making online teleconference calls abroad with family members is not uncommon in her village. As almost half of the interviewees said, they use the Internet as an alternative and cost-saving way to call or videocall their family and friends on Zalo, Facebook, Viber, WhatsApp, Skype, etc. In Can Tho, in the centre of Mekong Delta, several interviewees mentioned making

online calls as a common way to reach their family members who get married to Taiwanese men and live in Taiwan. By 2017, more than 98,000 Vietnamese women married Taiwanese men either for economic reasons or spontaneous love (Nguyen, 2017), and many Vietnamese brides come from the Mekong Delta region (Tran, 2003). This demonstrates that these Internet use genres derive from people's everyday socio-biographical backgrounds, and this observation furthermore aligns with the argument that Internet use is not separate from real lives but serves as a reproduction of and a continuity of people's everyday lives.

Sung, Xoa, Uy, and many rural residents make use of video calls mostly to see and hear their beloved family members, thus exercising ICT and communication capabilities, part of Gigler's (2011, 2015) informational capabilities. However, another interviewee decided to take down the webcam on his computer to get rid of video calls because it is too painful to communicate face to face with his son. The man's oldest son, who used to be a colonel in the police force, needs to have renal dialysis after his three-heart surgeries as a result of unmanaged diabetes. The son used to weigh 96 kilograms but could die anytime now. The son lives in Nha Trang, and the father does not want to see his son dying with his own eyes on the screen anymore.

[The webcam] was broken so I put it away. I used to have a live chat with images. In Nha Trang, they had to do something, they had to show their screen...It was like you and I are talking face-to-face... [Now] if we need anything, we call on phone. Chit chat is online. For example, [when] I open my computer, I know he is online. I open [the chat box] to ask about his health, how are my grandchildren are doing. I am going to give my great-grandchildren [some gifts] sometime so how [I can send the gifts]? Whatever I type, he types back, that's it, it is like direct talk...I put away the webcam and two lights. He asked why I didn't have [the webcam] again. I said no, looking at him is miserable. He weighs only 72 kilograms

now. He was able to take his grandchildren to swim in the sea 2 days ago. (Khang, a 76-year-old disabled war veteran and retired public official in Nam Dinh)

Khang's second son owns one of the biggest electronics shops in Ha Noi and, over the years, has continuously supplied him with all equipment needed for Internet connectivity at his home in Nam Dinh. His decision not to use video calls anymore is not technically but emotionally and psychologically related. Reflecting on Madianou and Miller's (2013) polymedia concept that I discussed in Chapter 5, I find that this concept rings true in Khang's choice of use of the appropriate technology that helps mediate his relationship with his dying son. Khang switches to ways of non-visual communication so that he feels less miserable in his relationship with his beloved son whom he is going to lose soon because of his illness. Thus, the online channel of communication does not only serve the purpose of transmitting communication content, but it is also "the idiom through which people express distinctions in the form and purpose of communication itself" in Madianou and Miller's words (2013, p. 125).

In summary, for these interviewees, Internet-based telecommunications services motivate them in the personal and interpersonal realms to connect with their family members who work or live far from the villages, given villagers' increasing mobility. These interviewees—who either deliberately refuse to use value-added functions, in addition to traditional long-distance voice calls, due to cost or to avoid emotional pains—exercise existence, sense, use, and achievement of choice via Internet-based telecommunications services. Moreover, relatively affordable online telecommunications services enable various emergent Internet use genres after users negotiate and stabilize them, which have the potentials to enhance users' effective opportunities to do what they want to do and become who they want to be. According to Nussbaum (2007), "being able to move freely from place to place" (p. 76) is included in the list of central human capabilities. Thus Internet-

based telecommunications services enable rural residents to communicate with their friends and their families on the move, and effectively fulfil their travelling and immigrations.

In a larger socio-political landscape, in light of the interplay between structure and agency elements (Kleine, 2013), I discuss alternative news use genres at large and take into consideration surveillance and censorship, which rural residents experience when going online.

Alternative news, surveillance, and censorship

Alternative news use genres, amid censorship and surveillance, raise dialectic challenges between the structure realm and agency in the view of the choice framework. Kleine (2013), drawing from both the empowerment framework (Alsop & Heinsoln, 2005) and the sustainable livelihoods framework (DFID, 1999), argues that the interrelationships between structure and agency elements create, reinforce, sustain, and renew capabilities of people in leading a life of their choice. Not unlike mainstream media, alternative news—which rural residents can access via the Internet—impacts the discourse element of Kleine’s ideas of structure (2013) and offers different elements of information and various angles on an issue, thus fulfilling a component of agency. However, online news also poses credibility problems, which can misinform or confuse news seekers and readers. Furthermore, government censorship and self-surveillance play out not only in rural residents’ consumption of online news but also in their offline behaviours.

Almost half of the interviewees discussed alternative news, surveillance, and censorship or expressed their unease during the interviews due to lingering surveillance. I define alternative news as news by alternative media, including social media and social networks (Duong, 2016), or by international news organizations, and all other online news postings. News organizations in Vietnam are state-owned and have financial autonomy while ensuring their task performance (Decree 43, 2006). Duong (2016) posits that these news organizations are comprised of the mainstream press

and market-oriented tabloid media. The Communist Party of Vietnam (CPV) still controls the news media by fully or partly subsidizing key media outlets, and prohibits free reporting that criticizes leaders and political issues (Duong, 2016). I decide to discuss both alternative news and surveillance, as they are both sides of the same coin in an age where the Internet is widespread and the Vietnamese state continues its attempts to control it to maintain their political interests and stability. In this section, I adopt Deibert's (2003) definitions of these concepts. I refer to censorship "as the act or system of practice suppressing, limiting, or deleting objectionable or any other kind of speech" (p. 506). In addition, Deibert (2003) limits the discussion of surveillance at the state level in an electronic age; surveillance is defined as a state's ability to monitor, keep tabs on, and collect information communicated via electronic modes. This surveillance definition fits with some rural residents' perception of surveillance; however, surveillance in Vietnam is not only limited to cyberspace, but also continues and occurs in real life.

Online news complements and even replaces traditional mainstream broadcasting and press thanks to its availability for users to access on the Internet. Online news sources can be the same as mainstream media; however, rural residents have the option to choose to read news from other sources on the Internet.

Now we go online...few listen to the prime news program, if I want to listen to news, I type...We are garment workers and do not have time. At home, I type and I can watch news online. It [the Internet] is convenient in that way. We [I] go to work and only have a little free time in the evening so I type to search for key news only. (Xoang, a 32-year-old garment factory worker in Thanh Hoa who is the mother of a 4-year-old child, and is expecting a baby)

Moreover, Xoang consumed news not only from mainstream media but also from various other sources. Thus, mainstream media may be at risk of losing certain audiences in their traditional broadcasting approach, and, as a result, need to diversify their businesses online to meet a digital population's demands. For example, many television and radio stations and newspapers already have their presence online (Duong, 2016), and some rural residents retrieve mainstream news from these sources when it works for their schedule.

However, not only because of its availability around the clock, online alternative news⁴⁰ also attracts rural residents because of its different angles of coverage and relative freedom from government control. On the other hand, rural residents question alternative news' credibility and truthfulness. For example, money exchange used to be a nightmare for the Vietnamese in the 1980s when a big bag of cash notes turned into much smaller denominators of several notes due to hyperinflation rates of about 700 percent at that time (Duong, 2010; Tran, 2017). A woman asked me genuinely about some money exchange news that bothered her on the Internet:

I asked you if it is true that they [the readers] stood up and they expressed anger saying that money exchange coincided with a loss? Many readers sent their letters to that program...The readers said so but the government said they did not plan to exchange the money. This news was not true, the government rectified it. (Xoan, a 48-year-old stay-at-home grandmother and farmer in Thanh Hoa)

⁴⁰ Online alternative news comes from both organizations and individuals in Vietnam and abroad apart from mainstream media, which are owned by the Vietnamese government. This type of news is alternative in the sense that the government is unable to impose their views and directions in this news coverage, thus the news offers various perspectives on the same issues covered by mainstream media, or initiate new issues of attention and discussion, which mainstream media omit. For example, some alternative news organizations that are popular among rural residents are BBC Vietnamese, Voice of America Vietnamese etc.

However, this piece of news still lingered in her mind and I could not give her my own answer on the spot. A man also referred to alternative news to broaden his view. However, he selected established foreign media organizations to watch and read to ensure the credibility of his news.

I read credible press such as BBC [British Broadcasting Corporation] and VOA [Voice of America], which have truthful sources. I listen to these radio stations to compare with mainstream media so that I have a different angle view and I understand more. There are about 25 foreign stations about Vietnam [in Vietnamese] but most of them distort [the country's situations] so I do not listen to them. (Chinh, a 52 year-old-owner of an all-season fruit garden and homestay business in Can Tho)

Some rural residents perceive that the matter does not only lie with credible news organizations, but readers' or listeners' knowledge is also required to judge if the news is true or fake.

All types of news, whatever I like, I read it. For instance, I watch political news that comments on leaders. What is Nguyen Tan Dung [former prime minister] like? What is Nguyen Phu Trong [current President and General Secretary of the Communist Party of Vietnam] like? I researched the past Ngo Dinh Diem [then President of former South Vietnam] to see if Diem had merits or guilts. I research the news so that I know and filter which news is right, which is wrong, which is exacerbated, which is partly right...I have enough knowledge to analyze and filter the news...Now there are many radio and television stations, Voice of Vietnam, many broadcasters about everything in life. (Khang, a 76-year-old war disabled veteran and a government retiree in Nam Dinh)

Because Khang is a CPV member and still has some bullet pieces lodged near his spine from when he was a northern Vietnam army soldier during the resistance war against the U.S.—an injury which paralyzed him several times for many months—he is confident he can know what is right and what

is wrong. However, he is concerned that the Internet can erode public trust in the party and government, but acknowledges that alternative news online helps unveil corruption scandals that are prevalent nowadays:

The cons are if you do not have a good ideology and know how to filter online news well, it is you who unrests the society. Because you listen to a news piece and you can't filter it.

F*** them, they are high-ranking government officials [and] many are corrupt, not like my generation before. (Khang)

A woman followed news on YouTube about land dispute demonstrations, which gave her headaches because of its complicated and difficult-to-judge problems. However, she trusted in online alternative news due to the prevalence of corruption that she experienced.

Corruption is limitless, even if I don't watch the news, I see that the house of the head of our commune is big and beautiful. Where does he take the money from, if not from corruption?

(Bai, a 58-year-old printing shop owner and retired schoolteacher in Nam Dinh)

Corruption coverage can be tricky in the sense that the government needs to tackle this problem to gain public trust, but the government also needs to manage the unveiling of corruption in all the media. On the one hand, rural residents understand that mainstream media cover news in line with the party and government's guidance. On the other hand, alternative news makes some residents wonder if the mainstream media is truthful.

However, alternative news provides an opportunity for rural residents to access a variety of online information, which is not necessarily what the government would like them to know about. Corruption coverage by Vietnam's mainstream media is usually leaked by the party itself as a trigger that often leads to the firing of a high-ranking official and their group in a political power game (McKinley, 2008). Alternative news on corruption can challenge this top-down practice to

unveil corruption and to help citizens question the nature of the system and the lack of independent forces to monitor it.

The government of Vietnam does not only control corruption coverage but also all online news and the Internet, which can challenge political stability. In the face of the rising impact by social media and other online platforms, Vietnam's cybersecurity law came into effect in January 2019 (McKirdy, 2019). The law criminalizes those who criticize the government and obligates international Internet service companies to locate their servers in Vietnam and to provide required information about users without warrants (McKirdy, 2019; McLaughlin, 2019). Facebook is reported to have agreed to more content control as requested by the Vietnam government on its platform after Vietnam slowed down its traffic (Pearson, 2020). The government creates the so-called "Force 47," which comprises 10,000 cyber military officials to combat wrong views expressed by Vietnamese people (Mai, 2017; Nguyen, 2017). Citizens who pose their opposite views online against that of the governments are arrested and imprisoned. According to BBC (2020), a Vietnamese man was arrested in April on the accusation that he defamed and distorted information about the government and insulted leaders of the CPV and the government. The Vietnam government's measures to control the Internet and its content include legal and tactical restrictions of organizations providing Internet services and online forces, the employment of personnel to propagate the government's positions, the playing down of opponents' stances, the surveillance of Internet users, and the arrest and imprisonment of dissidents (BBC, 2020; Mai, 2017; Nguyen, 2017).

The fragile boundary between what is accepted and what is penalized, and between what is artificial and what is human in the cyber environment, can be puzzling for Internet users. As a result, some rural residents choose to play on the safe side and censor themselves online, and others seem not to question online government surveillance at all.

The boundary is unclear, it is better if it is explicitly said what is wrong so that [people] know to avoid [that type of accusation]... This means it is not clear, many people feel frustrated because of the timing of [their criticism] or the [unclear] boundary. Usually, it is not a problem but if people label me as a reactionary and oppositional factor, it is much harder. This is our problem in [online] information management. As you know, we do not like information that is not true, but who can say that it is not true? No one can confirm this information is correct or incorrect when people are suspicious. We want to limit certain information, but how to limit it is a difficult problem in the online environment. (Thai, a 52-year-old official in Vietnam's Ministry of Information and Communication)

It is not uncommon to see many Internet users avoid criticizing the government, the party, and leaders online. Thus, Bai limits herself to reading alternative news about land-related demonstrations, which are unlawful in Vietnam, but chooses not to comment on this issue online. It is clear to her that her online footprint is easily tracked by the government: "Cybersecurity personnel are everywhere. If the Internet connectivity is broken down, Internet service providers know which part of the network is wrong to come to fix it."

Similarly, Hung, a 41-year-old coffee and pepper farmer cum seasonal construction worker, believes the Internet is not an anonymous venue. He thought I was interrogating him when asking him who introduced him to the Internet, and asked if I worked for the government. Hung could only afford to pay for Internet connectivity for the day if he had money that day, and is aware that his identity is revealed through his phone sim card: "No, no. You can't fake the sim card to get access to the Internet. The sim card I am using couldn't be faked [so that I am someone else]." Hung said he only used the Internet for music and other entertainment to make his workday less hard;

however, online surveillance is on his mind in his village in the Central Highlands region, where the government used to crack down on riots and demonstrations.

Fuong, a 35-year-old owner and seller of a ceramics shop and co-owner of a ceramics workshop, said she does not care about online surveillance. However, for her, the boundary between human and non-human control of the Internet is blended together: “I only wish the computer [and other devices] are not suspended, and the sharks do not bite [optic fibre] cables; otherwise that’s it.” The Internet’s slow speed or suspension can have many reasons, including government censorship and discriminated flow of online information (Pearson, 2020). However, Fuong puts it as a natural occurrence out of human control. Since the Internet is crucial for Fuong’s business in selling and shipping ceramic orders online, her wish is to have a stable Internet connection with good speed to facilitate her business management and transactions.

While the Internet opens a horizon of alternative news and information in addition to what the government authorizes to propagate online, government surveillance and technical problems impact how rural residents use the Internet in their everyday life. Some choose to consume alternative news online while questioning news credibility and truthfulness and judging the alternative news by themselves as additional sources to mainstream information fostered and propagated by the state. None of my interviewees revealed posting alternative information online while consuming it, partly as a result of government surveillance and censorship that are based on blurry boundaries no one wants to take a chance to violate. However, some brought up this information in their everyday conversations with family, friends, and fellow villagers.

Thus, alternative news use genres have the potential to enlarge informational capabilities for rural residents. Traditionally the residents only obtained mainstream news polished and censored by the government via mass media. Alternative news online can probably provide residents various

angles to an issue so that they can have more information and more freedoms to navigate matters of their lives and thus lead the desired life. However, in the face of abundant information on the Internet, enhancing Gigler's (2011) "information literacy" (p. 8)—including the ability to evaluate and process information for rural residents—becomes more important than ever.

To some extent, the government is successful in their propaganda efforts through both mainstream media and the education system, which helps make some Internet users ideologically rounded and politically correct in the context of steady economic growth since the 1990s. Some interviewees expressed annoyance due to alternative news that criticizes national leaderships.

On Facebook, many postings about Uncle Ho [Ho Chi Minh] and the President are very terrible and disrespectful. I am so angry that I react immediately, saying that they are disrespectful and uneducated. (My, a 25-year-old local garment factory manager in Nam Dinh, who came back to her village to stay and work after graduating from college)

One man chose not to react to or even read "unorthodox" or unofficial news online, and demonstrated his political correctness to his students at the school.

[I] mostly do not read [the news], with a glimpse, [I] know it is unorthodox and reactionary... I have to orient the pupils to look for certain web pages for their education. (Phong, a 39-year-old vice principal of an elementary school in Nam Dinh)

Internet connectivity—or Kleine's (2013) existence of choice—enables rural residents to access alternative news in addition to mainstream information; however, their everyday use of alternative news is constrained by and contextualized in governmental surveillance, censorship, and propaganda practice and discourse. Some rural residents deviate from the mainstream stance and propaganda by consuming alternative news, which the Vietnam government tries to prohibit, to enlarge their political capabilities of their choice—though the news sometimes poses more puzzling

questions than provides credible and trustful information. I did not deliberately look for dissidents to interview in my research, and my convenience approach to selecting respondents among rural residents did not bring about interviews with dissidents. Rural Internet users are aware of the government's surveillance and censorship online, but some exercise "democratic rationalization" in Feenberg's term (1999, p. 76) to circumvent governmental domination of the Internet and to seek more information and angles apart from mainstream media coverage. However, due to the mysterious state-of-the-art Internet networks and the prevalence of government censorship and surveillance, rural residents take these rules and conditions for granted. They censor themselves by choosing not to post written comments on alternative news while searching for the news and discussing verbally within their social circles, preferring instrumental agency success rather than agency freedom.

Conclusion: Economic Development, Self-Development, and Personal and Interpersonal Use Genres

Thus far, emergent Internet use genres in local, professional, and personal development can be categorized as 1) economic and business-oriented use genres, 2) self-development including professional, cultural, and civic use genres, and 3) interpersonal and personal use genres including families, friendships, and community. First, economic and business-oriented use genres consist of specific economic activities pertaining to a geographical area, and home-based businesses. Second, self-development use genres comprise Internet use for work, career-related online preparation, and online education and learning. Finally, interpersonal and personal use genres encompass entertainment, medical information, Internet-based telecommunications services to maintain family relationships, and alternative news. These categorizations enable me to compare and contrast the government's top-down use objectives of Internet networks with rural residents' Internet use genres,

which are mainly grounded in their purposes, exigences, and situations as a combination of structure and agency resources.

While the government partly achieves the objectives of growing the economy and boosting business thanks to the Internet networks, some issues remain due to this top-down rollout approach. First, Internet connectivity does not automatically translate to informational and human capabilities for rural residents. For example, due to constrained social, financial, and education resources, few rural residents are able to create useful content to disseminate specific cultural knowledge to the community via the Internet. Thus, universal benefit content to help boost local economic development—one of the government's objectives of the Internet network—is only limitedly created by few rural residents. Second, though residents demonstrate their creative appropriation of the Internet, making use of their social and cultural resources in villages, many rural residents do not obtain the existence of choice as they need to prioritize freedoms to obtain basic needs. As a result, local and professional Internet use genres perpetuate existing inequalities between those who can make use of the Internet in developing their business and economic activities, and those who do not have access to the Internet, and thus cannot develop information literacy, ICT skills, or communication and content creation capabilities.

Since the reasons of using the Internet by an overwhelming majority of interviewees belong to personal and interpersonal, and self-development Internet use genres, the motivations for rural residents to connect to and use the Internet are not driven by the government's top-down objectives but are mainly grounded in residents' initiatives and determination. Through their various online uses—consuming entertainment content, learning online, searching news of rural residents' interests, using voice and video calling services to contact their friends and relatives—residents can probably imagine what kind of person they want to become. They can transcend the physical

boundary of their villages and maintain relationships with loved ones in the face of increasing mobility. However, these emergent use genres do not always lead to enhanced informational and human capabilities. Passive consumerism of entertainment content loaded with global cultural patterns can gradually erode rural traditions and values and the sense of a close-knit community. Internet-infused social clashes can arise between those who obtain progressive information on the Internet and those who guard traditional beliefs. Rural children, who are not able to pursue online learning, may be left further behind their peers in villages and urban areas, who can make use of online education resources. Though friends, family members, neighbours, and phone company staff can provide some training for rural residents to use Internet devices, I argue that intermediary organizations with a primary aim of helping rural residents to enlarge their informational and human capabilities are needed, particularly now that the country has begun implementing its digital transformation policy, starting in 2020.

Some Internet use genres are more prominent in some groups of people than others in terms of their gender, age, income, and occupation. These Internet use genres that emerge with respect to these different groups manifest recurrent use patterns grounded in Internet users' socio-biographical backgrounds and living contexts.

First, to speak of gender: as discussed above, two thirds of rural residents who mentioned using the Internet to search for health information (e.g., diagnostic, treatment, drug dose, etc.) were women, due to women's role in taking care of family health in Vietnamese families. The Internet perpetuates this gender role in real life; however, it enables women to more easily fulfil their role because of rapid access to information and informed decisions. Given the distance to hospitals and the physical and interpersonal challenges to access healthcare personnel, the Internet is a vital resource for self-treatment and at home care, thus enhancing women's degree of empowerment

within Kleine's (2013) choice framework. By the same token, due to a lack of reliable filtration of the vast information online, and the ability to buy medicines without prescriptions, online medical information may create some risks for women in taking care of their family members.

Second, in terms of age, the concepts of digital natives and digital immigrants coined by Prensky (2001) highlight the differences between age groups in how they adopt and use digital technology. Digital natives are born and grow up in a digital environment, whereas digital immigrants are those who learn about digital technology when they are already adults (Prensky, 2001). As a result, each generation has different languages and demands with regard to technology use (Prensky, 2001). To become more comfortable with digital technology, digital immigrants need to learn how digital natives use it, and to adopt the ways of speaking and acting that digital natives inherently understand and share (Prensky, 2001). When analyzing my interviewees' ages, which range from a 6-year-old girl to a 76-year-old man, I found that digital natives cannot be defined only in terms of age, due to the recent introduction and popularization of the Internet in rural areas and limited Internet connectivity. Though some children and grandchildren teach their older family members how to use the Internet, some adults and elderly people in their 50s and 60s learn how to use it by themselves and become proficient and purposeful in applying the Internet in their everyday lives. In comparison, many young people have only limited access and need to address their own challenges in their Internet adoption, learning, and use process.

Third, in terms of the relationship between occupations and reliable and full Internet subscriptions and devices, only about 30 percent of interviewees can afford entire and stable Internet subscriptions. Almost half of these interviewees use the Internet for their entrepreneurial businesses, such as Internet game cafés, porcelain making and selling facilities, karaoke venues,

homestay locations, and more. Due to the need for fast Internet connectivity, these business owners possess their own Internet devices and pay for full subscriptions to run their businesses.

Drawing from van Dijk's (2013) analysis of the digital divide, I argue that rural residents as a group possess a different status and power in the dynamics of technology adoption than urban dwellers in Vietnam. This is manifested in their limited Internet connectivity and levels of digital skills. van Dijk (2013) points out a vicious circle comprising categorical inequalities in society, unequal access to digital technologies, and unequal participation in society. His conceptualization of the digital divide goes beyond registering the existence of haves and have-nots with regard to possession and access to digital devices and networks. It focuses on the reproduction and reinforcement of social inequalities online. However, his theory does not show how to break this vicious circle for marginalized groups and how to enlarge their capabilities in leading lives they have reason to value.

Though acknowledging that ICT is not neutral, but is rather negotiated by relevant groups in society, and shaped mostly by the powerful, Kleine's (2013) choice framework does not point to ways in which marginalized groups can enhance their capabilities and have a voice in the shaping of technology. I argue that ICT innovations—a component of structure resources within the choice framework—should be included in the agency resources. The popularity of secondary Internet use in rural Vietnam demonstrates rural residents' creative appropriation of the Internet in the face of constrained budgets and the priority of basic capabilities. Secondary Internet uses also contextualize Internet use genres in local, professional, and personal development, which have the potential to enlarge users' informational and human capabilities. Moreover, Vietnamese rural residents face discrimination, and some of the residents internalize this attitude. As a result, it is necessary for rural residents to consciously know that they are able to shape the technology while appropriating or

taming it in accordance with their household's established patterns and rules, and to critically reflect on their aggregated use patterns to enlarge their capabilities in their everyday Internet use. The knowledge of their power to influence technology would make a difference in rural residents' self-esteem and psychology, which is a component of agency resources within the choice framework, leading to residents' empowerment to lead worthwhile lives. I will focus on discussing the choice framework in light of empowerment and capabilities in the next chapter.

Chapter 8: Capabilities and Choice – Rural Residents’ Empowerment and Concerns

Because rural residents in Vietnam suffer from systemic discrimination due to their rural origins,⁴¹ some of them internalize this perception and do not think their voices matter. Therefore, I choose to examine the possibilities for empowerment that the Internet brings to this social group. Rural residents’ concerns regarding Internet adoption and use are taken into consideration to examine how both structure and agency resources shape the choices users have vis-à-vis the Internet. In light of critical constructivism, the domestication model, and the capabilities approach—theoretical lenses that are grounded in individual agency—I emphasize technology users’ determination, will, and ability to make choices, or rural residents’ agency resources, to unveil and perhaps act as a foundation to help address these concerns.

I ask two questions: What do rural residents find empowering via their Internet adoption and use? What are their concerns? My aim is to combine critical constructivism, the capabilities approach, and the domestication model to shed light on the relationship between technology adoption and use, and human development. However, I argue that Internet use does not invariably lead to capabilities. I am reminded of Lefebvre’s (1991) stance to analyze both the positive and negative aspects of all everyday life activities. This argument adds nuance to the studies that operationalize the capabilities approach (Gigler, 2011, 2015; Kleine, 2013), which typically

⁴¹ The rural origins of rural residents relate to their position and status in society. However, this origin is innate; an analogy can be drawn to what has happened with people of colour in North America. Vietnam is a homogenous country where more than 90% of the population speaks Viet as their first language, which is the official language (National Ethnic Committee, n.d.). Rural people, even after immigrating to cities decades earlier and obtaining decent jobs there, are likely to be still discriminated against as unrefined country bumpkins through their accents, dialects, ways of dressing, and so forth. Some companies post public signs that they do not recruit people originating from some rural provinces (Le, 2019).

describe enlarging structure and agency resources as converting factors into capabilities. This typical view does not pay sufficient attention to the negative consequences incurred by Internet use in everyday life, which undeniably are also an integral part of the adoption process.

Since this chapter discusses Internet users' empowerment and concerns, I adopt the main ideas of the choice framework (Kleine, 2013) that operationalizes the capabilities approach and considers not only outcome aspects but also freedom and open-ended process aspects of development. Sen (1992) posits choice as part of capabilities. Though the choice framework does not discuss basic capabilities, this framework does manage to map out the conversion process of agency and structure resources that leads to Internet users' achieved functioning or choice.

Thus, I argue for incorporating part of the choice framework in the composition of Internet use genres. This includes four degrees of empowerment revealed through my analysis of the interview data. The choice framework's definitions of structure and agency resources add concrete elements to the analysis of Internet use genres. These structure and agency resources indicate contexts, needs, and intentions of users, which shape Internet use genres. While agreeing with Kleine (2013) on most of these structure and agency elements, I argue that technology use innovations should be placed under the rubric of agency rather than of structure. I come to this perspective because my interview data show users' creative appropriation of the Internet, by the local and situational shaping of meaningful use genres. In the following section, I discuss the value of the choice framework in my data analysis and explain how the structure and agency resources identified by the choice framework relate to users' situations, exigences, and purposes that shape their Internet use genres.

Capabilities and the Choice Framework: Resources and Internet Use Genres

In this section, I discuss how rural residents' creative appropriation of the Internet helps empower them in the face of their limited financial, educational, and informational resources. I use Kleine's (2013) four degrees of empowerment or empowerment dimensions (Appendix A). Rural residents' reservations and concerns about Internet adoption and use may hamper these four degrees of empowerment because of the negative effects of the technology that they perceive. At the same time, these concerns may trigger critical reflections on Internet use and thus may lead to a reflexive appropriation that enlarges users' informational and human capabilities. Specifically, some Internet use genres also contain "alienation" aspects, in Lefebvre's terms (1991, p. 42), or negative outcomes of Internet use. In light of the social construction of technology, this symmetric perspective adds nuances of analysis of the choice framework. Kleine (2013) aims at operationalizing the abstractly conceptualized capabilities approach in the development field, but only focuses on evaluative recommendations of enlarging converting factors that lead to enhanced capabilities while neglecting discussion of the possible negative effects of Internet use that limit or take away human capabilities.

Empowerment and Concerns

Empowerment

The concept of empowerment has its roots in gender studies, which called for women's empowerment to reduce their inequality. Moser (1993) defined empowerment as the "right to determine choices in life and to influence the direction of change, through the ability to gain control over crucial material and non-material resources" (pp. 74–75). Empowerment has contested definitions; for example, Friedmann (1992) refers to it broadly as the balance of power among the state, business, and civil society. In general, however, empowerment is usually used to refer to both a process and an outcome of the distribution of power, according to Alsop and Heinsohn (2005).

Thus, I adopt their definition of empowerment at both individual and group levels as “enhancing an individual’s or group’s capacity to make choices and transform those choices into desired actions and outcomes” (Alsop & Heinsohn, 2005, p. 5).

The dialectical relations between individual agency and structure shape “degrees of empowerment” and individual development processes and results (Alsop & Heinsohn, 2005, p. 10). However, Kleine (2013) develops Alsop and Heinsohn’s (2005) empowerment degrees with a particular focus on ICT users within the choice framework, which makes it appropriate for my study of Internet adoption and use in rural Vietnam. Kleine also adds a sense of choice to this concept of degrees of empowerment. Because her more nuanced approach to empowerment degrees is helpful for my research, I adopt her concept, which comprises the existence of choice, sense of choice, use of choice, and achievement of choice.

Vietnam’s rural Internet users have demonstrated a variety of degrees of empowerment as defined by Kleine (2013) and Alsop and Heinsohn (2005). The existence of choice for rural residents became partially available when the Vietnamese government and corporations rolled out broadband Internet to rural areas with more and more affordable subscription costs over time. However, many rural residents still cannot afford Internet subscriptions and devices to use in their villages; thus, existence of choice has not materialized for all individuals. At this level, secondary Internet users emerge as a way to reduce Internet subscription fees in the context of a sense of close community and real-life connections in villages. In terms of sense of choice, I discuss some Internet functionalities that are more popular with rural residents. Rural residents rarely adopt functionalities such as emails due to their lack of training and proficiency in digital skills. Thus, Vietnamese rural residents are not aware of all functionalities the Internet has to offer to enlarge their informational capabilities or to have larger choice options in their use of the Internet. The use of choice denotes

whether rural residents can pursue the path they choose. For example, parents and families invest resources to connect to the Internet for their children's educational and professional development purposes. At the level of Internet use realization, for instance, some rural residents look for online information to improve harvest productivity and to connect to business partners. Achievement of choice provides an opportunity to step back to evaluate if rural residents obtain the outcomes they seek with Internet connectivity and use.

In the following section, I discuss how existence of choice transforms into a sense of choice and subsequently into the use of choice by focusing on the concepts of "secondary Internet users" and the "warm expert" (Bakardjieva, 2005, p. 98). Secondary Internet users are those who manifest creative appropriation of the Internet when they negotiate their Internet use costs with basic capabilities, and with the support of an enabling community environment. The emergence of a sense of choice depends on how rural residents are introduced to the Internet and how they learn to use it. I argue that the sense of choice can motivate individuals to realize the existence of choice; thus two degrees of empowerment may not happen in a linear order. For example, Internet-based telecommunications services such as Zalo, Viber, and Facebook Messenger, which replace traditional phone calls, belong to the sense of choice category; however, they serve as a reason for many rural residents to get connected and obtain existence of choice to use voice chats and video calls on the Internet for various purposes.

I also argue that the choice framework's structure and agency resources largely explain the users' exigences, situations, and intentions, and delineate degrees of empowerment that lead to Internet use genres, which are likely to enhance users' informational and human capabilities. For instance, a rural resident who has access to an Internet device and subscription and knows how to use the Internet searches for medical information for her sick family member, thereby fulfilling her

gender role in the family and in the society. In other words, the individual possesses financial and educational resources under agency resources and makes use of ICT availability and affordability of the structure, which help shape her situation. The remote location of the village from hospitals, or her geographical resources under agency resources, also help shapes her motive and need of searching online medical information. Thus, as a female family member in a remote location, her needs are socially objectified through the lens of the concept of exigence. As developed by Miller (1984), “at the level of the genre, motive becomes a conventionalized social purpose, or exigence, within the recurrent situation” (p. 162). Her social resources as a caretaker in the family (under agency resources) also help shape her exigences and intentions of researching this medical information. She knows how to search for information via the Internet (information literacy) and to use Internet devices (ICT capabilities), thus enhancing her informational capabilities. Additionally, she enhances her human capabilities by enabling possibly better health for her family since “bodily health” is included in Nussbaum’s (2007, p. 76) list of the central human capabilities.

I will discuss the Internet use genres: social gathering, informal digital training, and secondary Internet use under the themes of empowerment in the following section.

Social gathering

Internet use enhances a sense of local community, as the interview theme of social gathering demonstrates. While some traditional values are at risk of disappearing due to the Internet, some forms of Internet use promote the togetherness of local people in villages. For example, approximately ten Ede ethnic-minority men gathered every night at a household in a village in Dak Lak province to watch soccer games either on a smartphone or on online television and to drink coffee because this house is among the few that have Wi-Fi. This form of Internet use promotes individual ability to use the Internet because the men learn from each other, find soccer information

and games in order to share their interests, and communicate among themselves while watching soccer games. While Yellowlees and Marks (2007) and Weinstein and Lejoyeux (2010) suggest that the Internet makes some groups of people live life online more at the expense of in-person relationships, these two anecdotes show that cyber time gathers people and enhances sense of community in rural areas, which in turn reinforces social and cultural resources contributing to individuals' situations, needs, and intentions in using the Internet.

In another example, Internet accessibility is not a reason for a group of pupils to share a screen at an Internet café, but the reason is their company, friendship, and a sense of community.

Many pupils are like a girl who asked me to open one computer for her. However, four pupils swarmed over this computer... They have friends and fun, and they like it. At home, they are alone and can't socialize with anyone while some parents, who see their children surf the Internet, shout at them. (Em, a 55-year-old male Internet café owner in Nam Dinh)

Though Gigler's view (2011) about informational capabilities includes a formal intermediary organization that facilitates Internet use and promotes the creation of locally relevant content, these spontaneous groups of Ede men and pupils are instrumental to enhancing the capabilities of each individual. The individuals learn how to use the Internet meaningfully and effectively from each other while sharing the same screen. The helpers, who are usually people who have or own Internet access and are socially reachable by other individuals, are "warm experts," as Bakardjieva (2005, p. 98) has called them. These approachable warm experts are not those who know everything technically about the Internet, but those who know better than other individuals, perhaps introducing others to the technology while making them feel less intimidated and more comfortable about the Internet (Bakardjieva, 2005) in the process of integrating new technology into rural everyday life.

In the context of these spontaneous groups, warm expert roles can also be rotated naturally

among the group members on an interactional basis, so that a learner from one group can become a warm expert in other settings. In an example from Nam Dinh province, another group of pupils rotate their turns on a computer playing a video game, cheering up and learning more about the game and each other's skills. Those students who play video games are usually considered as non-studious (Thanh, 2020), but sometimes game players are warm experts in helping their classmates and the community start learning how to use the Internet. Yeu, a 19-year-old male sophomore in architecture, recalled how he first used the Internet and became a warm expert. After learning how to use the Internet, Yeu taught his parents, the tailor and the barber, how to search for and read news on his computer and to watch television online. Thus, in the context of a lack of formal Internet use training in rural areas, and of a cultural milieu of close social interactions and a strong sense of community among rural residents, the spontaneous use of the Internet by a group helps strengthen the social capabilities of each individual within and beyond the group.

Some tenets of social capabilities identified by Gigler (2011) have been achieved by these spontaneous groups. These tenets that are applicable in rural spontaneous groups in Vietnam are (1) part of informational capabilities, i.e., the enhanced ability to adopt and use the Internet; (2) the psychological dimension of self-esteem and inclusion in a contemporarily ICT-dominated world; (3) a social dimension of digital literacy and ICT skill training leadership; and (4) the cultural dimension of increased awareness of local identities.

Interpreting social gathering and informal learning of Internet use through Kleine's choice framework (2013), rural residents gain awareness of Internet availability in their villages (existence of choice), of Internet functionalities (sense of choice), and may know how to use the Internet (use of choice).

In summary, long-standing and established interpersonal relationships in Vietnamese

villages create social, cultural, and information resources that enhance Internet users' training among neighbours, friends, and family members. These community-shared forms of Internet use reveal a sense of choice of what the Internet can facilitate.

Informal digital training and sense of choice – warm experts in rural contexts

Some rural residents, who do not have either Internet devices or subscriptions, first have a glimpse of how the Internet works and what it has to offer, by coming to their neighbours' houses to watch comedies or to search for topics of interest. Sun, a 35-year-old chicken trader, often went to the house of Sung, a 30-year-old garment worker and Sun's relative in the same village, to watch movies and entertainment programs on Sung's television. Sun also learned from Sung how to search for information about her chronic stomach-ache on the Internet. After seeing firsthand how the Internet can enrich her life, and weighing the pros and cons of Internet accessibility for her two school-age children, Sun bought a smartphone to connect to the Internet.

In the absence of formal training opportunities on how to use the Internet, many rural residents learn about the technology and how to use it from their neighbours, fellow villagers, relatives, friends, classmates, technical support staff from cell phone selling stores, children, and grandchildren. For example, another participant was trained by his granddaughter to use the Internet during her summer holiday, after her father suggested he use it.

He [my second son] sells everything electronic [in Ha Noi]; he doesn't miss a little electronics stuff from headphones [to bigger things]. He came home to visit us saying this is an information age, I will bring a computer and install it for you. I said to him that my [education] level is only high school; I do not know how the hell to figure it out. His eldest child at that time in junior high school said to me that she would teach me if her dad brought one and had it connected [to the Internet] for me. Therefore, she taught me...I have both a

computer and a television connected to the Internet. I like reading with big font sizes. When villagers came and asked me to turn on certain [online] movies, I opened them on the television...She spent a summer holiday with me, I asked her how to turn on, turn off, open [a webpage], move [a mouse] etc. and she told me how to do them. (Khang, a 76-year-old disabled veteran, and government retiree)

While Khang's family members enabled and trained him to access the Internet, another woman saved hard for her smartphone and subscription and relied on her friend and a cell phone shop assistant from the shop where she bought her phone, for digital training and support.

I could call 9090 or came to the Mobile World if necessary to ask; she [a shop assistant there] instructed me on how to use [the phone and Internet]...I bought my phone there and asked my friend how to do this, how to do that. (Que, a 23-year-old papaya trader in Can Tho)

In summary, these informal trainers—"warm experts" (Bakardjieva, 2005, p. 98)—refer to approachable and accessible Internet users who are more knowledgeable than novice users about digital literacy and its use, and thus help rural residents come to terms with digital technology.

Warm experts, many of whom are rural residents themselves, thus become teachers of this digital technology to other rural residents in how to use the Internet in Vietnam. The users, based on their own interests and perspectives, may only ask how to use some Internet functions that are based on their own interests. The most frequent uses of the Internet among rural users are those that include audio-video technology and images, such as social networking sites, online/video calls, and YouTube. This popular use of the Internet demonstrates how the everyday lives of rural residents, who tell oral stories to each other while in their fields and at evening gatherings, make their way

into digital culture based on orality and image. This use of the Internet's visual and audio aspects, which was challenging in dial-up Internet, has now been enabled through broadband Internet.

However, the impact of local informal training might also perpetuate economic disparity and employment inequality for rural people compared to those who can use email for business and have computers that are connected to the Internet for professional software and more value-added work. This informal training rural residents receive from their family members, neighbours, and friends helps them to improve their education, information, and psychological resources including self-esteem and confidence. On the other hand, digital literacy and Internet use skills that they obtain informally within their social resources reinforce the shared contexts leading to rural residents Internet use genres. Thus, the orality-based Internet use genres gain prominence among rural users rather than written formats such as emails. Since most of rural residents who receive informal training within their social resources via smartphones, a popular way of accessing the Internet in rural areas, their learnt smartphone use skills and mobile phones' configurations may not be sufficient to allow them to take full advantage of the Internet functionalities.

At the same time, local informal training reinforces the sense of community in the villages where many groups of people get together to be aware of existence of Internet, learn about sense of choice of the technology, graduate to use of choice, and perhaps achieve what they want from Internet use. Thus, I posit that social gathering helps enhance individuals' social, information, and cultural resources. I discuss shared forms of Internet use in the following section given villagers' proximity of living and close-knit relationships within the villages.

Secondary Internet use

Although secondary Internet users in rural Vietnam use the Internet, many do not have a full Internet subscription, or devices to connect to the Internet, or the skills to access the Internet, or face

a combination of these factors. However, this group of users accounted for more than 60 percent of my rural interviewees, and they demonstrated the interplay between Internet affordability—a component of structure—and local socio-cultural resources, which are a component of agency in Kleine’s (2013) choice framework. This percentage demonstrates an Internet subscription gap between urban and rural areas because, according to the Vietnam ICT White Book, (2019), 70 percent of the Vietnamese population use the Internet, whereas only 47 percent of Vietnamese households subscribe to the Internet. While this secondary Internet user group fosters the use of the Internet in villages, they can also limit rural users’ sense of choice to some extent. I argue that despite Internet use limitations, due to shared subscriptions and devices in the face of rural residents’ limited financial resources in which they need to prioritize for basic capabilities, such Internet use can be considered as a creative appropriation thanks to their social resources. In the choice framework, Kleine (2013) posits that technologies and innovations, including ICT availability, affordability, and skills belong to structure resources that Internet users' need to navigate to determine their choices. Informed by the domestication model view and the critical constructivism perspective, I argue that Internet use innovation contextualized by ICT affordability and skills is derived from individual agency, rather than being a component of structure, as defined in the choice framework.

Most secondary Internet users in my research were neighbours or relatives who lived close to each other and were sharing Internet subscription costs or granting Wi-Fi passwords for free to their neighbours. This way of Internet use aims at lowering subscription costs and demonstrates a strong sense of community and trust, which is enabled within rural residents’ social and cultural resources. By sharing subscription costs among two or three households living near to each other, rural Internet users create Internet affordability and shape how corporations provide Internet

subscriptions to rural areas. In the villages, I visited in Nam Dinh and Thanh Hoa, some Internet service providers supply routers and outdoor telecommunications cable to one household that signs a subscription contract. At the same time, the providers connect the telecommunications cable with other households who share the subscription costs, according to the interviewed villagers. In these cases, it is the responsibility of the household subscribing to the Internet to collect a fee from the other households it is sharing with, and to submit that payment to the Internet service provider. Thus, providers have adapted their business approach to accommodate this form of secondary Internet use, in response to user behaviour, which renders this use as a creative appropriation of the Internet.

All interviewees in Thanh Hoa shared a subscription with one or two other households and many interviewees in Nam Dinh and Hanoi villages had adopted the same sharing approach to lower their monthly payments. A shared Internet subscription is more economical and better suited to the way many rural residents use the Internet than 3G for phones:

We share Internet subscriptions and use Wi-Fi. Currently, we use a 110,000 dong per month package, and three households share this package...Before we used to use 3G for cell phone, [with] the cheapest subscription per phone being 25,000 dong. [However,] we can't watch online TV and use other devices to connect to the Internet [with 3G]. My husband's 3G subscription used to cost from 25,000 dong to 50,000 dong. With the 3G cheapest subscriptions, we both had to pay a total of 50,000 dong per month, but [before the Internet] was only available on the phone. If we want to watch television online so that our eyes are less tired, it is better to have Wi-Fi at home with a shared subscription. At work, I can't have Internet on my phone at break time, but at home we have Internet in the evening. (Xoang, a 32-year-old garment factory worker in Thanh Hoa)

Some neighbours give their Wi-Fi passwords to my interviewees for free in the spirit of close community and support. For example, a neighbour gave Sung, a 30-year-old woman living with her mother-in-law in Thanh Hoa, free Wi-Fi so that she could frequently contact her husband who worked some distance away in a city. Sung appreciated this help when she did not have income after giving birth to her first child and was looking for a local teaching job. In another instance, Chuong, a 59-year-old retired farmer without retirement income, received complimentary Internet for two years from a shop owner who rented the convenience store in front of her house. This allowed her to watch entertainment programs after her family's tragedy. The reciprocal returns from Sung and Chuong to their generous neighbours were mostly appreciation and help in keeping an eye on their neighbours' houses or properties, as good neighbours would. This practice of shared Internet subscription is common in the rural villages in Vietnam, fitting within the framework of the country's cultural and social resources, and serves as a rite of passage for many rural residents in owning their Internet devices. It builds on and ushers into the digital age the centuries-old traditional cultural values of gifting and sharing among neighbours and fellow-villagers.

In another category of secondary Internet users, free Wi-Fi venues respond to the needs of Internet users who have Internet connectivity devices such as smartphones and laptops but do not have sustainable Internet subscriptions. Specifically, to meet this need, many businesses, public offices, and religious facilities provide free Wi-Fi for their customers and passers-by. Perhaps, this segment of the population—many of whom are rural residents who are increasingly mobile travelling far from their villages for education, life, and employment—is so significant that meeting their demand for free Internet connection on the go becomes a part of accessory services of these organizations and businesses in order to provide better public services or to attract and retain their customers. As an example, a 50-year-old scooter taxi driver named In from Can Tho, was able to

gain access to free Wi-Fi from a nearby People's Committee premises on his phone while he waited for his potential customers to come from a ferry. Similar to the People's Committee approach of offering complimentary Internet for citizens, the community health centres in both Nam Dinh and Dak Lak provide free Wi-Fi for patients and visitors. Religious places also offer not only worship services but, in the spirit of Buddhist generosity, also complimentary Internet. Moreover, people from all walks of life, including students, farmers, pupils, visitors and more, spend time in the surrounding outdoor areas of Thien Vien Truc Lam, a pagoda in Can Tho, for the pagoda's quiet atmosphere and free and fast Wi-Fi. In another example, the only way for Son, a 27-year-old fisherman in Da Nang, to gain access to the Internet is to visit his familiar café to drink a cup of coffee for 3,000 dong (17 Canadian cents). He does this when he is onshore every morning, and then he is able to connect his phone to free Wi-Fi for as long as he wants. This model of complimentary Wi-Fi access perhaps derives from both the demand of Internet users having mobile devices without Internet subscriptions and also from Vietnamese people's strong sense of community. In the case of the pagoda, the provision of desired online access looked like a way to reinforce the central place of the temple in local culture in the digital age, another example of keeping centuries-old traditions vital and relevant.

Due to rural residents' financial constraints, established relationships, and the traditional culture of sharing resources, their Internet connectivity is partly enabled by community resources. While juggling investment in Internet connectivity with some basic needs such as food, shelter, and clean water, rural residents creatively appropriate the Internet. They share subscriptions and devices to lower the connectivity costs while making use of and at the same time fostering their social and cultural resources in the Internet era. Rural users create new ways of using the Internet beyond technocrats' preconfigured technology design. These users integrate a sense of community in the

individualized design of smartphones and make Internet service providers facilitate shared Internet subscriptions among households in villages.

There are some drawbacks to secondary Internet use, of course. The manner in which secondary Internet users gain access to the Internet implies how rural residents become aware of the Internet and its affordances, adopt certain Internet uses, and achieve the goals they pursue. On the one hand, due to shared subscriptions and devices, rural residents learn firsthand from each other how to use the Internet, and as a result, the state-of-the-art technology is not distant to them. On the other hand, partly due to this circle of informal training and users' friend and family networks, new Internet users adopt some popular applications such as YouTube and Facebook, and do not learn about others. Most interviewees do not have an email address, and many do not know what email means. Another limitation is that shared subscriptions slow down Internet speed, and thus users cannot freely choose how to use the Internet when traffic is heavy.

Vietnamese rural residents respond to top-down Internet rollout by sharing subscriptions and devices, which in turn makes Internet service providers offer shared cables and routers to subscribers to increase profits from subscription sales. This shows that necessity sparks users' initiative to access, receive training, and use the technology. Sen (1999) argues for enlarged favourable conditions for everyone in social, economic, and political realms to increase people's freedom in choosing how to undertake activities of their choice and to become who they want to be. However, how people make use of this increased freedom is an individual choice, and some people are more creative in appropriating the technology in the face of necessity. The actual practice of secondary Internet users shows that high costs of Internet subscriptions and devices and the lack of digital skills create a type of shared use that enables rural residents to familiarize themselves with

the Internet and lower the cost of access. Both are prerequisite conditions to achieving individual choices when using the technology.

In short, rural residents obtain the degrees of empowerment particularly through informal and approachable digital training that in turn reinforces in-person social gathering and vice versa and shared Internet subscriptions and devices. These Internet-infused changes in agency and structure resources and in degrees of empowerment help shape Internet use genres in both positive and negative terms. In addition to such technical issues as instances of possibly collective ignorance around Internet sense of choice and use of choice, and of slowing down Internet speed, there are some significant fears and concerns around the Internet and its impacts, among the villagers. What follows is an account of rural residents' concerns in the face of Internet adoption and use in the villages, which may influence users' intentions, needs, and situations from which their Internet use genres take shape. I discuss rural residents' concerns regarding Internet use, which may impact degrees of empowerment and at the same time may provide critical reflections on Internet-induced capabilities in the next section.

Concerns

Health concerns as a result of Internet use

The Internet enriches rural residents' capabilities in searching for health-related and drug information in the contexts of their location at a long distance from the overloaded hospitals in urban areas. However, many rural residents said they were concerned about their personal and children's health issues, such as possible harm to eyes, ears, and even noses when they stare at screens at close distance.

I have a sister who loves her daughter. [Her daughter] has had a motorbike accident and [my sister allows] her to hold a phone [all the time she had to sit still], now [her daughter]

becomes short-sighted, because my sister neglects [the fact that] she is still a child. I am very afraid; I adjust the screen to avoid maximum brightness [for my daughter's use]. (Que, a 26-year-old papaya trader and a mother of a 7-year-old girl in Can Tho)

A man, who helps take care of his 3-year-old grandson, whose parents live and work in Ha Noi, finds the Internet useful and worthwhile of his investment in it; however, he limits his own use to 2 hours a day for worries about his eyes:

When I hadn't used the smartphone yet, I asked myself why it cost more than ten million dong, now I find it has many functionalities. When I go on a train or on a bus, I take it with me to pass the time. Whatever I need, I search and find the information, for example, the effects and ways to consume certain mushrooms and antlers.... [However] my eyes will be harmed if I watched the screen the whole day. I divide my screen time, one hour in the morning and one hour in the afternoon... I do not teach my grandson to access the Internet because I am afraid it will harm his eyes. (Ngoc, a 52-year-old retiree in Nam Dinh)

Vinh, a 48-year-old primary school teacher in Thanh Hoa, says "[the Internet] has [negative] impacts on health, for sure on the eyes and the nose." Perhaps the lifeworld of rural residents used to be surrounded by open and outdoor spaces; hence, the introduction and adoption of a technology close to their face seem to be intrusive to them. Though many households had television sets and radio before smartphones and computers, the Internet device screens are now usually accessible within arm's reach and have sparked concerns about sensory damage.

Rural residents' perception about Internet-infused sensory and health issues perhaps influences their psychological resources in regulating Internet use in a way that they believe would incur fewer harms for the health. This perception also impacts how rural residents appropriate and use the Internet amid their established patterns of their everyday lives such as dividing their or their

family members' use time quota in chunks, thus adjusting their use of choice and perhaps achievement of choice, and degrees of empowerment in Kleine's (2013) choice framework. The health concerns might be another unanticipated means of bringing traditional perspectives and practices around health into the digital age.

Another concern is that the access to the information on the Internet on individual devices also creates concerns about uncontrolled and unwanted content by parents, which I discuss in the next section.

Harmful and distractive content on the Internet

Some rural residents are afraid that youth and children can access and have exposure to adult or other content on the Internet, which can distract from their studies and harm their development.

I myself do not find any negative aspects of the Internet, but the youth are influenced by pornography and adult content on the Internet. Now we also have this problem in the village because the information is available and fast on the Internet, some girls in junior high school have unwanted pregnancies. (Sung, a 30-year-old mother of a one-year-old daughter and a graduate from a pedagogical college)

Sung attributes the prevalence of harmful content such as pornography on the Internet and lack of sexual education at school to teenagers' unsafe sex and unwanted pregnancies. Another woman was hesitant to connect to the Internet at home, fearing that it would distract her children from their studies:

I do not dare to connect to the Internet because we have children, they would watch musicals and listen to songs and would be distracted from studies. Many villagers have connected to the Internet as their children do not go to school anymore. I am afraid that my two children would play on the Internet, so we haven't got Internet connectivity yet. Most of the Internet

game cafés are opened near schools, many parents come there to look for their children.

Some pupils put their vehicles [bicycles, electronic bikes, or motorbikes] in a pawn shop to have money for online games. (Sun, a 35-year-old chicken trader in Thanh Hoa)

For those who have Internet connectivity at home, they find ways to limit their children's screen time and choose a place where they can monitor their use, like the parents' bedroom, to put a computer.

I am a bit concerned, but I have my own way of managing it so they can use 30 minutes [at a time]. They need to ask permission to use the computer at a non-computer time. The computer is in our bedroom. The computer is not locked by a password [but we somehow manage our children's screen time and Internet content by the computer's physical location], they come saying I need 15, 20, or 30 minutes on the computer to study and they study by themselves. (Ong, a 36-year-old owner of an aluminium and glass shop that makes windows, roofs, and cupboards, and a father of daughters in grades 9 and 5, as well as a pre-schooler)

Ong's approach to mitigating presumably harmful and distracting content on the Internet demonstrates what the domestication model of technology reveals (Silverstone, Hirsch, & Morley, 1992). Technology is not a silver bullet that makes its own way into people's lives, but users tame and appropriate it in accordance with their households' contextualized values, principles, and established everyday life patterns (Silverstone, Hirsch, & Morley, 1992). The placing of the computer in Ong's bedroom demonstrates his chosen values of children's cyber safety and study priority rather than showing off computer ownership to the neighbours. Ong's family's guideline of children's screen time can be associated with the incorporation tenet of the appropriation of technology in which computer use is regulated by parents and shared among the children.

Fakes and phishing

Some rural residents encounter phishing problems, which arise with Internet use, and learn how to use the Internet more safely after incidents. For instance, a man complained about fake information and phishing attempts on Facebook:

For example, some information is incorrect on Facebook...I was deceived once, an account [pretending to be] my friend asked me to buy a telephone card [that costs 20,000 Vietnamese dong or \$1 CAD]. I bought it for him and lost the money. [The account] told me he needs it desperately, so I bought it to get the reimbursement later, but I lost it all. (Phan, an 18-year-old high-school student in Dak Lak)

This fraudulent practice also happened to the veteran in Nam Dinh; however, it was a different twist:

My password was hacked some days ago. They asked my children and grandchild to send money to me. I received three phone calls during lunch hour from my children and grandchild. [They asked] “you need us to send you money? Oh, it must have been your password was hacked.” ...They all know that I do not need money as I am at home in my village, so no one was deceived. They are now more prudent. If their parents and grandparents are at home and ask them to send money back, it would be because of a hacked password (Khang, 76-year-old)

Faking information and phishing raise concerns for some rural residents. However, they learn lessons from their Internet use incidents. Both Phan and Khang use a traditional way of checking the validity of requests by using the telephone to verify the legitimacy of any monetary requests sent online and use more sophisticated password settings to prevent them from being hacked. Thus, after these incidents, users’ needs and intentions to verify money requestors’ identity by switching to

traditional phone calls indicate their suspicion of fake identities on the Internet, which serve as experience and critical reflection in their usage situations shaping Internet use genres and having the potential to enhance their ICT use in informational capabilities.

Gradual erosion of face-to-face interpersonal relations

Although Internet adoption and use in rural areas can be converted into conversations about online content in everyday life and can perpetuate a sense of community closeness while rural residents share screens and learn technology use from each other, the Internet can also erode interpersonal relations. For instance, Truong, a 34-year-old teacher of English at a junior high school in Thanh Hoa, also provided care for her one-year-old, 7-year-old, and 9-year-old children. She attributes the Internet to a lack of care by her and her spouse for each other as her husband glued to his computer or smartphone while she both worked and took care of the children and the family. In another example, a man blames the Internet for the lack of people's presence:

The Internet often erodes friendships and brotherhoods. For example, without a smartphone, people ask about each other, talk to each other, discuss stuff together in a coffee or tea shop. Now people have smartphones. They watch comedy and movies and chat with their friends online; now is different from the past. I have a smartphone, so I chat with my friends [on the phone even though you are sitting in front of me] (Goi, a 29-year-old temporary security agent in the Ministry of Defence in Can Tho)

A co-worker of Goi's, who joined the group interview, agreed with Goi and added the reason he felt that people are more attracted to the Internet than to what happens around them in real life is online fame and money:

Now, people can earn money online. If a posting is well shared and has many comments, they earn money. Now, people spend a lot of time online and view the world via Facebook,

which is not good. (Ga, 22-year-old temporary security agent in the Ministry of Defense in Can Tho)

To sum up, those who have concerns about competition for attention between the online and the real world hold the opinion that cyberlife cannibalizes real life. In addition, Internet use has changed the social fabric in the community where villagers traditionally communicated with each other in person. Through the lens of communicative configuration (Bertel, 2018), human actors are not only those physically present but also those on social media and on messages on smartphones. Communicative purpose and practices in these cases reveal that some Internet users neglect these face-to-face interrelations at the expense of communicating with their social circles who are physically outside the village and spending time online living vicariously through the outside world. Rural residents' imagination of whom they can become, what they can do, and where they can travel is easily facilitated by prevalent social media such as Facebook, where many rural interviewees said they had more than a thousand friends, most of whom they do not know in person. Within village boundaries, villagers are in a close-knit community, many of whom are blood-related and glued by life-circle ceremonies and cultural festivals (Luong, 2003). However, gradual changes in villages' social fabric in the face of rural residents' increasing mobility and online time can impact information, psychological, cultural, and social resources of the choice framework. Changes in these agency resources can lead to Internet use genres in the spectrum between creating negative aspects of the technology use (Lefebvre, 1991) and fostering rural residents' "expansive realization" (Miller & Slater, 2000, p. 10).

Desire for connectivity

This section comprises rural residents' responses when asked if they have any recommendations to improve rural broadband Internet services. All 29 rural Internet users who

answered this question discussed Internet connectivity issues (Table 1), including subscription costs and quality of service. Most of these Internet users noticed they would like to see the Internet cover more areas of the country, at an affordable price, and provide more stable and faster speeds.

For one man, the monthly Internet subscriptions and devices are inexpensive, compared to his businesses' profits; however, he stated he sometimes has problems with Internet speed when video-calling his friends and customers:

I talked with people far from me using that screen [to see them at the same time].

Sometimes, perhaps due to weather or coverage, the call was paused or suspended.

Sometimes, it is clear to hear and see, but it is not as good as being in person. Sometimes, they reply with some seconds in delay. I hope that the Internet would have as good communication [i.e., instant and good quality] as that of in-person meetings. I would like to see the Internet cover all corners [i.e., all regions] of the country so that people can benefit from online communication and research. (Chinh, a 52-year-old owner of an all-season fruit orchard and homestay business)

Some complained about high Internet costs, which means they need to prioritize the Internet expense for their children's studies. For example, Phung, a 41-year-old fisherman in Da Nang, had to pay 165,000 dongs (less than 10 Canadian dollars) every month for an Internet subscription, about one-fifteenth of his family income. Many other Internet users save on Internet subscriptions by using free Wi-Fi at work, in a café, or in a public place. Thus, access to affordable Internet connectivity is first on rural Internet users' minds when they think about better Internet services.

To improve Internet speed, some Internet users plan to switch Internet service providers for a more attractive rate. For instance, Em, a 55-year-old Internet gaming café owner in Nam Dinh, wanted to switch providers in order to have fibre-optic cable at a more affordable price. Em

currently paid 1,350,000 dongs per month for an Internet subscription (\$80 CAD); however, no other provider offers a better rate for business in his village, so he needs make do with the current subscription until more affordable offers may become available. However, households have more options to switch than businesses in the same village, perhaps because businesses like Em's are only a fraction of the market that Internet services providers are not as competitive as in the residential market. Khang, a 76-year-old war disabled veteran in Nam Dinh, one of the few rural residents who can afford an entire regular monthly subscription, planned to switch to Viettel from Vinaphone to connect his own Internet to fibre-optic cable for 165,000 dong (less than 10 Canadian dollars) per month, which is a lower price fibre-optic subscription package. Though Khang does not believe his recommendations for better Internet services matter, after he had worked as a local government official for 16 years upon his military dismissal, he thought market mechanisms promote Internet quality and lower prices in rural areas:

Internet companies have fierce competitions. Each has different tactics in each timeframe.

Vinaphone lures people by giving them a complementary sim card when they start Internet subscriptions with the company. In turn, Viettel launches other tactics such as telephone cost discount to the elderly or if you buy some services, they give you other free promotion. The competition is very fierce. There are a lot of offers out there; if the companies provide bad services, they lose. (Khang, a 76-year-old war disabled veteran in Nam Dinh)

Rural residents demand Internet connectivity at a lower price and better quality, which could incentivize Internet service providers, who are state-owned companies, to compete against each other to win the market. However, neither a telecom company nor the Vietnamese government addresses a gap in training rural residents to hone their digital and information skills to make better use of the Internet for personal, professional, and rural development, and in providing content

relevant to local and socio-cultural needs. The current lack of formal digital training and affordable and high-quality Internet services demonstrates some deficiencies in the Vietnam government's broadband Internet policy by 2020, an aspect of the structure category of the choice framework, which may impact all degrees of empowerment. This, in turn, shapes how rural residents navigate among availability of technological functionalities, their needs, purposes, and situations to stabilize Internet use genres that either have potential to enhance their capabilities or create problems. I discuss some arising tensions as a result of Internet use in Vietnamese villages in the next section.

Internet-induced clashes

The Internet, as a multi-purpose technology, which has recently been introduced to well-established villages of cultural and social traditions, has brought about some clashes between traditional knowledge and beliefs versus online information; and between Internet gaming café owners and the parents of school-age student gamers. Moreover, the Internet also enables online businesses and transactions at the expense of traditional ways of doing business. Additionally, it facilitates new forms of knowledge, including automatic calculations and helps some groups of people gain more advantages than others. Finally, the Internet poses an access problem with regard to protected content for educational purposes and copyright.

Some of these clashes occur among family members in the context of traditions and values, particularly in the passing down of knowledge and advice from the elderly. Child-related topics regarding to the upbringing of children, for example, are part of rural cultural identity. At the same time, many Internet users use Google to research such topics, something that worries older generations. For example, there are beliefs that pregnant women should follow rigorous diets, that a charcoal heater should be put under the bed where mothers and new-borns sleep, and that women who give birth should not have a shower for days. These beliefs probably derive from the perception

that women who have recently given birth are weak and need to restrict many of their daily practices for the sake of their own and their baby's short- and long-term health (Ma, 2017).

However, a daughter-in-law did not follow these rules and instead looked online for advice while pregnant and after having the baby. Her father-in-law frowned upon this behaviour:

Progressive young people do not listen to the experience that older adults obtain. [The young people] consider science as the highest authority and [traditional beliefs] as untrustworthy. For example, [my daughter-in-law] eats something older people believe she should abstain from [because] Google...tells her she can eat this while breastfeeding ...As a result, health problems arise in raising our own grandchildren. (Chinh, a 52-year-old owner of an all-season fruit garden and homestay business in Can Tho)

In the context of Vietnam's tropical climate and the experience from generation to generation, certain food is believed to be bad for short or long-term health. Young people's reliance on child-raising online information, which is usually Western biased, may not be applicable to the rural contexts and also raises tensions within the family between traditional experience and modern knowledge.

Furthermore, clashes between Internet game cafés owners and parents have arisen in the villages since most customers of Internet gaming cafés are pupils who are excited and addicted to games and distracted from school homework. For example, a man felt some hostility coming from parents, but these attitudes changed over time:

Now they [the parents] are polite when they come. They ask [about their children], and I invite them to have a cup of tea. Before, they were aggressive when they came. Now, they are polite and look only for their children and educate their children, when they leave, they say goodbye, not as before. Now they are more aware of our business, not as before. We are

running a [legally permitted] business and must pay taxes. (Em, a 55-year-old Internet game café owner in Nam Dinh)

In another example, Sa, a 57-year-old Internet game café owner in Can Tho, also faced the same problems when parents came to his café to look for their children. Sa put himself in the position of the parents and had compassion for them. He admitted he would not be happy if his children and grandchildren skipped schools to play games, but he still needs to carry on his business and pupils are his main customers. Sa said he keeps silent if the parents raise their voices or yell at his café. These clashes emerged most typically at the early stage of the introduction of the Internet in rural Vietnam, where children did not have high-speed Internet at home and went to online gaming cafés to play games and participating in their community.

Given the ability of users to search for information and materials on the Internet, some forms of traditional business are fading away. A woman praised the Internet for enabling her son and daughters to pursue their university education paths; however, she criticized the Internet because it may also help “lazy” people and enable unauthorized copy of protected education content; and it actually slows down her book sales:

The harmful aspect of the Internet is to protect lazy people, who can copy each other’s documents [to teach students with these documents]. Many people, who do not know how to do additions, subtractions, and calculations fast, become successful thanks to the technology. My sales of reference books for school-age children are much slower since 2014-2015. I have been selling this type of book since 1996. It does not attribute to more sellers, perhaps the Internet may make students lazy in reading reference books. (Bai, a 58-year-old bookstore and photocopy shop owner after retiring from her teaching job at a public school)

These concerns regarding the Internet can influence both structure and agency components of Kleine's (2013) choice framework, which impacts emergent use genres that lead to informational and human capabilities or negative effects on everyday life or something in between. Rural residents, who express fears for personal and family health due to exposure to the Internet, impose measures to restrict Internet use when appropriating the technology. They even hesitate about adopting the Internet, which in turn shapes Internet use genres with restrictions on how long, when, and where to use the Internet.

Some concerns, such as perceived health problems, Internet connectivity affordability, harmful and distractive content, and Internet-induced clashes, are specific to Vietnamese rural residents' vantage points that are contextualized in their living environment. In addition, others including fakes, phishing, and the gradual erosion of face-to-face interpersonal relations, are more common concerns for many Internet users. Though the rural residents did not involve in the broadband Internet rollout plan and an inclusive structure and discourse around the residents and broadband Internet seem to be absent (regarding level 4 to level 6 of the ladder of inclusive innovation by Heeks et al. (2014), the residents can critically reflect on relationship between these concerns and their well-being freedoms and find ways to enhance their capabilities.

Conclusion

In this chapter, I discuss the relationship between capabilities (Sen, 1992, 1999) and choice in Kleine's (2013) choice framework, demonstrating that choice is a proxy of capabilities. The choice framework adds value to my analysis in the sense that it focuses on individual freedoms instead of concrete outcomes and on degrees of empowerment for Internet users.

Since Vietnamese rural residents face systemic discrimination on the innate basis of their rural place of birth and upbringings, empowerment dimensions are important in shaping Internet use

genres that have potential to increase informational and human capabilities for people to lead their desired lives. I analyze how four empowerment themes specifically pertaining to rural Vietnamese villages help increase rural residents' agency resources delineated within the choice framework. For example, the useful information gained in rural residents' informal digital training promotes social gathering, whereby the social and cultural resources leverage the residents' information and education resources and ICT capabilities. Secondary Internet use in the face of financial constraints demonstrates rural residents' creative appropriation of the Internet that has the potential to effectively create and enhance doings and beings which people value to lead their worthwhile lives via some emergent Internet use genres.

Drawing on a symmetry principle of the social construction of technology (Bijker & Pinch, 2012) and the critique of everyday life (Lefebvre, 1991), I discuss rural residents' Internet use concerns—including perceived Internet-infused health issues, harmful and distractive content online, fakes and phishing, gradual erosion of in-person relations, the high price and low quality of Internet connectivity, and social clashes and tensions—as roadblocks rural residents face in enhancing their structure and agency resources as a result of their Internet use. These negative aspects of Internet use perhaps shape how rural residents navigate their purposes, needs, and intentions to stabilize some Internet use genres. Some use genres, such as copying online teaching materials without copyrights and citations (Vietnam News, 2014), demonstrate what Redshaw (2017) terms “popular rationalization” (p. 46) rather than Feenberg's (1999) concept of democratic rationalization.

From the domestication model's perspective, rural residents address some concerns by themselves by incorporating Internet use into established everyday patterns, norms, and rules. For example, first, rural residents tame the technology by regulating when and how long they and their

family members have access to the Internet in the face of perceived health issues and harmful, distractive content online. Second, the conversion stage happens after experiencing fakes and phishing attacks, when some rural residents convert this experience to real life by talking with their involved family members and friends and switching to phone calls to verify online requestors' identities. Third, in terms of the appropriation stage, rural residents' decisions to appropriate the Internet while juggling their agency resources to prioritize freedoms to obtain basic services and products, such as food, clean water, and shelter, have a part in how state-owned Internet services providers set subscription prices when these companies compete with each other in the market economy.

However, some concerns including gradual erosion of in-person relations and Internet-infused clashes, are situated in a larger changing situation of villages whose boundaries with the outside world are challenged not only by the Internet as a communication medium but also by the villagers' increasing mobility. In some villages, during non-holiday months, only the elderly and children are left behind as young people, most adults, particularly men, work seasonal jobs in cities (Nguyen, 2020). I observed modern multi-storey houses, where many trees were cut down to make space for them, in which rooms remained unoccupied for several months during a year. These houses were built, in the villages I visited, thanks to the rural residents' income gained while working afar. Perhaps, the rural mentality to "keep up with the Joneses," the call to live a modern city life, and the availability of low-cost, long-distance telecommunications services online all contribute to this mobility trend. In that case, affordable long-distance telecommunications services serve as use of choice to achieve individual freedoms to move, which is part of Nussbaum's (2007) central human capabilities, but might also contribute to the lack of other central capabilities, namely "practical reason [or]...to engage in critical reflection about the planning of one's life" (p. 77).

Through the lens of the choice framework (Kleine, 2013), the findings under the empowerment section of this chapter can enhance agency resources for rural residents and lead to increased degrees of empowerment. These findings demonstrate that the Internet becomes a part of the residents' everyday life and mobilizes social and cultural ties of close-knit communities to partly offset the residents' technological affordability issues and lack of formal digital training. However, the findings regarding the residents' concerns may hamper the residents' positive attitude towards Internet use, an element of agency resources, which may trigger needed reflections of how the Internet fits within the residents' established values and patterns in their everyday life.

Through the lens of Internet use genres, the findings of rural residents' Internet-induced empowerment and concerns demonstrate how residents' structure and agency resources combine with each other to shape the users' purposes, needs, and situations that stabilize the use genres. On the one hand, some use genres can lead to human capabilities, e.g., creative appropriation of the Internet via secondary Internet use help secure use of choice and lead to the achievement of choice on a sustainable basis, thus leading to informational and human capabilities. On the other hand, some use genres demonstrate rural residents' concerns regarding social and cultural fabric shifts in the village and their well-being freedoms.

As can be expected in data collection of this scope, this chapter's findings open many more complex, follow-up questions about Internet-infused capabilities than they have answers. For instance, do people who experience erosion of in-person relations and social tensions and clashes, enlarge or reduce their capabilities while using the Internet? The short answer is that it depends on each person's freedoms to become who they want to be and to do what they value to lead their worthwhile lives. But how are these freedoms defined and shaped? These freedoms can be justified through public reasoning, according to Sen (1999); however, this form and culture of reasoning are

not generally encouraged in Vietnam, where the government prefers a top-down approach and is afraid of losing its sole ruling power. Though Nussbaum (2007) brings up a list of central human capabilities, the list is neither concrete nor broad enough to use as a reference point to evaluate all residents' Internet use with regards to their capabilities. Thus, intermediary organizations that would work with the residents to identify their purposes, needs, and wants from the Internet use in their local contexts could help enhance the users' informational capabilities and degrees of empowerment, a step closer to human capabilities.

Chapter 9: Conclusions and Recommendations

This study set out to examine if there is a gap between the Vietnam government's top-down broadband Internet policy—which largely aims for broadband infrastructure rollout by 2020—and rural residents' bottom-up Internet use genres grounded in their social and biographical backgrounds. I refer to the gap as the extent to which the government is failing to recognize how rural residents are appropriating the Internet to the conditions and needs of their everyday lives and to adapt Internet rollout to fully realize the possibilities offered by this multi-purpose technology for the enhancement of human capacities and freedoms in rural areas.

Overview of Findings and Recommendations

What I found was that although the Internet infrastructure rollout enabled many rural residents to pursue their economic and professional activities in line with the government's modernization objectives, two primary deficiencies exist:

First, even when many rural residents get access to the Internet, digital connectivity does not lead to rural users' enhanced informational capabilities. Given that the Internet is a multi-purpose technology, the broadband Internet rollout policy has to include measures designed to enhance information literacy, ICT capabilities, communication capabilities, and content creation skills.

Second, Internet policies and broadband rollout should be informed by actual Internet use genres, which are grounded in users' situations, exigences, and intentions. Consequently, I argue that rural residents should have a voice in shaping broadband Internet to better respond to their needs.

In this research, I also set out to explain how the residents can enlarge their informational and human capabilities while incorporating the technology into their everyday lives. In addition to Internet-infused capabilities, the research also draws attention to negative aspects of Internet use

genres in terms of inequality, passive consumerism of Western and exotic mass culture, and ruptures of the social fabric caused by residents' increased mobility outside their villages.

The findings of Internet use genres demonstrate their relations with functionings, alienation, and/or capabilities as visualized in Figure 2. For instance, some villagers in the ceramics village obtain achievement of choice or a functioning through marketing porcelain products and conducting business transactions via Zalo with their customers. In another example, a cacao grower and trader critically searches for cacao growing techniques, obtains ICT and communication skills, and creates online training content for cacao fellow growers near and far. Thus, this farmer obtains four aspects of informational capabilities leading to human capabilities given his Internet connectivity on sustainable basis.

If rural Internet users were trained to enlarge their informational capabilities and degrees of empowerment and if they were able to exercise practical and public reasoning regarding their choices, those choices would not only be achieved functionings but could become their capabilities. However, some Internet use genres can have negative consequences such as the gradual erosion of face-to-face interpersonal relation and Internet-induced cultural clashes in villages where residents have traditionally shared values as a close-knit community. The potential of Internet users' expansive realization challenges established hierarchy and social relations in villages. The reflexive navigation of these different potentialities could be facilitated through public and practical reasoning.

Based on both the achievements and deficiencies of broadband Internet rollout in Vietnam, I suggest that rural communities' input should be sought in policy-making through various means. I recommend the involvement of intermediary organizations that would work with rural residents to better understand their needs and to educate and train them so that they can take full advantage of

the possibilities offered by broadband connectivity. In addition, dedicated forums for public discussion are necessary for rural residents to critically reflect on Internet use genres and to share experiences and strategies for the enlargement of their capabilities and freedoms.

Study Limitations

While the study has some theoretical and empirical implications for the field of the social construction of technology and development, it is also prudent to recognize that due to the practical limitations that bounded the design and implementation of the research project, its findings are only valid within a limited scope.

First, the research scope was delimited to rural residents' use of the Internet in their villages. Ideally, the investigation of villagers' increased mobility for work, study, and life beyond villages' physical boundaries (as discussed in Chapter 7), could have included some residents who use the Internet in the urban districts of cities, as well as in their home villages. This inclusion would have resulted in a more nuanced understanding of broadband Internet connectivity in different contexts, while providing a comparative perspective on emergent Internet use genres.

Second, the study did not cover villages where residents live in sparsely populated mountainous areas of difficult access. Due to the distance between houses and lower traffic to urban centres, different patterns of Internet connectivity and use genres could have arisen in these areas.

Third, the study did not include those rural residents who had decided not to use the Internet despite having some connectivity and devices. It would have been informative to understand this group of residents too.

Finally, if I had more resources, I could have kept contacting telecom companies until they answered my questions about their role in delivering broadband Internet in rural areas and their business strategies for gaining rural Internet market shares when they faced losing local and long-

distance telephone call revenues. This would have added the perspective of an important organizational actor in the rollout of broadband Internet in rural Vietnam.

There are also a few methodological and implementation limitations caused by resource logistics. First, I was not able to spend exactly the same time in all villages and thus I could not observe villagers' lives after working hours at home and in private places in some of the villages in Ha Noi and Da Nang. Second, though the interviews were semi-structured, had I been more intimately familiar with the local context, I could have adjusted the wording of some questions to help make all interviewees feel comfortable. For example, as discussed in Chapter 7, instead of asking who introduced the residents to the Internet, which elicited fear and extreme caution in the interviewees, I could have asked how they first came to know about the Internet and learned how to use it. Third, I could have prepared a simple information pamphlet, customized to different education levels, that clearly explained broadband features so that rural residents could be aware of (1) the minimum speeds required in various facilities, such as schools, public libraries, health care stations, and households, and (2) how the technology could meet their needs individually. This information would have helped a few rural residents in their everyday use and exploration of the Internet.

Theoretical and Empirical Contributions

Theoretically, the study advances the conceptualization of Internet use genres by weaving critical constructivism (Bakardjieva, 2005; Feenberg, 1999), the domestication model (Silverstone, Hirsch, & Morley, 1992), and the capabilities approach (Sen, 1979, 1992, 1999). Internet use genres—ways of using the Internet grounded in users' social and biographical backgrounds—can foster users' empowerment and informational capabilities. Use genres demonstrate users' creative appropriations of the technology and aggregate Internet appropriation patterns to provide food for

thought regarding how the development of the technology could be directed toward emancipation and expansion of the capabilities that users value. I propose that the degrees of empowerment in the choice framework proposed by Kleine (2013) can help stabilize rural communities' Internet use genres. Many of these genres enable expansive realization and worthwhile fulfilment as manifestations of central human capabilities. I agree with Sen's (1999) stance arguing for the need for public reasoning, public discussion, and voluntary consent among rural Internet users to illuminate "a better understanding of the value and role of specific capabilities" (Robeyns, 2005, p. 106). In other words, when Internet users exercise what Nussbaum (2007) terms "practical reason" (p. 77) and reach an agreement through public discussion, several Internet use genres can lead to Internet-infused capabilities, particularly in developing countries and in marginalized communities.

The choice framework (Kleine, 2013) and the informational capabilities concept (Gigler, 2011, 2013) have both strengths and weaknesses as theoretical lenses for the analysis. In terms of their strengths, first, they provide concrete criteria to operationalize the abstract capability approach and to examine ICT use and its association with users' achieved and potential functionings beyond economic growth. Second, the choice framework distinguishes between different degrees of empowerment, which are crucial for rural residents in developing countries who face a double digital divide. The degrees of empowerment including existence of choice, sense of choice, use of choice, and achievement of choice help concretize residents' steps of effective use of technology when they navigate a combination of their limited structure and agency resources to obtain achieved functionings. By exercising and obtaining these degrees of empowerment via Internet use, rural residents can enhance their individual-centred capacity to make choice and lead their worthwhile lives when Vietnam has been rapidly upgrading its digital and economic infrastructures to integrate more with the world. Third, the notion of informational capabilities prompts the examination of the

conditions under which ICT access and use can help enhance marginalized people's empowerment and quality of life. Fourth, both constructs specify how individual and community resources are converted into degrees of empowerment, choice, and informational capabilities.

The limitations of the choice framework (Kleine, 2013) and informational capabilities concept (Gigler, 2011, 2013) in relation to this research, were identified in two areas. First, the choice framework posits that the degrees of empowerment lead to choice and user-driven outcomes—achieved functioning. I argue instead that users' critical reflections and public discussions of the Internet use genres can lead to potential functionings. Second, though the informational capabilities concept is a step closer to ICT-infused potential functionings, rural residents may find it challenging to enhance information literacy, ICT capability, communication capability, and content capability by themselves. Considering these strengths and weaknesses, I will suggest priorities for future studies.

In Vietnam, broadband Internet rollout manifests operational autonomy, which is a term that Feenberg (1999) coins to indicate powerful groups' interests embedded in and reproduced through technology. The top-down broadband Internet rollout reflects the government and telecom companies' interests that are entrenched in Internet infrastructure and connectivity provisions. This rollout is associated with a lack of training for users, particularly in information literacy, ICT capabilities, and content creation skills.

Critical constructivism, the capabilities approach, and the domestication model address the shortcomings of the modernization paradigm and shed light on how broadband Internet rollout should aim at human development instead of exclusively on Internet connectivity and infrastructure expansion and upgrade for the purposes of industry and business. The empirical contribution of this thesis studying broadband Internet rollout from the perspective of both policy and the lived

experience of rural residents confirms the weaknesses of the modernization paradigm that have been discussed by scholars from developing countries (Liu, 2016; Matunhu, 2011; Melkote & Steeves, 2015; Shi, 2020; Ting and Yi, 2013; Zhao, 2008; Zheng et al., 2018). It goes beyond these critiques by providing a theoretical framework to address these shortcomings. The government facilitates broadband Internet rollout nationwide in order to incite rural residents to use the Internet for economic growth, modernization, and industrialization. This push disregards rural residents' traditional values and culture and encourages them to shift to the goals of wealth creation and modernity. As a result, this dominant discourse magnifies inequality among rural residents and between the villagers and urban dwellers because these development criteria disregard human diversity and the realities of rural life and traditions. The Internet use genres concept informed by the critical constructivism, the capabilities approach, and the domestication model (Figure 2) could suggest how to roll out and provide the Internet to enhance rural residents' capabilities grounded in human diversity, which represent alternative goals of development absent from the modernization paradigm.

Government policy makers and telecom companies could respond better to the needs and values of broader circles of users, if they were accurately informed about and appreciated the significance of Internet use genres, grounded in the various user groups' particular purposes, intentions, and aspirations. Furthermore, with public and practical reasoning concerning Internet use and the freedoms people value, many Internet use genres can lead to broadly shared informational and human capabilities.

Recommendations for Future Research

Empirically, ethnographic interviews with rural residents about their Internet adoption and use allow a researcher to tap into the residents' voices that Internet policy makers should consider.

When properly understood, residents' perspectives could make the Internet rollout better respond to a wider spectrum of needs and lead to an enhancement of users' capabilities. Rural users' voices are missing in most of Vietnam's ICT studies. These users account for more than 60 percent of the country's population, but they are rarely consulted when policies are made. Based on my ethnographic data, I propose the concept of local Internet use genres that are distinctive to a village and related to its economic and traditional activities. The interviews also indicate that residents' Internet use genres are much more diverse than the government's top-down economic objectives. Furthermore, the interviews point to both negative and positive aspects of Internet use, something that has to be considered when technologies are pushed by government agencies. The potential social and cultural damage and unintended consequences have to be identified and mitigated.

Along the line of the capabilities approach, including degrees of empowerment and informational capabilities, I recommend that future studies focus on intermediary organizations in rural areas in developing countries. Internet connectivity is not a goal per se, and rural residents can use the Internet meaningfully and effectively beyond the sphere of economic growth. Gow et al. (2018) demonstrate how intermediary organizations can foster the degrees of empowerment and informational capabilities with consideration of local contexts. They develop directions and training materials for technology stewards in Sri Lanka and Trinidad to lead ICT campaigns and conduct participatory and context-sensitive evaluations.

In the context of Vietnam, where the government acknowledges the importance of Internet use training in implementing its digital transformation strategy, such intermediary organizations could be local youth's organizations, women's unions, veterans' organizations, and other social intermediaries as well as telecom services companies (as external ICT intermediaries). Though civil society organizations belong to the Vietnam Fatherland Front that is an association directed and

controlled by the Vietnamese Communist Party, I suggest these organizations for two reasons. First, they have their established presence in all provinces at a commune level. Given that the government plans to train ICT trainers across the country from 2020 onwards, the members and activists of these organizations could facilitate outreach in the local communities. Second, being local residents themselves, members of these organizations are familiar with the social contexts and even the biographical situations from which Internet use genres derive. This makes them well positioned to facilitate rural residents' critical media literacy training and local content creation. Local governments and communities could mobilize these social and/or external ICT intermediaries to work with rural residents to enhance degrees of empowerment and informational capabilities in targeted and sensitive ways. Technology stewards recruited from each of these social or ICT intermediaries could be trained for their leadership role with a view to supporting meaningful and effective ICT adoption and use for local communities, community engagement activities, low-cost ICT platform identification, and for evaluation and assessment planning of communication campaigns (Gow, 2018). These internal and external technology stewards could work with villagers to identify low-cost ICT and help build the awareness and skills needed for their effective utilization by rural people.

Given the Internet uptake and the gradual elimination of 2G-only mobile phones in Vietnam, perhaps low-cost ICT might be Facebook Messenger and Zalo or open-source ICT platforms—the Internet-infused telecommunications services that many rural residents used—to conduct communication campaigns among the intermediaries and villagers. These stewards would lead and serve rural communities in using technology effectively to enlarge their freedoms to lead worthwhile lives through interests and activities not limited to the economic realm. If local

organizations or ICT intermediaries can be mobilized, they could also translate and transmit the voices of rural residents to policy makers.

Because rural residents face systemic discrimination due to where they were born and raised, it is essential to examine how Vietnamese mainstream media discusses broadband Internet rollout and rural Internet users. This analysis would unveil media coverage of the topic as part of the “discourse” structure as per the choice framework that may influence emergent Internet use genres. According to the inclusive innovation model for development (Heeks et al., 2014, p. 4), marginalized groups should be included, on the one hand, at the levels of intention, consumption, and impacts and, on the other hand, at the levels of process, structure, and discourse. An analysis of media coverage about the topic will provide food for thought on how to work with media organizations to call for rural residents’ involvement in broadband Internet policymaking and rollout. Moreover, media organizations may need to discuss governmental regulations and policies, on the structural level, that require rural residents’ input as part of the rollout procedure and create an inclusive discourse of the residents in technology rollout and implementation.

With the Vietnam government’s planned elimination of 2G-feature-only telephones starting in 2021 and its provision initiative of smartphones with pre-installed apps to lower the price of a smartphone set to about \$30 CAD, further research could usefully explore whether marginalized rural residents have a say in shaping the technological artifact designed by government and corporate experts. This study’s natural progression is to unveil increasing infrastructure and social inequality among rural residents in the wake of obligatory smartphone uses for all telecommunication services. This obligatory switch to smartphones would perpetuate inequality between those who have financial resources to purchase an Internet device that responds to their

needs and those who have to adopt subsidized smartphones pre-installed with apps after the disappearance of 2G phones.

Though smartphones are designed for individual use, Internet connectivity is still a social technology that exists between individuals and communities in the context of rural Vietnam. For example, villagers share their devices and subscriptions with each other and learn from their warm experts how to use them. Future studies should also focus on how social and cultural resources of rural residents facilitate their use of individually-designed devices and examine how their secondary Internet uses may help promote established relations, traditions, and enhance users' capabilities. Given that the majority of rural residents use smartphones as one of the devices to connect to the Internet, future studies on Internet adoption and use in developing countries should also perhaps shift their focus from a debate on future technologies and modes of connectivity to research on how users can make the most of their Internet-infused capabilities via smartphones. However, it should be noted that exclusive reliance on smartphone affordances and apps is likely to perpetuate social and economic inequalities for those who only use smartphones versus those who also use computers and laptops.

Due to the current lack of data on inequality between demographic groups within the rural population, such as income, gender, education, geography, and more, future studies should focus on generating these data and examining emergent Internet use genres by these diverse groups. Studying the use genres initiated by such categories of users can provide a nuanced understanding of how to enhance disadvantaged groups' informational and human capabilities based on their structure, agency resources, needs, and intentions.

Given that the broadband Internet is a multi-purpose technology, future studies should take the stance that technology is a means of development that should be understood broadly as real freedoms people enjoy using technology to lead worthwhile lives.

Recommendation for Practice: Vietnam Internet Policy Makers and ITU

The Vietnam broadband Internet rollout plan by 2020 focuses on infrastructure expansion and extension, which does not always lead to rural residents' Internet-infused empowerment or informational and human capabilities that should be both means and ends of development. First, policy makers should be aware of emergent Internet use genres, which are much more comprehensive than economic and business-oriented uses at which the government aims. Second, policy makers should create a safe space that encourages rural residents to publicly discuss their Internet use and exercise practical reasoning. This public reasoning would help residents to decide which of their Internet use genres enhance their capabilities and local economic development which ones should be critically re-considered in the face of the shifting social fabric, values, and traditions. Third, instead of a top-down approach identifying rural residents' needs in the digital transformation efforts starting 2020, policy makers should consider promoting intermediary organizations that work with and facilitate residents' Internet use to enlarge their informational and human capabilities.

Since the ICT Development Index was established by the ITU, I recommend that the index should include Internet-induced life quality and capabilities for users in its use components. The index's use components only consist of connectivity criteria such as percentage of population using the Internet and subscription numbers. The index's skill components comprised schooling years and secondary and tertiary enrolment ratio. The index perhaps should consider including variables such as Internet users' information literacy, ICT capabilities, communication capabilities, and content creation skills in the skill components.

Concluding Statements

Que, the 23-year-old papaya trader in Can Tho, spent almost a month's worth of her young family's income buying a smartphone in several instalments, in addition to paying one percent of her income per month for an Internet subscription. The highlight of this busy and hard-working mother's day is to watch entertainment programs on YouTube with her husband and 7-year-old daughter on the smartphone inside a mosquito net before going to sleep. Perhaps no Internet designers and policy makers could have thought of this type of use or creative appropriation in the context of a province inundated with canals and rivers in a tropical country.

I chose Que to wrap up my thesis because she is a young woman who did not finish high school after giving birth to her daughter at the age of 16. Que has invested a lot of resources to connect to the Internet; however, her family and she only use the Internet for online entertainment, the use genres most rural residents mention as one of the reasons they connect to the Internet. Que is not interested in having her daughter pursue online education since she is afraid of worsening her daughter's eyesight and because her daughter's teacher does not encourage students to study online. Though Que demonstrates creative appropriation of the Internet, the multimillion dollar broadband Internet rollout and her significant resource allocation to Internet connectivity should do more for her and her family in order to break the vicious circle of categorical inequality. Differential Internet use among different social groups could lead to increasing inequality between these groups. In Vietnam, like in other countries (see Scheerder, Van Deursen, and Van Dijk, 2019) low-education users tend to turn to the Internet mostly for entertainment while users with higher education employ the network in ways more likely to lead to social and economic advancement. Appropriate training programs put in place by the government and intermediaries could help rural residents like Que and

her family take full advantage of the technology for the expansion and realization of diverse capabilities.

This thesis argues that policy makers, intermediaries, and telecom companies should consider emergent Internet use genres, and, on that basis, find ways to facilitate the growth of users' Internet-supported informational and human capabilities—the means and ends of development.

References

- 3G, 4G reaches 98 percent of Vietnamese population. (2019, January 5). *ICT News*. Retrieved from <https://ictnews.vn/thoi-su/vung-phu-song-di-dong-3g-4g-da-phuc-vu-tren-98-dan-so-viet-nam-177446.ict>
- About ASEAN (n.d.) ASEAN. Retrieved from <https://asean.org/asean/about-asean/>
- About the International Telecommunication Union. (n.d.). ITU. Retrieved from <https://www.itu.int/en/about/Pages/default.aspx>
- Agrawal, R. (2016, February 23). India's caste system: Outlawed, but still omnipresent. *CNN*. Retrieved from <https://www.cnn.com/2016/02/23/asia/india-caste-system/index.html>
- Alampay, E. (2006). Analysing socio-demographic differences in the access & use of ICTs in the Philippines using the capability approach. *The Electronic Journal of Information Systems in Developing Countries*, 27(1), 1-39.
- Albirini, A. (2008). The Internet in developing countries: A medium of economic, cultural and political domination. *International Journal of Education and Development using ICT*, 4(1), 49-65.
- Alsop, R., & Heinsohn, N. (2005). *Measuring empowerment in practice: Structuring analysis and framing indicators*. The World Bank.
- Andre L, Cuberes D., Diouf M., Serebrisky T. (2010). The diffusion of the Internet: a cross country analysis, *Telecommunications Policy*, 34, 323-340
- Anh, V. (2020). Experiment to conduct digital transformation in seven challenging communes. *ICT News*. Retrieved from <https://ictnews.vietnamnet.vn/cuoc-song-so/thi-diem-chuyen-doi-so-cho-7-xa-kho-khan-258722.html>

- Antonio, A., & Tuffley, D. (2014). The gender digital divide in developing countries. *Future Internet*, 6(4), 673-687.
- Aristotle (2002). *Nicomachean Ethics*. (W.D. Ross, Trans.). Focus Publishing/R. Pullins Company
- Atkinson, R. D. (2011). Economic doctrines and network policy. *Telecommunications Policy*, 35(5), 413-425.
- Avgerou, C. (2010). Discourses on ICT and development. *Information Technologies & International Development*, 6(3), pp. 1-18.
- Avgerou, C., Hayes, N., & La Rovere, R. L. (2016). Growth in ICT uptake in developing countries: new users, new uses, new challenges. *Journal of Information Technology*, 31, 329-333.
- Ba, T. (2010, May 13). Popularization of Internet for ethnic minority: small is the seed of every greatness. *Saigon Liberation*. Retrieved from <http://www.sggp.org.vn/pho-cap-dien-thoi-Internet-cho-dong-bao-dan-toc-thieu-so-mua-dam-tham-lau-234100.html>
- Bakhtin, M. (1986). *Speech genres and other late essays*. (V. W. McGee trans.). Austin: University of Texas Press.
- Bakardjieva, M. (2006). Domestication running wild. From the moral economy of the household to the mores of a culture. In T. Berker, M. Hartmann, Y. Punie, and K. Ward (Eds.), *Domestication of media and technology* (pp. 62-79). London: Open University Press
- Bakardjieva, M. (2005). *Internet society: The Internet in everyday life*. London: Sage
- Bakardjieva, M. (2008). Making sense in broadband in rural Alberta, Canada. *Observatorio*, 4. 33-53.
- Bang Lang stork sanctuary (2018, September 27). *Dai Doan Ket newspaper*. Retrieved from <http://daidoanket.vn/dan-toc/vuon-co-bang-lang-noi-miet-vuon-nam-bo-tintuc418301>

- BBC (2020, April 29). Vietnam: one more person was imprisoned because of their posting on Facebook. *BBC Vietnamese*. Retrieved from <https://www.bbc.com/vietnamese/52467193>
- Bebbington, A. (1999). Capitals and capabilities: a framework for analyzing peasant viability, rural livelihoods and poverty. *World development*, 27(12), 2021-2044.
- Belanger P. (2006). Leapfrogging the infrastructure in developing countries. PowerPoint slides download from http://www.novarum.com/pdf/Leapfrogging_the_Infrastructure.pdf
- Bentham, J. (2000). *An Introduction to the Principles of Morals and Legislation*. Kitchener: Batoche Books.
- Benh Vien Cho Ray (n.d.) Instructions to have medical consultations at Cho Ray hospital. *Patient*. Retrieved from <https://nguoibenh.com/huong-dan-kham-benh-tai-benh-vien-cho-ray-tphcm/>
- Bertel, T. F. (2018). Domesticating smartphones in In J. Vincent and L. Haddon (Eds.) (pp. 71-82). *Smartphone cultures*. London: Routledge.
- Bold, W., & Davidson, W. (2012). Mobile broadband: Redefining Internet access and empowering individuals. *The global information technology report, 2012*.
- Beuermann, D. W., Cristia, J., Cueto, S., Malamud, O., & Cruz-Aguayo, Y. (2015). One laptop per child at home: Short-term impacts from a randomized experiment in Peru. *American Economic Journal: Applied Economics*, 7(2), 53-80.
- Bijker, W. E., Hughes, T. P., & Pinch, T. J. (Eds.). (2012). *The social construction of technological systems: New directions in the sociology and history of technology*. MIT press.
- Bijker, W. E., & Pinch, T. J. (2012). Preface to the anniversary edition. *The social construction of technological systems: New directions in the sociology and history of technology*, xi-xxxiv.
- Bill & Melinda Gates Foundation (2011). Vietnam's Public Libraries Offer Improved Access. Retrieved from <https://www.gatesfoundation.org/Media-Center/Press->

Releases/2011/11/Vietnams-Public-Libraries-Offer-Improved-Access-to-Information-and-Technology

Binh, H. (April 11, 2019). Victory gained by “urban surrounded by rural strategy. *VietTimes*.

Retrieved from <https://baomoi.com/thang-vi-chien-luoc-lay-nong-thon-vay-thanh-thi/c/32815232.epi>

Bogner, A., Littig, B., & Menz, W. (Eds.). (2009). *Interviewing experts*. Springer.

Bogner, A., Littig, B., & Menz, W. (2018). Generating qualitative data with experts and elites. *The SAGE Handbook of Qualitative Data Collection*, 652-667.

Bogner, A., & Menz, W. (2009). The theory-generating expert interview: epistemological interest, forms of knowledge, interaction. In *Interviewing experts* (pp. 43-80). Palgrave Macmillan, London.

Bourdieu, P. (1986). The forms of capital. In J. Richardson (ed.), *Handbook of theory and research for the sociology of education* (pp. 241-258), CT: Greenwood.

Boymal, J., Martin, B., & Lam, D. (2007). The political economy of Internet innovation policy in Vietnam. *Technology in Society*, 29(4), 407-421.

Bradshaw Y, Fallon K, Viterna J. (2005). Wiring the world: access to information technology in development in poor countries. *Research in Social Stratification and Mobility*, 23, 369-392.

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative research in psychology*, 3(2), 77-101.

Bresnahan, T. F., & Trajtenberg, M. (1995). General purpose technologies ‘Engines of growth’?. *Journal of econometrics*, 65(1), 83-108.

- Broadband Commission for Sustainable Development. (2020). *The State of Broadband 2020: Tackling digital inequalities: a decade for action*. ITU. Retrieved from https://www.itu.int/dms_pub/itu-s/opb/pol/S-POL-BROADBAND.21-2020-PDF-E.pdf
- Bui, A. (2020, June 22). Inequality in comprehensive growth in Vietnam. *National Institute for Finance, Ministry of Finance web portal*. Retrieved from Chi tiết tin (mof.gov.vn)
- Burr, V. (1995). *An introduction to social constructionism*. Routledge. ProQuest Ebook Central, <http://ebookcentral.proquest.com/lib/ucalgary-ebooks/detail.action?docID=165681>
- Campos, M. (2009). Critical Constructivism. In S. Littlejohn and K. Foss (Eds), *Encyclopedia of Communication Theory*. Retrieved from <https://sk.sagepub.com/reference/communicationtheory/n83.xml>
- Canadian Radio-television and Telecommunications Commission [CRTC]. (2017, November 9). What you should know about Internet speed. Retrieved from <https://crtc.gc.ca/eng/Internet/performance.htm>
- Cao, H., Sun, Y., Wan, Y., Hao, J., & Tao, F. (2011). Problematic Internet use in Chinese adolescents and its relation to psychosomatic symptoms and life satisfaction. *BMC public health*, 11(1), 1-8.
- Carter, N., Bryant-Lukosius, D., DiCenso, A., Blythe, J., & Neville, A. J. (2014). The use of triangulation in qualitative research. *Oncology nursing forum*, 41(5), 545–547. <https://doi.org/10.1188/14.ONF.545-547>
- Castellaci, F., Grodal, S., Mendonca, S., & Wibe, M. (2005). Advances and challenges in innovation studies. *Journal of economic issues*, 39(1), 91-121.
- Castellacci, F., & Tveito, V. (2018). Internet use and well-being: A survey and a theoretical framework. *Research policy*, 47(1), 308-325.

- Castells, M. (2011). *The rise of the network society*. John Wiley & Sons.
- Cecchini, S. and Scott, C. (2003), Can information and communications technology applications contribute to poverty reduction? Lessons from rural India. *Information Technology for Development*, 10, 73-84.
- Central Highland News. (2015, December 23). Dak Lak: Notes at Ebur Commune Cristian Region. *Tin Tay Nguyen*. Retrieved from <https://tintaynguyen.com/dak-lak-ghi-o-vung-dong-bao-cong-giao-cu-ebur/115319/>
- Chen, W., & Wellman, B. (2004). The global digital divide—within and between countries. *IT & society*, 1(7), 39-45.
- Chinh phu (n.d.) Provinces and Cities. chinhphu portal. Retrieved from <http://chinhphu.vn/portal/page/portal/chinhphu/cactinhvathanhpho2>
- Circular 08 (2016). Implementing public utility services provision program by 2020. Ministry of Information and Communication. Retrieved from chinhphu.vn
- Circular 34 (2014). National technical regulation on quality of fixed land broadband Internet Access Service. Retrieved from <https://thuvienphapluat.vn/van-ban/cong-nghe-thong-tin/Thong-tu-12-2014-TT-BTTTT-Quy-chuan-ky-thuat-quoc-gia-ve-chat-luong-dich-vu-truy-nhap-Internet-bang-rong-co-dinh-mat-dat-251588.aspx>
- Cohen, R. (2009, May 24). Peaceful evolution angst. *The New York Times*. Retrieved from <https://www.nytimes.com/2009/05/25/opinion/25iht-edcohen.html>
- Communist Party Resolution (1996). Retrieved from chinhphu.vn
- Communist Party Resolution (2001). Retrieved from chinhphu.vn
- Communist Party Resolution (2006). Retrieved from chinhphu.vn
- Communist Party Resolution (2011). Retrieved from chinhphu.vn

- Communist Party Resolution (2016). Retrieved from chinhphu.vn
- Communist Party of Vietnam Resolution Session IX (2001). Retrieved from dangcongsan.vn
- Communist Party of Vietnam Resolution Session XII (2016). Retrieved from dangcongsan.vn
- Corbin, J., & Strauss, A. (2008). *Basics of qualitative research: Techniques and procedures for developing grounded theory*. Thousand Oaks, CA: Sage Publications
- Correa, T., & Pavez, I. (2016). Digital inclusion in rural areas: A qualitative exploration of challenges faced by people from isolated communities. *Journal of Computer-Mediated Communication*, 21(3), 247-263.
- Correa, T., Pavez, I., & Contreras, J. (2018). Digital inclusion through mobile phones?: A comparison between mobile-only and computer users in Internet access, skills and use. *Information, Communication & Society*, 1-18.
- Couldry, N., & Hepp, A. (2016). *The Mediated Construction of Reality*. Cambridge: Polity Press.
- Couldry, N. (2010). *Why voice matters: Culture and politics after neoliberalism*. Sage publications.
- Dapice, D. (2005). The Internet in three countries: Strategies for growth? Center for Business and Government, John K. Kennedy School of Government. Harvard University. Retrieved from <http://www.fetp.edu.vn/en/policy-papers/policy-research/the-Internet-in-three-countries-strategies-for-growth/>
- Decision 11 (2014). Organization and Activities of Vietnam Public Utility Telecommunication Service Fund. Retrieved from http://vanban.chinhphu.vn/portal/page/portal/chinhphu/hethongvanban?class_id=1&_page=1&mode=detail&document_id=172137
- Decision 119 (2011). Decision / Prime Minister: Approval of Rural information and communication plan 2011-2020. Retrieved from chinhphu.vn

Decision 149 (2016). Approval of broadband telecommunications infrastructure development by 2020. Prime Minister. Retrieved from <https://thuvienphapluat.vn/van-ban/Cong-nghe-thong-tin/Quyết-dinh-149-QĐ-TTg-phát-triển-hạ-tầng-vien-thong-bang-rong-2020-2016-301186.aspx>

Decision 749 (2020). Decision approving “national digital transformation program to 2025 with direction by 2030”. Retrieved from http://vanban.chinhphu.vn/portal/page/portal/chinhphu/hethongvanban?class_id=2&_page=1&mode=detail&document_id=200163

Decision 868 (2018). Amendment and addition of Decision 1168/QĐ-TTg dated July 24 2015 by the Prime Minister on approval of public utility telecommunication service provision by 2020. Retrieved from http://vanban.chinhphu.vn/portal/page/portal/chinhphu/hethongvanban?class_id=2&_page=1&mode=detail&document_id=194151

Decision 1168 (2015). Approval of public utility telecommunication service provision up to 2020. Retrieved from http://vanban.chinhphu.vn/portal/page/portal/chinhphu/hethongvanban?class_id=2&_page=1&mode=detail&document_id=180728

Decree 21 (1997). Temporary regulation on the management, establishment, and use of Internet in Vietnam. Retrieved from <https://luatvietnam.vn/khoa-hoc/nghi-dinh-21-cp-chinh-phu-4543-d1.html>

Decree 55 (2001). Management, provision and use of Internet services. Retrieved from chinhphu.vn

Deibert, R. J. (2003). Black code: Censorship, surveillance, and the militarisation of cyberspace.

Millennium, 32(3), 501-530.

- Dewan S. and Kraemer K. (2000). Information Technology and Productivity: evidence from country-level data. *Management Science*, 46 (4), 548-562.
- DFID, U. K. (1999). *Sustainable livelihoods guidance sheets*. Department for International Development.
- Dinh, A. (2019, January 24). Television stations retire “diamond” bandwidth for mobile broadband. *ICT News*. Retrieved from <https://ictnews.vn/vien-thong/truyen-hinh-giai-phong-xong-bang-tan-kim-cuong-de-cho-di-dong-bang-rong-178164.ict>
- Dinh, H. (2004, August 11). Vietnam telecommunications tariff roadmap. *VietnamNet*. Retrieved from <http://vietnamnet.vn/cntt/vienthong/2004/08/376276/>
- Dinh, N. (2018, April 9). Ceremony to announce that Ebur Commune meets new rural area criteria. Buon Ma Thuot City e-Portal. Retrieved from <http://buonmathuot.Dak Lak.gov.vn/-/le-cong-bo-xa-cu-ebur-at-chuan-nong-thon-moi>
- Directive 58 (2000). On strengthening application and development of information and telecommunication technology for country’s modernization. The Central Committee of the Communist Party of Vietnam. Retrieved from <https://thuvienphapluat.vn/van-ban/Cong-nghe-thong-tin/Chi-thi-58-CT-TW-day-manh-ung-dung-phat-trien-CNTT-phuc-vu-su-nghiep-CNH-HDH-8207.aspx>
- Dirlik, A. (2004). Spectres of the Third World: global modernity and the end of the three worlds. *Third World Quarterly*, 25(1), 131-148.
- Discovery 12 (n.d.) Why We Post. Retrieved from <https://www.ucl.ac.uk/why-we-post/discoveries/12-social-media-can-have-a-profound-impact-on-gender-relations-sometimes-through-using-fake-accounts>

- Dodds, K. (2008). The Third World, developing countries, the South, poor countries. *The companion to development studies*, 3.
- Do T., & Falch, M. (2018). Universal service in Vietnam: An institutional approach. *Telecommunications Policy*, 42(4), 323-332
- Do, M. T., Falch, M., & Williams, I. (2018). Universal service in Vietnam: The role of government. *Digital Policy, Regulation and Governance*, 20(2), 178-190. DOI: <https://doi.org/10.1108/DPRG-05-2017-0028>
- Do, P. (May 04, 2017). Where can we find a land touch? Capital Security newspaper. Retrieved from <https://anninhthudo.vn/song-o-ha-noi/tim-dau-hoi-dat/726805.antd>
- Duc, H. (2020, June 23). Some results of the Vietnam household living standard survey 2019. *Finance Magazine*. Retrieved from [Infographics] Kết quả khảo sát mức sống dân cư năm 2019 (tapchitaichinh.vn)
- Duong N. (May 1, 2010). Three crises and three reforms in Vietnam, *Vietnam Economy*, Retrived from <http://vneconomy.vn/thoi-su/3-lan-khung-hoang-va-3-lan-chuyen-vi-the-cua-viet-nam-20105194034740.htm>
- Duong, T. H. M. (2016). *Vietnam's news media and journalists in the Internet age* (Doctoral dissertation). Retrieved from <https://opus.lib.uts.edu.au/bitstream/10453/90511/2/02whole.pdf>
- Economy Reporters. (September 20, 2020). To make agricultural sector to catch up modernization trends. *Thanh Hoa newspaper*. Retrieved from <https://baothanhhoa.vn/kinh-te/de-nong-nghiep-bat-kip-xu-huong-hien-dai-nbsp-bai-cuoi-de-nganh-nong-nghiep-tinh-nha-phat-trien-ben-vung/124554.htm>

- Ede ethnic minority (n.d.). *Government Portal*. Retrieved from <http://chinhphu.vn/portal/page/portal/chinhphu/NuocCHXHCNVietNam/ThongTinTongHop?categoryId=920&articleId=3343>
- Eng, D. (2019, March 26). Seeking a harmonious life with Feng Shui. *The New York Times*. Retrieved from <https://www.nytimes.com/2019/03/26/realestate/feng-shui-tips-harmonious-home.html>
- Facebook for Developers (n.d.). Free Basics Platform. Retrieved from <https://developers.facebook.com/docs/Internet-org/>
- Feenberg, A. (1999). *Questioning technology*. Florence: Routledge.
- Feenberg, A. (2010). *Between reason and experience: Essays in technology and modernity*. Cambridge, MA: MIT Press.
- Fife, E., & Hosman, L. (2007). Public private partnerships and the prospects for sustainable ICT projects in the developing world. *Journal of Business Systems, Governance and Ethics*, 2(3), 53-66.
- Frieden, R. (2005). Lessons from broadband development in Canada, Japan, Korea and the United States. *Telecommunications Policy*, 29(8), 595-613.
- Friedmann, J. (1992). *Empowerment: The politics of alternative development*. Blackwell.
- Galagedarage, T. M., & Salman, A. (2015). Issues and Internet adoption and rural development: Theory of the diffusion of innovation. *The Journal of Development Communication*, 26(1), 10-10.
- Gallardo, R., & Scammahorn, R. (2011). Determinants of innovative versus non-innovative entrepreneurs in three southern states. *Review of Regional Studies*, 41(2, 3), 103-117.

- Garnham, N. (1997). Amartya Sen's "capabilities" approach to the evaluation of welfare: Its application to communications. *Javnost-The Public*, 4(4), 25-34.
- Gartner (2016, February 18). Gartner says worldwide smartphones sales grew 9.7 percent in fourth quarter of 2015. Retrieved from <https://www.gartner.com/en/newsroom/press-releases/2016-02-18-gartner-says-worldwide-smartphone-sales-grew-10-percent-in-fourth-quarter-of-2015>
- GDP growth in 2018 was 7.08%, the highest since 2008. (December 27, 2018). *Zing*. Retrieved from <https://news.zing.vn/tang-truong-gdp-2018-dat-7-08-cau-nhat-tu-2008-post903928.html>
- General Statistics Office (n.d.). Vietnam socio-economic picture 2001-2003. Retrieved from gso.vn or Tổng quan tình hình KT-XH Việt Nam 2001-2003 | Embassy of the Socialist Republic of Vietnam in the United States (vietnamembassy-usa.org)
- General Statistics Office (2019a). Press release of general survey on polulation and housing in 2019. Retrieved from <https://www.gso.gov.vn/Default.aspx?tabid=382&ItemID=19440>
- General Statistics Office (2019b). Result of the Vietnam household living standards survey 2018. Statistical Publishing House. Retrieved from VHLSS2018.pdf (gso.gov.vn)
- General Statistics Office (2019c). *Publication of population census results 2019*. Retrieved from [http://tongdieutradanso.vn/cong-bo-ket-qua-tong-dieu-tra-dan-so-2019.html#:~:text=B%E1%BA%A3n%20%C4%91%E1%BB%93%20d%C3%A2n%20s%E1%BB%91%20Vi%E1%BB%87t,th%C3%B4n%20\(90%2C3%25\)](http://tongdieutradanso.vn/cong-bo-ket-qua-tong-dieu-tra-dan-so-2019.html#:~:text=B%E1%BA%A3n%20%C4%91%E1%BB%93%20d%C3%A2n%20s%E1%BB%91%20Vi%E1%BB%87t,th%C3%B4n%20(90%2C3%25)).
- Gigler, B. S. (2011). Informational capabilities: The Missing link for the impact of ICT on development. (E-Transform knowledge platform working paper No. 1. World Bank). Retrieved from <https://openknowledge.worldbank.org/handle/10986/19011>

- Gigler, B. S. (2015). *Development as freedom in a digital age: Experiences from the rural poor in Bolivia*. The World Bank.
- Gow, G., Chowdhury, A., Ganpat, W., & Ramjattan, J. (2018). Enhancing ICT Adoption and Use through Change Leadership: Technology Stewardship Training for Caribbean Agricultural Communities of Practice. *Journal of Learning and Development*, 5(3), 296-307.
- Gow, G. (2018). Introducing a technology stewardship model to encourage ICT adoption in agricultural communities of practice: reflections on a Canada/Sri Lanka partnership project. In R. Duncombe (Ed.), *Digital technologies for agricultural and rural development in the Global South*, (pp 43-53). CAB International 2018.
- Gow, G. A., Dissanayeke, U., Jayathilake, C., Chowdhury, A., Ramjattan, J., Ganpat, W., ... & Rathnayake, S. (2020). Technology Stewardship and the Capabilities Approach: Assessing a Leadership Training Program for Agricultural Communities of Practice in Sri Lanka and Trinidad. Retrieved from Gow_HDCA 2020 poster (ualberta.ca)
- Grubestic, T. H. (2003). Inequities in the broadband revolution. *The Annals of Regional Science*, 37(2), 263-289.
- Gulati, G. J., & Yates, D. J. (2012). Different paths to universal access: The impact of policy and regulation on broadband diffusion in the developed and developing worlds. *Telecommunications Policy*, 36(9), 749-761.
- Hachigian, N. (2012). The Internet and Power in One Party East-Asia States. *The Center for Strategic and International Studies in The Washington Quarterly*, 41-58.
- Haddon, L. (2003). Domestication and mobile telephony. In J. E. Katz (Ed.). *Machines that become us: The social context of personal communication technology* (pp. 43-55). New Brunswick: Transaction Publishers.

- Haddon, L. (2018). Domestication and social constraints on ICT use: Children's engagement with smartphones. In J. Vincent and L. Haddon (eds.) (pp. 71-82). *Smartphone cultures*. London: Routledge.
- Hai, Y (2020, October 27). How can Vietnam bring life back to normal? *Health and Life*. Retrieved from <https://suckhoedoisong.vn/lam-cach-nao-viet-nam-dua-cuoc-song-tro-lai-binh-thuong-n181981.html>
- Haider, M., & Kreps, G. L. (2004). Forty years of diffusion of innovations: utility and value in public health. *Journal of health communication*, 9(S1), 3-11.
- Ha Noi Television (2017, October 12). Bat Trang ancient ceramics village tourism. Retrieved from <http://HaNoivtc.com/cam-nang-diem-den/kham-pha-du-lich-van-hoa-lang-gom-co-bat-trang.html>
- Hannerz, U. (2003). Being there... and there... and there! Reflections on multi-site ethnography. *Ethnography*, 4(2), 201-216.
- Heeks, R., Amalia, M., Kintu, R., & Shah, N. (2013). Inclusive innovation: definition, conceptualisation and future research priorities. (Working Paper Series No. 53). Centre for Development Informatics.
- Heeks, R. (2010). Do information and communication technologies (ICTs) contribute to development? *Journal of International Development*, 22(5), 625–640
- Heeks, R., Foster, C., & Nugroho, Y. (2014). New models of inclusive innovation for development. *Innovation and Development*, 4(2), 175-185. doi:10.1080/2157930X.2014.928982
- Hepp, A. (2013). The communicative figurations of mediatized worlds: Mediatization research in times of the “mediation of everything”. *European Journal of Communication*, 28 (6), 615-629.

Herzog C., Handke C. & Hitters E. (2019, in press). Analyzing Talk and Text II: Thematic Analysis.

In Van den Bulck, H., Puppis, M., Donders, K. & Van Audenhove, L. (Eds.) *The Palgrave Handbook of Methods for Media Policy Research*. Basingstoke: Palgrave Macmillan.

Hesmondhalgh, D. (2017). Capitalism and the media: Moral economy, well-being and capabilities. *Media, Culture & Society*, 39(2), 202-218.

Heyl, B. (2011). Ethnographic Interviewing. *Handbook of Ethnography*. Sage

Hilbert, M. (2011). The end justifies the definition: The manifold outlooks on the digital divide and their practical usefulness for policy-making. *Telecommunications Policy*, 35(8), 715-736

H. N. P. (September 15, 2010). Bat Trang pottery: potential and perspectives. *Hanoi E-Portal*.

Retrieved from <https://Ha Noi.gov.vn/dsdoanhnghiep/-/hn/xDketMxZ5CEc/1201/46386/8/gom-su-bat-trang-tiem-nang-va-trien-vong.html?sessionId=-ctM8sGvupkOF76P28lae+BW.app2>

Hoa, T. (2012, June 13). World Bank suggests Vietnam should develop mobile broadband in rural areas. *Ministry of Information and Communication Bulletin*. Retrieved from <http://english.mic.gov.vn/mra/Pages/TinTuc/107808/World-Bank-de-xuat-Viet-Nam-nen-tap-trung-phat-trien-bang-rong-di-dong-cho-nong-thon.html>

Hoai, T. & Linh, N. (2019, June 18). Buying medicines without doctors' prescriptions can have detrimental results. *New Ha Noi*. Retrieved from <https://Ha Noimoi.com.vn/tin-tuc/Suc-khoe/937869/mua-thuoc-khong-theo-don-cua-bac-si-hau-qua-khon-luong>

Hoa Tieu. (n.d.). Differentiating among law, decree, circular, and resolution? Retrieved from *Phân biệt luật, nghị định, thông tư, nghị quyết? - HoaTieu.vn*

Holt, L., & Galligan, M. (2013). Mapping the field: Retrospective of the federal universal service programs. *Telecommunications Policy*, 37(9), 773-793.

- Hong (2017, October 25). How do Le Thong Nhat “give birth to” and Nguyen Vinh Hien “raise up” ViOlympic and IOE? *Vietnam Education*. Retrieved from <https://giaoduc.net.vn/giao-duc-24h/thay-le-thong-nhat-de-tien-si-nguyen-vinh-hien-nuoi-violympic-ioe-ra-sao-post180676.gd>
- How WiMAX works (n.d.) Retrieved from <http://freewimaxinfo.com/how-wimax-works.html>
- Ibrahim, S. S. (2006). From individual to collective capabilities: the capability approach as a conceptual framework for self-help. *Journal of human development*, 7(3), 397-416.
- ICT Development Index 2017 (2017). ITU. Retrieved from <https://www.itu.int/net4/ITU-D/idi/2017/index.html#idi2017comparison-tab>
- ICT News (2017, April 16). Vice Prime Minister Vu Duc Dam “poster image of farmers with cell phones beside buffalos should be upgraded by broadband Internet everywhere”. Retrieved from <https://ictnews.vn/cntt/chinh-phu-dien-tu/pho-thu-tuong-vu-duc-dam-hinh-anh-nguoi-nong-dan-cam-dien-thoi-ben-con-trau-phai-nang-cap-bang-bang-rong-den-moi-noi-151727.ict>
- ICT News (2017, July 26). Ministry of Information and Communication: “4G with current bad quality is unacceptable”. Retrieved from <https://ictnews.vn/vien-thong/bo-tt-tt-khong-the-nao-chap-nhan-mang-4g-ma-chat-luong-kem-nhu-hien-tai-170304.ict>
- ICT News (2020, March 2). Vietnam will disseminate smartphones worth 500,000 dong to 100% of the country’s population. Retrieved from <https://ictnews.vietnamnet.vn/multimedia/vietnam-se-pho-cap-smartphone-500-ngan-dong-toi-100-dan-so-41377.html>
- ICT News (2020, March 6). The Prime Minister requests to license mobile money in a plot plan to promote economic development. Retrieved from <https://ictnews.vietnamnet.vn/khoi->

ngiep/thu-tuong-yeu-cau-phai-cap-phep-thi-diem-ngay-dich-vu-mobile-money-de-thuc-day-kinh-te-41507.html

ICT Regulator Tracker (2018). ITU. Retrieved from <https://www.itu.int/net4/itu-d/irt/#/about-tracker>

Igboaka, P. C. (2010) Internet technology use and economic development: A case study of the rural population of Ihiala village in southeastern Nigeria Proquest Dissertation and Thesis. AAT 3417907.

Innis H. (1952). *The Bias of Communication*. Toronto: University of Toronto Press

Intel (2007). Satellite and WiMAX bring high-speed wireless broadband to remote Northern Vietnam (Press release). Retrieved from https://www.intel.com/pressroom/archive/reference/Wimax_in_Ta_Van.pdf

International Telecommunication Union. (2012). Trends in telecommunication reform 2012: Smart regulation for a broadband world. 12th edition.

Internet Encyclopedia of Philosophy: A peer-reviewed academic resource. (n.d.). *Immanuel Kant*. Internet Encyclopedia of Philosophy

Internet Society (n. d.). About us. Retrieved from <https://www.Internetsociety.org/about-Internet-society/>

Internet Society (2017). 2017 Internet society global Internet report. Retrieved from <https://www.Internetsociety.org/globalInternetreport/>

Internet Society (2019). 2019 Internet society global Internet report: Consolidation in the Internet economy. Retrieved from <https://future.Internetsociety.org/2019/wp-content/uploads/sites/2/2019/04/InternetSociety-GlobalInternetReport-ConsolidationintheInternetEconomy.pdf>

- IOE (n.d.). National Statistics. Retrieved from <http://ioe.go.vn/NationalStatistics.aspx>
- Ionova, A. and Nguyen, M. (2017, June 12). Vietnam's exporters hunt for robusta coffee as supplies dwindle. *Reuters*. Retrieved from <https://www.reuters.com/article/vietnam-coffee/vietnams-exporters-hunt-for-robusta-coffee-as-supplies-dwindle-idUSL8N1J34D6>
- ITU (n. d.) The ICT Development Index (IDI): conceptual framework and methodology. Retrieved from <s://www.itu.int/en/ITU-D/Statistics/Pages/publications/mis2017/methodology.aspx>
- ITU Development (2018). Achieving universal and affordable Internet in the least developed countries. Retrieved from <http://unohrlls.org/custom-content/uploads/2018/01/D-LDC-ICTLDC-2018-PDF-E.pdf>
- ITU Statistics (2019). Individuals using the Internet by gender. Retrieved from https://www.itu.int/en/ITU-D/Statistics/Documents/statistics/2019/Individuals%20using%20the%20Internet%20by%20gender_Jun2019.xlsx
- ITU (2019). Measuring digital development: Facts and Figures 2019. Retrieved from <https://www.itu.int/en/ITU-D/Statistics/Documents/facts/FactsFigures2019.pdf>
- Ito, M., Baumer, S., Bittanti, M., & Cody, R. (2019). *Hanging out, messing around, and geeking out: Kids living and learning with new media*. MIT press
- James, J. (2004). *Information technology and development: A new paradigm for delivering the Internet to rural areas in developing countries*. London: Routledge.
- James, J. (2010a). Mechanisms of access to the Internet in rural areas of developing countries. *Telematics and Informatics* 27 (2010) 370–376
- James, J. (2010b). New technology in developing countries: A critique of the one-laptop-per-child program. *Social Science Computer Review*, 28(3), 381-390.

- Jayakar, K. (2011). Promoting universal broadband through middle mile institutions: A legislative agenda. *Journal of Information Policy*, 1, 102-124
- Jehl D. (1994, February 4). Opening to Vietnam; Clinton drops 19-year ban on U.S. trade with Vietnam; cites Hanoi's help on M.I.A.'s. *The New York Times*. Retrieved from <https://www.nytimes.com/1994/02/04/world/opening-vietnam-clinton-drops-19-year-ban-us-trade-with-vietnam-cites-hanoi-s.html>
- Karanasios, S., & Burgess, S. (2008). Tourism and Internet adoption: a developing world perspective. *International Journal of Tourism Research*, 10(2), 169-182. doi: 10.1002/jtr.649
- Karpilo, J. & Intern G. (2019, May 06). What Does It Mean When a Country Is Developed or Developing? First World or Third World? LDC or MDC? Global North or South? *ThoughtCo*. Retrieved from <https://www.thoughtco.com/developed-or-developing-dividing-the-world-1434457>
- Kaware, S. S., & Sain, S. K. (2015). ICT application in education: an overview. *International Journal of Multidisciplinary Approach & Studies*, 2(1), 25-32.
- Kelly, T., & Rossotto, C. M. (Eds.). (2012). *Broadband strategies handbook*. The World Bank. Retrieved from <https://openknowledge.worldbank.org/handle/10986/6009>
- Kezar, A. (2003). Transformational elite interviews: Principles and problems. *Qualitative inquiry*, 9(3), 395-415.
- Khang, T. (2018, September 14). Vietnam's 4G services quality ranks 75th in the world, Prime Minister urges to license 4G spectrum. *ICT News*. Retrieved from <https://ictnews.vn/vien-thong/chat-luong-dich-vu-4g-kem-dung-thu-75-tren-the-gioi-thu-tuong-giuc-som-cap-phep-bang-tan-4g-172615.ict>

- Kien (2019, November 2). 63 provinces and cities in Vietnam: list, map, area size, car registration plate, population. *Daful Bright Teachers*. Retrieved from <https://dafulbrightteachers.org/63-tinh-thanh/>
- Kivunike, F. N., Ekenberg, L., Danielson, M., & Tusubira, F. F. (2011). Perceptions of the role of ICT on quality of life in rural communities in Uganda. *Information Technology for Development, 17*(1), 61-80.
- Klein, H. K., & Kleinman, D. L. (2002). The social construction of technology: Structural considerations. *Science, Technology, & Human Values, 27*(1), 28-52.
- Kleine, D. (2010). ICT4What?—Using the choice framework to operationalise the capability approach to development. *Journal of International Development, 22*, 674-692.
- Kleine, D. (2013). *Technologies of choice?: ICTs, development, and the capabilities approach*. Cambridge, Massachusetts: MIT Press.
- Kojima, R., Sato, M., Akiyama, Y., Shinohara, R., Mizorogi, S., Suzuki, K., ... & Yamagata, Z. (2019). Problematic Internet use and its associations with health-related symptoms and lifestyle habits among rural Japanese adolescents. *Psychiatry and Clinical Neurosciences, 73*(1), 20-26.
- Lam, D., Boymal, J., & Martin, B. (2004). Internet diffusion in Vietnam. *Technology in Society, 26*(1), 39-50.
- Lam, H. (2016, August 11). Hanoi Capital Region to include 9 provinces. *Tuoi Tre online newspaper*. Retrieved from <https://tuoitre.vn/vung-thu-do-ha-noi-co-9-tinh-1153087.htm>
- Lam, T. L., & Laura, R. (2016). Reflections on the politics of power patriarchy in Vietnamese gender employment. *Asian Journal of Social Science Studies, 2*(1), 1.

- Lambert, S. D., & Loiselle, C. G. (2008). Combining individual interviews and focus groups to enhance data richness. *Journal of advanced nursing*, 62(2), 228-237
- Lan, A. (June 10, 2018). What do you see from effective impacts of Korean waves? *The Fatherland*. Retrieved from <https://toquoc.vn/thay-gi-tu-hieu-qua-cua-lan-song-van-hoa-han-quoc-hallyu-99237448.htm>
- Lan, A. (January 6, 2020). Change drinking culture. *Tuoi Tre*. Retrieved from <https://tuoitre.vn/thay-doi-van-hoa-nhau-20200106075105989.htm>
- LaRose, R., Strover, S., Gregg, J. L., & Straubhaar, J. (2011). The impact of rural broadband development: Lessons from a natural field experiment. *Government Information Quarterly*, 28(1), 91-100.
- Le, Q. (2019, November 8). Why many factories do not recruit people from Nghe An and Ha Tinh? *BBC Vietnamese*. Retrieved from <https://www.bbc.com/vietnamese/vietnam-50352968>
- LeCompte, M. D., & Schensul, J. J. (2010). *Designing and Conducting Ethnographic Research* (Vol. 1): AltaMira Press
- Lefebvre, H. (1991). *Critique of everyday life. Vol. 1, introduction*. (J. Moore, Trans.). London: Verso.
- Lengsfeld, J. H. (2011). An econometric analysis of the sociodemographic topology of the digital divide in Europe. *The information society*, 27(3), 141-157.
- Lin, M. S., & Wu, F. S. (2013). Identifying the determinants of broadband adoption by diffusion stage in OECD countries. *Telecommunications Policy*, 37(4-5), 241-251.
- Liu, C. (2016). Sustainability of rural informatization programs in developing countries: A case study of China' s Sichuan province. *Telecommunications Policy*, 40(7), 714-724.

- Liu, C. (2017). An evaluation of China's evolving broadband policy: An ecosystem's perspective. *Telecommunications Policy*, 41(1), 1-11.
- Lockhart K. (2020, May 15). Life after lockdown in Vietnam: This is what it's like when an entire country reopens. *CNN*. Retrieved from <https://www.cnn.com/travel/article/life-after-lockdown-vietnam-domestic-travel/index.html>
- London, J. (Ed.). (2014). *Politics in contemporary Vietnam: Party, state, and authority relations*. Springer.
- Long, P. D., Ngoc, B. H., & My, D. T. H. (2018). The relationship between foreign direct investment, electricity consumption and economic growth in Vietnam. *International Journal of Energy Economics and Policy*, 8(3), 267-274.
- Luo, M. M., & Chea, S. (2018). Internet Village Motoman Project in rural Cambodia: bridging the digital divide. *Information Technology & People*, 31(1), 2-20.
- Luong, H. V. (Ed.). (2003). *Postwar Vietnam: Dynamics of a transforming society*. Rowman & Littlefield
- Luong, N. H. (2018, May 26). Focus on increased application of information technology in ethnic minority area. *People's Army*. Retrieved from <http://www.qdnd.vn/khoa-hoc-cong-nghe/trong-nuoc/quan-tam-day-manh-ung-dung-cong-nghe-thong-tin-vung-dan-toc-thieu-so-539885>
- Lwoga E. T., Sangeda R. Z. (2019) ICTs and development in developing countries: A systematic review of reviews. *E J Info Sys Dev Countries*, 85: e12060.
<https://doi.org/10.1002/isd2.12060>
- Madianou, M., & Miller, D. (2013). *Migration and new media: Transnational families and polymedia*. Routledge

- Ma, N. (2017, October 26). Endless postpartum restriction list including no tooth brushing and no water drinking for three months goes viral. *Afamily*. Retrieved from <http://afamily.vn/cuoi-dau-ruot-voi-bien-ban-1001-dieu-kieng-khi-o-cu-dieu-so-1-100-ngay-tuyet-doi-khong-tam-goi-danh-rang-20171026170217711.chn>
- MacKenzie, D., & Wajcman, J. (1999). *The social shaping of technology* (2nd ed.). Buckingham, UK: Open University Press.
- Mai, D. (2016). Vietnam's news media and Internet in the digital age. (Doctoral dissertation). University of Technology Sydney, Sydney, Australia. Retrieved from <https://opus.lib.uts.edu.au/bitstream/10453/90511/2/02whole.pdf>
- Mai, H. (2017, December 25). More than 10,000 people in “force 47” take the fight online. *Tuoi Tre*. Retrieved from <https://tuoitre.vn/hon-10-000-nguoi-trong-luc-luong-47-dau-tranh-tren-mang-20171225150602912.htm>
- Mai, H. (2019, December 28). To turn off 2G in 2022, brick phones are out of date. The Young People newspaper. Retrieved from <https://thanhnien.vn/thoi-su/tat-song-2g-vao-nam-2022-dien-thoai-cuc-gach-het-thoi-1165576.html>
- Matunhu, J. (2011). A critique of modernization and dependency theories in Africa: Critical assessment. *African journal of History and Culture*, 3(5), 65-72.
- Mathiesen, T. (1997). The viewer society: Michel Foucault's Panopticon revisited. *Theoretical criminology*, 1(2), 215-234
- McDonald, T. (2016). *Social media in rural China: Social networks and moral framework*. UCL Press. Retrieved from <https://www.jstor.org/stable/j.ctt1g69xx3>
- McGrath, L. A. (1994). Vietnam's struggle to balance sovereignty, centralization, and foreign investment under Doi Moi. *Fordham Int'l LJ*, 18, 2095

- McKinley, C. (2008). Can a state-owned media effectively monitor corruption? A study of Vietnam's printed press. *Asian Journal of Public Affairs*, 2(1), 12-38.
- McKirdy E. (2019, January 2). "Stalinist" Vietnam cybersecurity law takes effect, worrying rights groups and online campaigners. *CNN*. Retrieved from <https://www.cnn.com/2019/01/02/asia/vietnam-cybersecurity-bill-intl/index.html>
- McLaughlin T. (2019, March 16). Under Vietnam's new cybersecurity law, tech giants face stricter censorship. *The Washington Post*. Retrieved from https://www.washingtonpost.com/world/asia_pacific/under-vietnams-new-cybersecurity-law-us-tech-giants-face-stricter-censorship/2019/03/16/8259cfae-3c24-11e9-a06c-3ec8ed509d15_story.html
- McLuhan, M., & Fiore, Q. (1967). The medium is the message. *New York*, 123, 126-128.
- McMahon, R., Gurstein, M., Beaton, B., O'Donnell, S., & Whiteduck, T. (2014). Making information technologies work at the end of the road. *Journal of Information Policy*, 4, 250-269.
- Melkote, R & Steeves H. (2001). *Communication for development in the Third World : theory and practice*. Thousand Oaks, CA: Sage
- Melkote, S. R., & Steeves, H. L. (2015). *Communication for development: Theory and practice for empowerment and social justice*. Sage Publications.
- Merriam, S. B. (1995). What can you tell from an N of 1?: Issues of validity and reliability in qualitative research. *PAACE Journal of lifelong learning*, 4, 51-60.
- Meuser, M., & Nagel, U. (2009). The expert interview and changes in knowledge production. In *Interviewing experts* (pp. 17-42). Palgrave Macmillan, London.

- Minh, S. (2020, April 2). COVID-19 pandemic: what Vietnam's telecoms should do when demand for the Internet on the increase. *Vietnam+*. Retrieved from <https://www.vietnamplus.vn/dich-covid19-nha-mang-viet-lam-gi-khi-nhu-cau-internet-tang-vot/631939.vnp>
- Miller, C. R. (1984). Genre as social action. *Quarterly Journal of Speech* 70(2), 151-176.
- Miller, C. R. (2015). Genre as social action (1984), revisited 30 years later (2014). *Letras & Letras*, 31(3), 56-72.
- Miller, D., & Slater, D. (2000). *The Internet: an ethnographic approach*. Routledge.
- Miller, D., Sinanan, J., Wang, X., McDonald, T., Haynes, N., Costa, E., ... & Nicolescu, R. (2016). *How the world changed social media*. UCL press. Retrieved from <https://discovery.ucl.ac.uk/id/eprint/1474805/1/How-the-World-Changed-Social-Media.pdf>
- Mill, J. S. (1895). *Utilitarianism* (Vol. 3). Routledge
- Ministry of Information and Communication. (2011). Information and data on information and communication technology Vietnam 2011. Retrieved from mic.gov.vn
- MIT Media Lab (n.d.). In memory: Seymour Papert. Retrieved from <https://www.media.mit.edu/posts/in-memory-seymour-papert/>
- Moser, C. (1993). *Gender planning and development: Theory, practice and training*. Routledge.
- Munz, E. (2017). Ethnographic interview. *The SAGE encyclopedia of communication research methods*, 736-738.
- Murtagh, C. (2015). Reaching across: institutional barriers to cross-ethnic parties in post-conflict societies and the case of Northern Ireland. *Nations and Nationalism*, 21(3), 544-565.
- Napoli, P. M., & Obar, J. A. (2014). The emerging mobile Internet underclass: A critique of mobile Internet access. *The Information Society*, 30(5), 323-334

- National Ethnic Committee. (n.d.) Image of 54 ethnicities in Vietnam. *Vietnam Government Portal*. Retrieved from Dân tộc (chinhphu.vn)
- Natow, R. S. (2020). The use of triangulation in qualitative studies employing elite interviews. *Qualitative Research*, 20(2), 160-173.
- Neogi, P. K., & Jain, R. (2018). Mobile Communications, the Internet and Digital India: A Developing Country Approach. *Available at SSRN 3136487*
https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3136487
- Neuendorf, K. (2017). *The content analysis guidebook*. Sage Publications Inc.
- Nguyen, A. (2017, December 8). Vietnamese migrant brides now more integrated into Taiwan life. *Taiwan News*. Retrieved from <https://www.taiwannews.com.tw/en/news/3316084>
- Nguyen, B. (n.d.) Fading WiMax in 3G era. Retrieved from <http://www.nsc.hcmus.edu.vn/Ham-Hiu-WiMAX-Thoi-3G.htm>
- Nguyen, H. (2010). *From Vanguard of revolution to vanguards of consumption: discourse about adolescence in Vietnam (1975-2005)* (Doctoral dissertation). Retrieved from Proquest Dissertations and Theses Global.
- Nguyen, H. (2018, September 2018). It is not only in the East Sea that there are fishing vessels crashing each other. *Voice of America*. Retrieved from <https://www.voatiengviet.com/a/tau-ca-bien-dong-phap-anh-so-diep/4574780.html>
- Nguyen, K. (2018, January 24). 700 MHz precious frequency band to be used for mobile broadband development. *ICT News*. Retrieved from <https://ictnews.vn/vien-thong/bang-tan-quy-hiem-700mhz-duoc-dung-de-phat-trien-di-dong-bang-rong-163790.ict>
- Nguyen, L. (2020, June 27). Yes, so what. *Nhan Dan*. Retrieved from <https://nhandan.com.vn/tin-quoc-te/vang-thi-sao-581359/>

- Nguyen, M. (2017, December 26). Vietnam unveils 10,000-strong cyber unit to combat “wrong view”. *Reuters*. Retrieved from <https://www.reuters.com/article/us-vietnam-security-cyber/vietnam-unveils-10000-strong-cyber-unit-to-combat-wrong-views-idUSKBN1EK0XN>
- Nguyen, M. T. (2014). *Vietnam’s socialist servants: Domesticity, class, gender, and identity*. Routledge
- Nguyen, T. (2013). Vietnam’s Internet governance policies: opportunities for developing a competitive digital economy. M-RCBG associate working paper series – No 16. Harvard Kennedy School. Retrieved from https://www.hks.harvard.edu/sites/default/files/centers/mrcbg/files/Nguyen_Vietnam%2BGovernance%2BReport_ENG.pdf
- Nguyen, T. (2018, May 29). Relationship and impact of “peace evolution” on internal “self-evolution” and “self-transformation”. *The People monthly*. Retrieved from <http://www.nhandan.com.vn/hangthang/item/36543902-moi-quan-he-va-tac-dong-cua-%E2%80%9Cdien-bien-hoa-binh%E2%80%9D-voi-%E2%80%9Ctu-dien-bien%E2%80%9D-%E2%80%9Ctu-chuyen-hoa%E2%80%9D-trong-noi-bo.html>
- Nguyen, U. (2020, October 20). Vietnam targets GDP growth of 6.8% in 2020, Prime Minister says. *Bloomberg*. Retrieved from <https://www.bloomberg.com/news/articles/2019-10-21/vietnam-targets-gdp-growth-of-6-8-in-2020-prime-minister-says>
- Nielsen, L. (2013). How to classify countries based on their level of development. *Social Indicators Research*, 114, 1087–1107. doi:10.1007/s11205-012-0191-9
- Njoh, A. J. (2018). The relationship between modern Information and Communications Technologies (ICTs) and development in Africa. *Utilities Policy*, 50, 83-90.

- Nolen, S. (2011, December 2). Timeline: A brief history of India's caste system. *The Globe and Mail*. Retrieved from <https://www.theglobeandmail.com/news/world/timeline-a-brief-history-of-indias-caste-system/article4180133/>
- Nozick, R. (1974). *Anarchy, state, and utopia* (Vol. 5038). New York, NY: Basic Books.
- Nussbaum, M. (2000) *Women and human development: The capabilities approach*, Cambridge: Cambridge University Press.
- Nussbaum MC (2007) *Frontiers of Justice*. Cambridge, MA: Harvard University Press.
- Official Development Assistance. (2003). In OECD Glossary Statistical Term. Retrieved from <https://stats.oecd.org/glossary/detail.asp?ID=6043>
- Oestmann, S., & Dymond, A. C. (2001). Telecentres—Experiences, lessons and trends. *Telecentres: Case studies and key issues, 1*, 1-15.
- Oyana, T. J. (2011). Exploring geographic disparities in broadband access and use in rural southern Illinois: Who's being left behind? *Government Information Quarterly*, 28(2), 252-261.
- Pantea, S., & Martens, B. (2016). The value of the Internet as entertainment in five European countries. *Journal of Media Economics*, 29(1), 16-30.
- Patton, M. Q. (1999). Enhancing the quality and credibility of qualitative analysis. *Health services research*, 34(5 Pt 2), 1189.
- Pearson, J. (2020, April 21). Exclusive: Facebook agreed to censor posts after Vietnam slowed traffic – sources. *Reuters*. Retrieved from <https://www.reuters.com/article/us-vietnam-facebook-exclusive-idUSKCN2232JX>
- Pearson, L. B., et al. (1969). *Partners in development: Report of the commission on international development*. New York: Praeger.

- Pentland, A., Fletcher R., and Hasson A. (2004). *DakNet: Rethinking Connectivity in Developing Nations* IEEE Computer Society, 78-83. MIT Media Laboratory
- Phuc, N. (2018, April 14). Hanoi: 39 communes recognized to be new rural areas. *Finance Online*. Retrieved from Hà Nội: 39 xã được công nhận đạt chuẩn nông thôn mới | Thời Báo Tài Chính (thoibaotaichinhvietnam.vn)
- Phuong, A. (2020, November 19). Vietnam GDP growth to be among world's highest in 2020: IMF. *VnExpress*. Retrieved from <https://e.vnexpress.net/news/business/economy/vietnam-gdp-growth-to-be-among-world-s-highest-in-2020-imf-4194065.html>
- Pink, S., & Morgan, J. (2013). Short-term ethnography: Intense routes to knowing. *Symbolic Interaction*, 36(3), 351-361.
- Poushter, J. (2016). Smartphone ownership and Internet usage continues to climb in emerging economies. *Pew Research Center*, 22, 1-44
- Poushter, J., Bishop, C., & Chwe, H. (2018). Social media use continues to rise in developing countries but plateaus across developed ones. *Pew Research Center*, 22.
- Prensky, M. (2001). Digital natives, digital immigrants. *On the horizon*, 9(5), 1-15.
- Prieger, J. E. (2013). The broadband digital divide and the economic benefits of mobile broadband for rural areas. *Telecommunications Policy*, 37(6-7), 483-502.
- P. V. (2017, January 28). Truong Dinh Anh's dish tray for career establishment and 4-son family. *Vietnam Finance*. Retrieved from <https://vietnamfinance.vn/chan-bat-lap-nghiep-va-gia-dinh-4-con-trai-cua-truong-dinh-anh-20170128123253655.htm>
- Ragnedda, M., & Muschert, G. W. (Eds.). (2013). *The digital divide: The Internet and social inequality in international perspective*. Routledge.

- Redshaw, T. (2017). Bitcoin beyond ambivalence: Popular rationalization and Feenberg's technical politics. *Thesis Eleven*, 138(1), 46-64.
- Roberts, E., & Townsend, L. (2016). The contribution of the creative economy to the resilience of rural communities: exploring cultural and digital capital. *Sociologia Ruralis*, 56(2), 197-219.
- Robeyns, I. (2005). The capabilities approach: a theoretical survey. *Journal of human development*, 6(1), 93-117.
- Rogers, E. M. (1962). *Diffusion of innovations*. New York, NY: Free Press.
- Rogers, E. M. (1976). *Communication and Development: The Passing of the Dominant Paradigm*. In Evertt M.
- Rogers, E.M. (1995). *Diffusion of innovations*. Fourth edition. New York. Free Press
- Rogers, E.M. (2003). *Diffusion of innovations*. (5th Ed.) New York, NY: Free Press.
- Rogers, E. M., & Svenning, L. (1969). *Modernization among peasants: The impact of communication*. Modernization among peasants: the impact of communication.
- Rostow, W. (1991). *The Stages of Economic Growth: A Non-Communist Manifesto*. (Original work published 1960) Cambridge: Cambridge University Press.
- doi:10.1017/CBO9780511625824
- Ruhode, E. (2016). E-Government for Development: A Thematic Analysis of Zimbabwe's Information and Communication Technology Policy Documents. *The Electronic Journal of Information Systems in Developing Countries*, 73(1), 1-15.
- Salemink, K., Strijker, D., & Bosworth, G. (2017). Rural development in the digital age: A systematic literature review on unequal ICT availability, adoption, and use in rural areas. *Journal of Rural Studies*, 54, 360-371.
- Sauvy, A. (1952). Three worlds, one planet. *L'observateur*, 14.

- Saxe, G. B., & de Kirby, K. (2018). Analyzing the evolution of a digital technology intervention: One laptop per child in a remote Papua New Guinea community. *Anthropology & Education Quarterly*, 49(4), 394-412.
- Scheerder, A. J., Van Deursen, A. J., & Van Dijk, J. A. (2019). Internet use in the home: Digital inequality from a domestication perspective. *new media & society*, 21(10), 2099-2118.
- Schutz, A., & Luckmann, T. (1974). *The structures of the life-world* (Vol. 1). Evanston, IL: Northwestern University Press.
- Sen, A. (1979). Equality of what. *The Tanner lecture on human values*, 1.
- Sen, A. (1985). Well-being, agency and freedom: The Dewey lectures 1984. *The journal of philosophy*, 82(4), 169-221.
- Sen, A. (1987). The standard of living', in G. Hawthorn (Ed.), *The Standard of Living*, Cambridge
- Sen, A., (1992). *Inequality reexamined*. Cambridge: Harvard University Press.
- Sen, A. (1995). Gender inequality and theories of justice. *Women, culture and development: A study of human capabilities*, 259-273.
- Sen, A. (1999). *Development as freedom*. New York, NY: Anchor Books.
- University Press, Cambridge.
- Silverstone, R., Hirsch, E., Morley, D. (1992). Information and communication technologies and the moral economy of the household. In R. Silverstone and E. Hirsch (Eds), *Consuming technologies: media and information in domestic spaces* (pp. 15-31). London: Routledge
- Shi, S. (2020). ICTs and Modernization in China. In J. Servaes (Ed.), *Handbook of Communication for Development and Social Change*, pp. 929 – 938. Singapore: Springer

- Simon, E. (2008, May 8). Genuine debate illuminates knotty ethical questions: Three-man teaching team unties issues of ethics, economics, and the market. *The Harvard Gazette*. Retrieved from Genuine debate illuminates knotty ethical questions – Harvard Gazette
- Singleton, M. (2015, January 29). The FCC has changed the definition of broadband. *The Verge*. Retrieved from <https://www.theverge.com/2015/1/29/7932653/fcc-changed-definition-broadband-25mbps>
- Solarz, M. W. (2012). North–South, Commemorating the First Brandt Report: searching for the contemporary spatial picture of the global rift. *Third World Quarterly*, 33(3), 559-569.
- Solon, O. (2017, July 27). It’s digital colonialism”: how Facebook’s free Internet service has failed its users. *The Guardian*. Retrieved from <https://www.theguardian.com/technology/2017/jul/27/facebook-free-basics-developing-markets>
- Spradley, J. P. (1976). *The ethnographic interview*. Harcourt Brace Javanovich College Publishers
- Spyer, J. (2017). *Social Media in Emergent Brazil*. UCL Press. Retrieved from <https://www.jstor.org/stable/j.ctt1wc7rdn>
- Statistics Canada. (n.d.). *Population estimates, quarterly*. Retrieved from <https://www150.statcan.gc.ca/t1/tbl1/en/tv.action?pid=1710000901>
- Stephens, N. (2007). Collecting data from elites and ultra elites: telephone and face-to-face interviews with macroeconomists. *Qualitative research*, 7(2), 203-216.
- Stork, C., Calandro, E., & Gillwald, A. (2013). Internet going mobile: Internet access and use in 11 African countries. *info*, 15(5), 34-51.
- Summary of the agreement between the U.S. and Vietnam on trade relations. (n.d.). USVTC. Retrieved from http://www.usvtc.org/trade/bta/summary_EN.pdf

- Surborg, B. (2008). On-line with the people in line: Internet development and flexible control of the net in Vietnam. *Geoforum*, 39(1), 344-357.
- Tan, K. (November 18, 2017). Dr. Mai Liem Truc: the Internet is the greatest achievement by human kind. *Viet Times*. Retrieved from <https://viettimes.vn/tien-sy-mai-liem-truc-Internet-la-ky-quan-vi-dai-nhat-cua-nhan-loai-146504.html>
- Tapanainen, T. J., Dao, K. T., & Nguyen, H. T. (2018). Investigating adoption factors of 3G services: An empirical study in Vietnam. *The Electronic Journal of Information Systems in Developing Countries*, 84(2), e12022.
- Taylor, G. (2015). Spectrum policy in Canada. *IEEE Wireless Communications*, 22(6), 8-9.
- Taylor, G. (2018). Remote rural broadband systems in Canada. *Telecommunications Policy*, 42, 744–756
- Technopedia (n.d.). Base Transceiver Station. *Technopedia online*. Retrieved March 26, 2021 from <https://www.techopedia.com/definition/2927/base-transceiver-station-bts>
- Thai, M. (2008). *The internationalization of Vietnamese small and medium-sized enterprises* (Doctoral dissertation). Retrieved from [http://www1.unisg.ch/www/edis.nsf/SysLkpByIdentifier/3485/\\$FILE/dis3485.pdf](http://www1.unisg.ch/www/edis.nsf/SysLkpByIdentifier/3485/$FILE/dis3485.pdf)
- Thanh, A. (2020, January 27). How to get pupils out of online games in Tet Lunar holiday? *Giao Duc*. Retrieved from <https://giaoduc.net.vn/giao-duc-24h/lam-sao-de-keo-hoc-tro-khoi-game-online-trong-nhung-ngay-nghi-tet-post206493.gd>
- Thanh, B. (2020, March 12). Does giving envelopes in hospitals come to an end? *Urban Economics*. Retrieved from <http://kinhtedothi.vn/tinh-trang-phong-bi-trong-benh-vien-lieu-da-duoc-triet-tieu-377516.html>

Thanh, H. (2014 February 24). Mr. Nguyen Manh Hung and Viettel's business lessons. *CafeF*.

Retrieved from <http://cafef.vn/ong-nguyen-manh-hung-va-nhung-bai-hoc-kinh-doanh-cua-viettel-20140224230745230.chn>

Thanh Hoa E-Portal (n.d.) Population features and infrastructure. Retrieved from

<http://thanhhoa.gov.vn/portal/pages/dac-diem-dan-cu.aspx>

Thanh, L (2018, April 4). Can Tho needs to promotes paganda on improving new rural areas.

Vietnam News Agency. *Bao Tin Tuc*. Retrieved from <https://baotintuc.vn/chinh-tri/can-tho-can-day-manh-tuyen-truyen-ve-xay-dung-nong-thon-moi-20180410204607456.htm>

The Guardian (2020, January 20). US Embassy cable: concerns over Vietnamese crackdown.

Retrieved from <https://www.theguardian.com/world/us-embassy-cables-documents/244345>

The People (2004, September 28). It is a must to legalize internal regulations in compliance with

WTO. The People. Retrieved from Cần sớm nội luật hóa các quy định của WTO - Báo Nhân Dân (nhandan.com.vn)

The World Bank (n.d.). Data. Retrieved from

<https://datahelpdesk.worldbank.org/knowledgebase/articles/378831-why-use-gni-per-capita-to-classify-economies-into>

The World Bank. (n.d.). Retrieved April 2, 2021 from

<https://www.worldbank.org/en/country/vietnam/overview>

Thuong, T. (2020, August 20). KT3 children worry no admission to grade 1. *Tuoi Tre*. Retrieved

from <https://tuoitre.vn/tre-em-kt3-lo-khong-duoc-vao-lop-1-20200822090153832.htm>

Ting, C., & Yi, F. (2013). ICT policy for the “socialist new countryside”—A case study of rural informatization in Guangdong, China. *Telecommunications Policy*, 37(8), 626-638.

- Tipps, D. C. (1973). Modernization theory and the comparative study of societies: A critical perspective. *Comparative studies in society and history*, 15(2), 199-226.
- Tran, A. (2017, November 19). A brief history of the Internet in Vietnam on its 20th birthday. *Saigoneer*. Retrieved from <https://saigoneer.com/saigon-technology/11831-a-brief-history-of-the-Internet-in-vietnam-on-its-20th-birthday>
- Tran, K. N. N., & Winley, G. K. (2018). An investigation of ICT knowledge and skills in Vietnam. *The Electronic Journal of Information Systems in Developing Countries*, 84(3), e12023
- Tran, L. (2003, March 22). Lessons for Taiwan's Vietnamese brides. *Asia Times*. Retrieved from <http://www.hartford-hwp.com/archives/55/631.html>
- Tran L., Nguyen H., & Nguyen A. (2017). E-government without E-democracy in the case of Vietnam: Transparency has been a sham?. *Tidsskriftet Arkiv*, 8(1).
- Tran, T. M. (2011). Broadband in Vietnam: Forging its own path. *infoDev publication*. Retrieved from http://www.infodev.org/infodev-files/resource/InfodevDocuments_1127.pdf
- Tran, Q. (2017, September 14). Money exchange in Vietnam: media and reality. BBC Vietnamese. Retrieved from <https://www.bbc.com/vietnamese/business-38220946>
- Tuan, H. (2019, October 24). *How not to "break the game" when turning off 2G. Investment online newspaper*. Retrieved from <https://baodautu.vn/de-khong-vo-tran-khi-tat-song-2g-d109581.html>
- Tung, D. (2020, August 15). Why do people perceive the differentiation of main and auxiliary subjects? *Education*. Retrieved from <https://giaoduc.net.vn/giao-duc-24h/sao-lai-co-quan-niem-mon-chinh-mon-phu-post211668.gd>
- Tung Tang TV (2019, March 10). Travel to Can Tho Vietnam – Meet the world famous cocoa

- handmade farmer [YouTube Video]. Youtube
<https://www.youtube.com/watch?v=57qdzHyCmW0>
- United Nations (2011). Programme of Action for the Least Developed Countries for the Decade 2011-2020. *Fourth United Nations Conference on the Least Developed Countries*. Istanbul, Turkey.
- USAID (n.d). Vietnam WIMAX alliance. Retrieved from
<https://partnerships.usaid.gov/partnership/vietnam-wimax-alliance>
- U.S. Department of State (2020). U.S. relations with Vietnam: Bilateral relations fact sheet, Bureau of East Asian and Pacific Affairs. Retrieved from <https://www.state.gov/u-s-relations-with-vietnam/#:~:text=Since%20the%20normalization%20of%20bilateral,people%2Dto%2Dpeople%20ties.>
- Van Audenhove, L. (2007). Expert interviews and interview techniques for policy analysis. *Vrije University, Brussel Retrieved May, 5, 2009.*
- van Dijk, J. A. (2013). A theory of the digital divide1. In: Ragnedda, M. and Muschert, GW (eds.) *The Digital Divide: the Internet and Social Inequality in International Perspective* Routledge.
- Velaga, N. R., Beecroft, M., Nelson, J. D., Corsar, D., & Edwards, P. (2012). Transport poverty meets the digital divide: accessibility and connectivity in rural communities. *Journal of Transport Geography*, 21, 102-112. J. Transp. Geogr. 21, 102e112.
- Venkatraman, S. (2017). *Social Media in South India*. UCL Press. Retrieved from
<https://discovery.ucl.ac.uk/id/eprint/1558928/1/Social-Media-in-South-India.pdf>
- Vietnam army hires censors to fight “Internet chaos” (2017, December 27). *BBC*. Retrieved from
<https://www.bbc.com/news/technology-42494113>

Vietnam Constitution. (2013). *Labourer*. Retrieved from <https://nld.com.vn/thoi-su-trong-nuoc/toan-van-hien-phap-nuoc-chxhcn-viet-nam-201311281149826.htm>

Vietnam Department of Survey. (n.d.). [Administrative map of the Socialist Republic of Vietnam]. Retrieved on March 31, 2021, from <https://www.bandovn.vn/en>

Vietnam history overview, n.d. Chinh Phu Portal. Retrieved from <http://www.chinhphu.vn/portal/page/portal/English/TheSocialistRepublicOfVietnam/AboutVietnam/AboutVietnamDetail?categoryId=10000103&articleId=10002650>

Vietnam Information and Communication Technology White Book (2017). Ministry of Information and Communication. Retrieved from <https://m.mic.gov.vn/Pages/TinTuc/102360/Sach-Trang-Cong-nghe-thong-tin-va-Truyen-thong.html>

Vietnam Information and Communication Technology White Book (2019). Ministry of Information and Communication. Retrieved from <https://m.mic.gov.vn/Pages/TinTuc/102360/Sach-Trang-Cong-nghe-thong-tin-va-Truyen-thong.html>

Vietnam Internet Case Study (2002). ITU. Retrieved from VNM CS.pdf (itu.int)

Vietnam NetCitizens Report 2011: Internet Usage and Development in Vietnam. 2011. Retrieved from <http://www.cimigo.com/en/research-report/vietnam-netcitizens-report-2011-english>

Vietnam News. (2012, May 26). Broadband Internet services need faster speed. Retrieve from <http://vietnamnews.vn/economy/225239/broadband-Internet-services-need-faster-speeds.html#MvE6ivvMMABGmcT6.99>

Vietnam News (2014, April 24). Copyright violations still rife in Vietnam. *Vietnam News*. Retrieved from <https://vietnamnews.vn/society/254043/copyright-violations-still-rife-in-viet-nam.html>

Vietnam Overview (2016). The World Bank. Retrieved from <http://www.worldbank.org/en/country/vietnam/overview>

Vietnam Tourism (n.d.). Bat Trang village. Retrieved from

<http://www.vietnamtourism.com/index.php/tourism/items/504>

Vietnam's 54 ethnic minorities (n.d.). Chinh Phu Portal. Retrieved from

<http://chinhphu.vn/portal/page/portal/chinhphu/NuocCHXHCNVietNam/ThongTinTongHop/dantoc>

Vietnam's cyber-security law takes effect amid criticism. (2019, January 2). *The Straits Times*.

Retrieved from <https://www.straitstimes.com/asia/vietnams-cyber-security-law-takes-effect-amid-criticism>

Violympic (n.d.). Violympic's impressive numbers. Retrieved from <http://violympic.vn/>

Von Hippel, E. (2001). Innovation by user communities: Learning from open-source software. *MIT Sloan management review*, 42(4), 82

Vong, J., Song, I., Mandal, P. (2015). Application of ICT to improve rural livelihood in Vietnam. *International Journal of Electronic Finance*, 7(2), 132-145.

Vu, K. M. (2017). ICT diffusion and production in ASEAN countries: Patterns, performance, and policy directions. *Telecommunications Policy*, 41(10), 962-977.

Vu, K., & Hartley, K. (2018). Promoting smart cities in developing countries: Policy insights from Vietnam. *Telecommunications Policy*, 42(10), 845-859.

Wallsten, S. (2005). Regulation and Internet use in developing countries. *Economic Development and Cultural Change*, 53(2), 501-523.

Walsham, G., & Sahay, S. (2006). Research on information systems in developing countries:

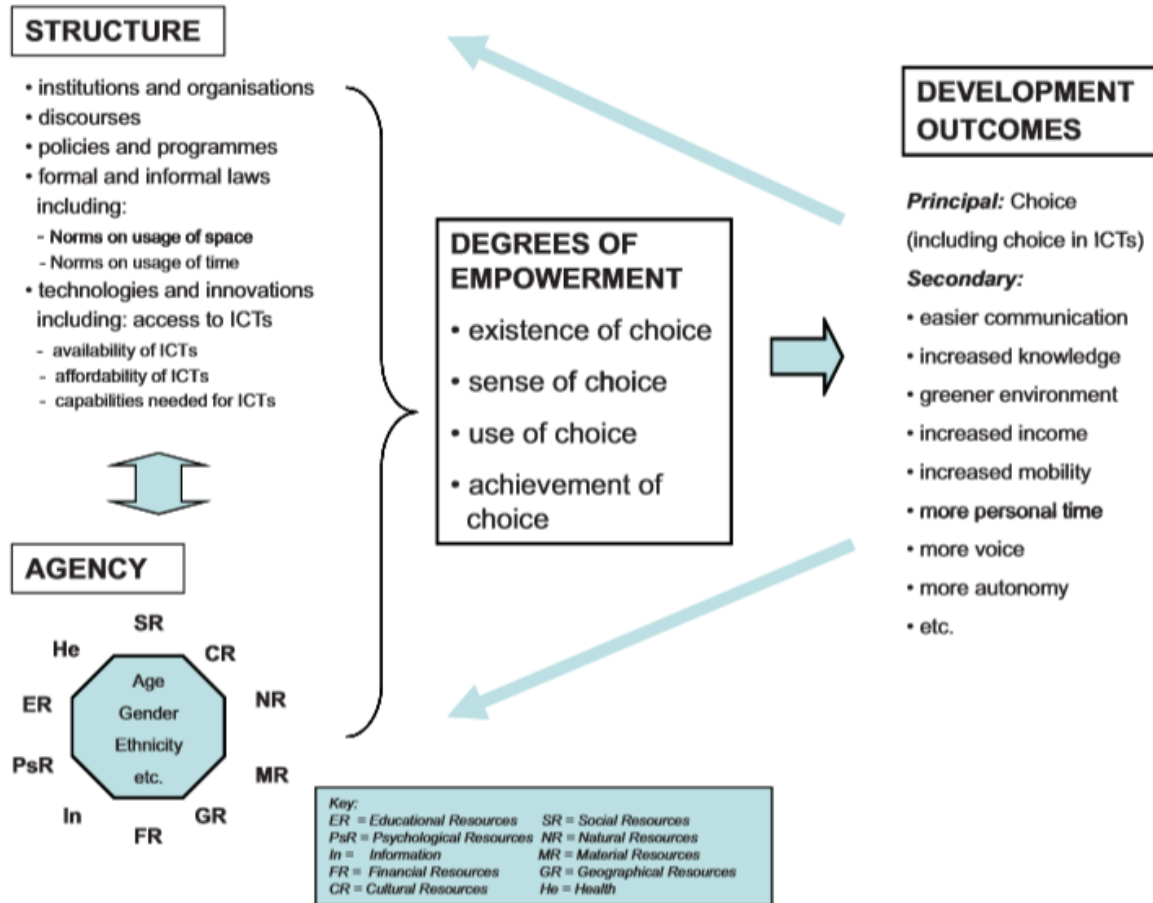
Current landscape and future prospects. *Information technology for development*, 12(1), 7-24.

- Wang, X. (2016). *Social media in industrial China*. UCL Press. Retrieved from <https://www.jstor.org/stable/j.ctt1g69xtj>
- Weiner, M. (1966). *Modernization: The Dynamics of Growth*. New York: Basic Books, Inc
- Weinstein, A., & Lejoyeux, M. (2010). Internet addiction or excessive Internet use. *The American journal of drug and alcohol abuse*, 36(5), 277-283
- West, D. M. (2015). Digital divide: Improving Internet access in the developing world through affordable services and diverse content. Center for Technology Innovation at Brookings. Retrieved from https://www.brookings.edu/wp-content/uploads/2016/06/West_Internet-Access.pdf
- Whyte, M. (2010). One country, two societies: Rural-urban inequality in contemporary China (Harvard contemporary China series; 16). Cambridge, MA: Harvard University Press.
- Why We Post (n.d.) Anthropology and ethnography. Retrieved from <https://www.ucl.ac.uk/why-we-post/about-us/what-is-anthropology>
- Wionczek, M. S. (1981). The Brandt report. *Third World Quarterly*, 3(1), 104-118.
- Wittel, A. (2000, January). Ethnography on the move: From field to net to Internet. In *Forum Qualitative Sozialforschung/Forum: Qualitative Social Research* (Vol. 1, No. 1).
- World Bank Country and Lending Groups. (n.d.). The World Bank. Retrieved from <https://datahelpdesk.worldbank.org/knowledgebase/articles/906519-world-bank-country-and-lending-groups>
- World Bank Data (n.d.). Individuals using the Internet (% of population) – Vietnam. Retrieved from <https://data.worldbank.org/indicator/IT.NET.USER.ZS?locations=VN>
- World Bank (n.d.). *The World Bank in Vietnam*. Retrieved from Vietnam Overview (worldbank.org)

- World Bank Group (2018). The little data book on financial inclusion. Retrieved from LDB-FinInclusion2018.pdf (worldbank.org)
- World Economic Situation and Prospects Annex (2018). United Nations. Retrieved from https://www.un.org/development/desa/dpad/wp-content/uploads/sites/45/WESP2018_Annex.pdf
- World Trade Organization Working Party on the Accession of Vietnam. (2006). Retrieved from <http://wtocenter.vn/sites/wtocenter.vn/files/wto/attachments/Schedule%20of%20Specific%20Commitments%20in%20Services.pdf>
- Woudstra, U. A. (2010). Economies of scale in ICT: How to balance infrastructure and applications for economies of scale in ICT and business. Dissertation. Retrieved from https://pure.uva.nl/ws/files/1500988/82371_thesis.pdf
- WTO. (n.d). Who are the developing countries in the WTO? Retrieved from https://www.wto.org/english/tratop_e/devel_e/d1who_e.htm
- X.C. (2020, January 4). Whom will be impacted when 2G is turned off. *Information newspaper, Vietnam News Agency*. Retrieved from <https://baotintuc.vn/khoa-hoc-cong-nghe/nhung-ai-se-bi-anh-huong-khi-tat-song-2g-20200103181542362.htm>
- Xuan, H. (2017, December 31). Thanh Hoa is planned to collect 13,000 billion dong of revenue. *Lao Dong*. Retrieved from (<https://laodong.vn/kinh-te/nam-2017-thanh-hoa-uoc-thu-ngan-sach-tren-13-nghin-ti-dong-584133.lido>)
- Yamakawa P., Cadillo G., Tornero, R. (2012). Critical factors for the expansion of broadband in developing countries": the case of Peru. *Telecommunications Policy*, 36, 560-570.
- Yanow, D. (2000). Conducting interpretive policy analysis (Vol. 47). Sage

- Yellowlees, P. M., & Marks, S. (2007). Problematic Internet use or Internet addiction? *Computers in human behaviour*, 23(3), 1447-1453
- Zalo (n.d.). Functionality. Retrieved from <https://zalo.me/features.html>
- Zerlang, M. (2015). Entertainment. In *International Encyclopedia of the Social & Behavioral Sciences* (2nd edition ed., Vol. 7, pp. 669-674). Oxford: Elsevier.
- Zhao, J (2008). *The Internet and rural development in China: The socio-structural paradigm*. NY: Peter Lang.
- Zheng, Y. (2007). Exploring the value of the capability approach for e-development. Proceedings of the 9th International Conference on Social Implications of Computers in Developing Countries. Retrieved from Microsoft Word - R0078-1.doc (researchgate.net)
- Zheng, Y., Hatakka, M., Sahay, S., & Andersson, A. (2018). Conceptualizing development in information and communication technology for development (ICT4D). *Information Technology for Development*, 24 (1), 1-14.
- Zheng, Y., & Stahl, B. C. (2011). Technology, capabilities and critical perspectives: What can critical theory contribute to Sen's capability approach?. *Ethics and Information Technology*, 13(2), 69-80.

**APPENDIX A: THE CHOICE FRAMEWORK (KLEINE, 2013, P. 44 BASED ON
ALSOP AND HEINSOHN, 2005 AND DFID, 1999)**



APPENDIX B: LIST OF CENTRAL HUMAN CAPABILITIES (NUSSBAUM, 2007)

Life. Being able to live to the end of a human life of normal length; not dying prematurely, or before one's life is so reduced as to be not worth living;

Bodily Health. Being able to have good health...; to be adequately nourished; to have adequate shelter;

Bodily Integrity. Being able to move freely from place to place; to be secure against violent assault;

Senses, Imagination, and Thought. Being able to use the senses, to imagine, think and reason – and to do these things in a “truly human” way, a way informed by and cultivated by an adequate education;

Emotions. Being able to have attachments to things and people outside ourselves, to love those who love and care for us,...and not having one's emotional development blighted by fear and anxiety;

Practical Reason. Being able to form a conception of the good and to engage in critical reflection about the planning of one's life;

Affiliation. Being able to live with and towards others, to recognise and show concern for other human beings, to engage in various forms of interaction;

Other Species. Being able to live with concern for and in relation to animals, plants, and the world of nature;

Play. Being able to laugh, play, to enjoy recreational activities;

Control over One's Environment

Political. Being able to participate effectively in political choices that govern one's life; having the right of political participation, protections of free speech and association.

Material. Being able to hold property (both land and movable goods), and having property rights on an equal basis with others; having the right to seek employment on an equal basis with others; having the freedom from unwarranted search and seizures. In work, being able to work as a human being, exercising practical reason and entering into meaningful relationships of mutual recognition with other workers. (pp. 76 -78)

APPENDIX C: DATA SUMMARY - INTERVIEWS WITH RURAL RESIDENTS ABOUT BROADBAND INTERNET

ROLL-OUT AND USAGE

#	Pseudonym / Location	Age	Occupation	Gender/Family Situation	Income (in VND)	Devices / Cost (VND) if Given	Years of Use	Hours of Use Per Day
1	An <i>Ceramics Village, Hanoi</i>	29	Owens and operates a ceramics shop; co-owner of a ceramics workshop	Female; Mother and Wife	4 million per month Husband: 3 million per month	Smartphone / 6 million Laptop / 5 million FPT subscription / 2.5 million a year “Borrowed” Wi-Fi at shop (share neighbour’s Wi-Fi)	3	2 for self 2 for husband
2	Binh <i>Ceramics Village, Hanoi</i>	52	Owens and operates a ceramics shop (15 workers); co-owner of a ceramics workshop	Female; Mother and Wife. (Kids are almost 30 years old)	N/A A big storefront with a website address	Smartphone and iPad / Subscription: 190,000/month	10 years	5-6
3	Chi <i>Ceramics Village Hanoi</i>	43	Owens and operates a ceramics shop; co-owner of a ceramics workshop	Female	1 billion revenue per year	Smartphone, laptop, TV	4-5	3

#	Pseudonym / Location	Age	Occupation	Gender/Family Situation	Income (in VND)	Devices / Cost (VND) if Given	Years of Use	Hours of Use Per Day
4	Duc State-Recognized Artist	59	Number 1 artist for antiques Workshop and shop owner	Male; Father of three daughters	Unknown	Smartphones	N/A	N/A
&								
5	Youngest daughter <i>Ceramics Village Hanoi</i>	20	Business management student	Female, single				
6	Em <i>Ceramics Village Hanoi</i>	29	Mold worker for coffins, tiles, vases	Male; Father of one child, expecting another. Wife is a garment worker	More than 10 million per month	2 Smartphones / 3-4 million each TV Free Wi-Fi at work Wi-Fi subscription / 220000 per month	5	3-7
7	Fuong <i>Ceramics Village, Hanoi</i>	35	Owens and operates a ceramics shop; co-owner of ceramics workshop	Female; Wife	2 billion revenue per year	Smartphones Three Wi-Fi subscriptions / more than 200,000 each per month	10	5
8	Ga	22	Temporary security agents, Ministry of Defence	Both male	2.5 million per month	Smartphones / 5 million	2 years	2
&	Goi	29		Single		3G Internet / 7000 /day Free Wi-Fi at work	1 year	
9	<i>Can Tho</i>							

#	Pseudonym / Location	Age	Occupation	Gender/Family Situation	Income (in VND)	Devices / Cost (VND) if Given	Years of Use	Hours of Use Per Day
10	Ha <i>Can Tho</i>	39	Police officer at a jail	Male; Father of 7 years old son Wife is a government official	13 million per month combined income	4 Smartphones for self and wife 1 tablet for son Viettel Wi-Fi / 230,000 /month	5 Learned how to use a computer at a university Taught self how to connect to the Internet from computer and smartphones	0.5 hours work day More on weekends
11	Iyn <i>Can Tho</i>	50	Scooter taxi driver	Male; Father and grandfather of 3-year-old Native to Nhon Nghia commune	Less than 2 million per month	Smartphone / 3 million new Le Nouvo Wi-Fi at home / 120,000/month Tablet for grandchild / 1 million	4 years	2-3 hours in the evening. Grandkid 1-2 hours a day
12, 13	Jay's mom & Jay (oldest son) <i>Can Tho</i>	41 14	Farmer Junior high student	Female; Mother of three kids	The family earns about 20 million per year	No devices Jay 2 used computer connected to Internet at school in Grades 6 & 7	Not using it now, used it for the last two years at the school	Very infrequently

#	Pseudonym / Location	Age	Occupation	Gender/Family Situation	Income (in VND)	Devices / Cost (VND) if Given	Years of Use	Hours of Use Per Day
14	Kha	30	Noodle and coffee shop at floating market	Female; Wife and mother of three (grades 8, 6, and 2)		Television (big screen)	About 1 year when opening the shop	About 1 hour combined
15	Kha's husband <i>Can Tho</i>	38				Smartphone / 5 million Wi-Fi / 265,000 /month		
16	Minh <i>Can Tho</i>	23	Pharmacy student, 1 st year	Female; Mom of four years old		Smartphone sent as gift by her sister Wi-Fi / 165,000	N/A	1-2 hours a day
17	Na <i>Can Tho</i>	29	Tourist boat driver	Male	3 million per month	Smartphone / 2-3 million Free Wi-Fi from a neighbour	3	5-10 minutes
18	Oa <i>Can Tho</i>	37	Tourist boat driver	Male	20 million / month/ household	Smartphone, PC laptop for 11-year-old child Internet Subscription / 190,000 per month		Kid uses 3 hours
19	Phai <i>Can Tho</i>	26	MD student	Male; single	None Live at sister's house	Smartphone provided by fiancé as gift	5	20-60 minutes
20	Que <i>Can Tho</i>	23	Papaya trader	Female; Wife and mom of 7-year-old daughter	5 million per month combined income	Smartphone (Oppo) / 3,670,000 over 4 months Mobifone / 50,000 per month	9 months	

#	Pseudonym / Location	Age	Occupation	Gender/Family Situation	Income (in VND)	Devices / Cost (VND) if Given	Years of Use	Hours of Use Per Day
21	Rung Muoi Cuong <i>Can Tho</i>	61	Cacao grower and exporter Homestay owner and operator	Male	461.5 million/year (or 20,000 USD/year)	Second-hand computer (gift) Smartphones	16 years	1-2
22	Sa <i>Can Tho</i>	57	Internet café owner	Male; Granddad of a 4-year-old	N/A	17 PCs / 7 million each	4 years	Grandkid uses 3 hours a day He uses many hours
23-24	Ta & Tu <i>Can Tho</i>	26 31	Fruits growers	Male Single	30 million /year	LG Smartphone / 3 million 3G / 70,000 per month Free Wi-Fi during lunches	2 months Some months	About 1 hour
25	Uy <i>Can Tho</i>	23	Convenience store owner	Female; Single	3 million per month	Smartphone / less than 2 million Subscription: 90,000 per month	4 years	Many hours
26	Vu <i>Can Tho</i>	24	Local speciality shop cashier	Male; Single	6 million per month	Smartphone (gift) Shared Wi-Fi with room mates costs 40,000 per month	NA	Less than 3 hours
27	Xa <i>Can Tho</i>	28	Fruit Farmer (cumquat and star apple)	Female; Divorced, no kids	7 million per month or more between her and a sister	Smartphone (Oppo) / 4 million Viettel Wi-Fi / 70,000 per month	3	2 hours per day

#	Pseudonym / Location	Age	Occupation	Gender/Family Situation	Income (in VND)	Devices / Cost (VND) if Given	Years of Use	Hours of Use Per Day
28	Yeu <i>Can Tho</i>	19	Undergraduate student majoring in architecture	Male	Mom and dad make 6 million per month Older brother, a truck driver, helps him with tuition and fees	Laptop (gift from uncle) Smartphone	5	1 hour for social networking 3-4 hours per day in total
29	Anh <i>Can Tho</i>	45	Stay at home Mom, fruit farmer	Female; Wife and mother of two	Husband makes 6 million per month plus fruits income	1 PC (10 years old) / 7 million 4 smartphones / 3 million each	3	Only in free time
30	Ba & Bon (Grandkid and grandpa at Bang Lang birds' garden) <i>Can Tho</i>	14 83	Pupil and family restaurant server at Bang Lang birds' Garden (The only bird garden accessible to the public in the country)	Male; Grandpa and grandkid	50,000 per visit	Samsung phone / 6,290,000	3 years	1-2 hours If no customer, online whole day
31	Chinh <i>Can Tho</i>	52	Owner of all-season fruits garden for visitors and homestay business	Male	Non disclosed Pays 5-7 million business tax per month	Smartphone Laptop, computer, smartphones for children & grand children	3 years	Briefly before bed (reading news) 1-2 hours until eyes are tired
32	Du Dak Lak		School drop-out Helping his family grow coffee and do farming	Male	N/A	N/A	N/A	90 minutes per week

#	Pseudonym / Location	Age	Occupation	Gender/Family Situation	Income (in VND)	Devices / Cost (VND) if Given	Years of Use	Hours of Use Per Day
33 & 34	En & Eo <i>DakLak</i>	24 26	Farmer and carpenter Grade 8 & 9 school drop out	Male	N/A	5 Smartphones / <i>3-4 million each</i> Wi-Fi subscription / <i>165,000 per month</i>	1 year Wi-Fi Before 2015 played game in internet coffee –	All hours spent at home (Does not have internet at fields)
35 & 36	Phan & Ph <i>Dak Lak</i>	52 18	High school student preparing for university entrance Mom: coffee grower and deer raiser	Mother and Son	20 million per year, for deer antlers Plus coffee income	Smart TV Smartphones Wi-Fi / <i>185,000 per month</i>	3 years	Some hours
37 & 38	Gang & Ghe (Muong and Kinh ethnicities) <i>Dak Lak</i>	12 12	Junior high students	Female	N/A	Smartphones on family plans or free shared-Wi-Fi through school	2 years 1 year	5-10 minutes per day
39	Hung Ede <i>Dak Lak</i>	41	Coffee and pepper farmer, construction worker	Male; husband and dad	4 million per month	Smartphone (Samsung) / <i>3 million</i> <i>3G / 5,000 per day</i> Free Wi-Fi at coffee shops	Some months	Depends; on each day, if he has money, he buys 3G for the day for 5000
40	In Kinh <i>Dak Lak</i>	32	Health station midwife (4-5 patients a day)	F	4 million per month	Smartphone Computer Free Wi-Fi for patients who ask for it	6	1 hour at work

#	Pseudonym / Location	Age	Occupation	Gender/Family Situation	Income (in VND)	Devices / Cost (VND) if Given	Years of Use	Hours of Use Per Day
41	Khanh Ede (husband) <i>Dak Lak</i>	32	Vice Chair of Commune People's Committee	Mom of 5 years old son and wife Husband (Ede) is a police officer	9 million VND/month/household	154,000 VND/FPT/month Laptop – 13 million 2 smartphones	2013 Wi-Fi at home 2003 learnt how to use Internet at school	2
42	Manh <i>Dak Lak</i>	46	Head of Ede neighbourhood Farmer (coffee, pepper, vegetables)	Husband and dad of a 24-year-old son and a 22-year-old daughter	>2 million per person per month	3 smartphones / <i>between 1 million and 5+ million</i>	About 1 hour	2
43	Ninh <i>Da Nang</i>	21	Internet café owner: Window manufacturer	Male ; Single	3 million per month from internet services	15 computers / <i>7 million each</i> Smartphone / <i>780,000 fth/month</i>	7 years Internet shop is 3 years old	1 hour per day
44	Oanh <i>Da Nang</i>	54	Father of a 29-year-old son and 27-year-old daughter	Male; Construction worker	N/A	Subscription: 200,000 VND/month – daughter pays Smartphones and iPad	3 years	1 hour per day Children taught him how to use Internet
45	Phung <i>Da Nang</i>	41	Fisherman Wife is a fish trader	Male; Husband, a father of 21-year-old son and 18-year-old daughter, a 4-year-old son (4)	About 3 million per month	Used tablet – <i>3 million</i>	8 years	N/A

#	Pseudonym / Location	Age	Occupation	Gender/Family Situation	Income (in VND)	Devices / Cost (VND) if Given	Years of Use	Hours of Use Per Day
46 & 47	Quan & Quang <i>Da Nang</i>	44 40	Fisherman and Fisherman's wife	Male; Female; Parents of four Older two are at university	20 million per month	Subscription: 220,000/month TV, smartphones 1 PC / 7 million	4	Use whole day if at home and not busy
48	Son <i>Da Nang</i>	27	Fisherman	Male Father of a little kid Wife is from Hue, a worker	3 million per month	Smartphone Only has Internet in café where Wi-Fi is free	N/A	1-2 hours per day in the morning when having coffee
49 & 50	Tuon & Tinh <i>Da Nang</i>	35 43	Fish traders	Both female Wives of fishermen Both have big ships for all-season fishing	Ranges between 0 and 20 million per month	165,000 per month 1PC, 1 laptop, 3 smartphones TV	3	N/A
51 & 52	Uyen & Vuong <i>Nam Dinh</i>	36 36	Junior high school math teacher & wife	Male Female Parents of grade 5 daughter and a kindergarten son		First two-year subscription subsidized from edu 60,000/month Currently shared Wi-Fi 70,000/month 1PC, 2 smartphones	6 years	Varies – 3 hours

#	Pseudonym / Location	Age	Occupation	Gender/Family Situation	Income (in VND)	Devices / Cost (VND) if Given	Years of Use	Hours of Use Per Day
53	Xuan <i>Nam Dinh</i>	21	A construction worker met at internet game cafe	Male; single		Smartphone Internet game café / 4,000 per hour 3G subscription / 70,000 month	4 years	5 hours/day 4-5 times a week
54	Yen <i>Nam Dinh</i>	16	Grade 11 student	Male; Single	Dad gives him miscellaneous money	More than 200,000 VND/monthly subscription 2 PC / 3 million each (not as good as the café for gaming purpose)	3 years	3 hours a day at home Internet café 3 days per week
55	Ang <i>Nam Dinh</i>	24	Internet café owner	Female Wife and mom of 3 years old	10 million/month	Laptop Smartphones 50 PC 1.3 million/ FTH/month	4 years	2-3 hours when having no customers and no food/drink orders to serve
56	Bai <i>Nam Dinh</i>	58	Shop owner, ex school teacher. Husband is an insurance company director	Female; Wife, mom of 3 grown up children	10 million for between her and her husband	1PC at shop 1 smartphone for husband	11 years	15 minutes to 1 hour everyday

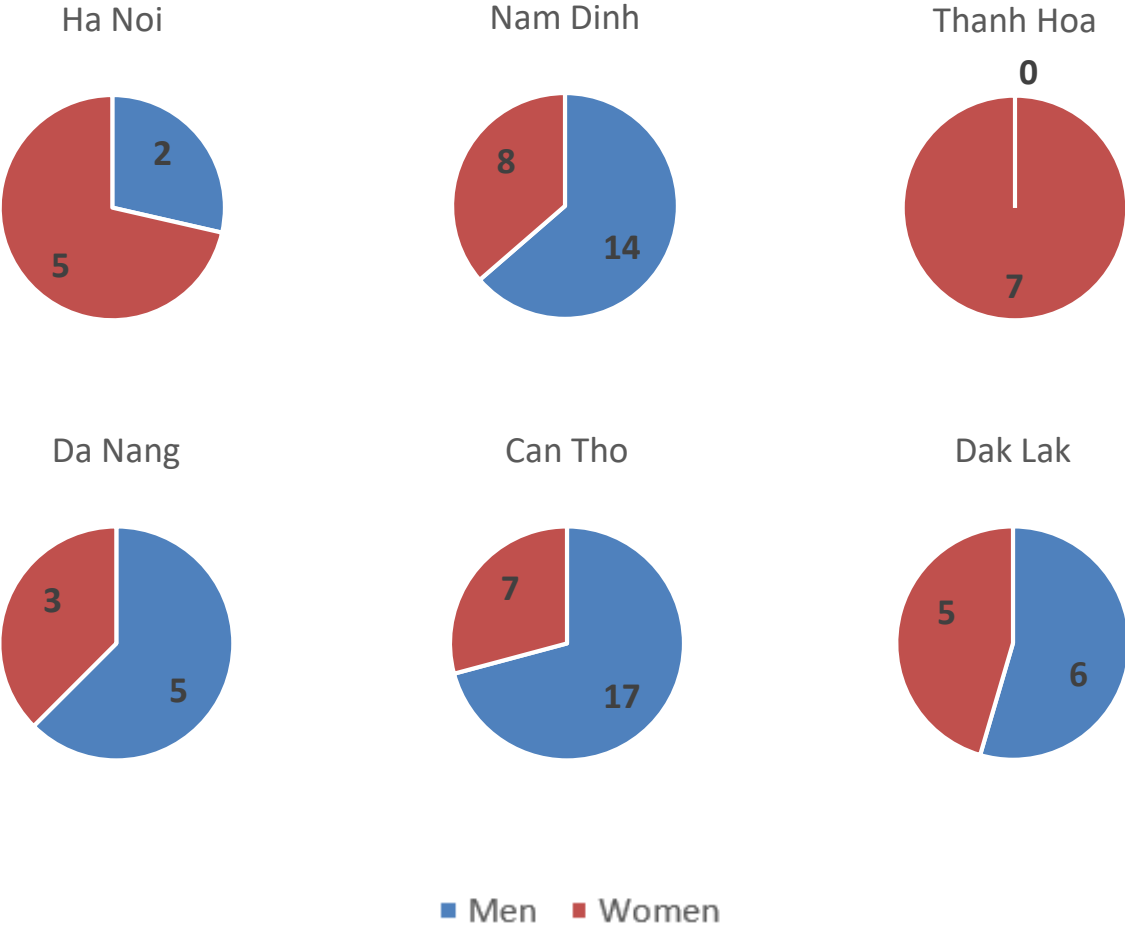
#	Pseudonym / Location	Age	Occupation	Gender/Family Situation	Income (in VND)	Devices / Cost (VND) if Given	Years of Use	Hours of Use Per Day
57	Chuong <i>Nam Dinh</i>	59	Retired farmer without retirement income	Female; Wife, lost their only son to road accident Grandmom of two grand kids – 11 & 5 years old	5 million – salary for a war invalid husband	PC and Television Free Wi-Fi from neighbours Will need to pay 70,000 shared Wi-Fi in late 2017	5	4-5
58	Dat <i>Nam Dinh</i>	53	Math teacher for more than 30 years	Husband, dad of two sons who are studying in Hanoi	18 million /month	PC and smartphone Shared Wi-Fi	3	Occasionally
59 & 60	Em & Ep <i>Nam Dinh</i>	55 53	Internet café owners, death money producers Retired carpenter and farmer	Male Female Husband and wife, have grandchildren	N/A	50 PCs, each costs 8 million More than 1 million VND/monthly subscription	2	Whole day for music Online time depends each day
61	Gong <i>Nam Dinh</i>	22	Internet café owner,	Male; single	N/A	Smartphone 30 PCs / 600 million investment 1.2 million/monthly subscription	5 years 3 years old Internet cafe	4 hours per day “I can’t avoid my online job”
62 & 63	Hanh & Hoa <i>Nam Dinh</i>	26 18	Carpenter a high school student with a part-time construction job	Male; married with a 3 years old kid Male; single	6 million/month Varies, pays for net money	Hanh: Smartphone (500,000) with 3G (70,000/month) Hoa’s mom (a garment worker) uses 3G, while his dad, a farmer and construction worker, doesn’t use Internet	13 & 4 years	2 hours for Hanh per day at the café 4-8 hours for Hoa at the café

#	Pseudonym / Location	Age	Occupation	Gender/Family Situation	Income (in VND)	Devices / Cost (VND) if Given	Years of Use	Hours of Use Per Day
64	Inh <i>Nam Dinh</i>	34	Head of commune health station (4 staff which treat 400-500 patients each month)	Male; Husband and Dad Born, raised, live in the same commune	10 million/month	Free Viettel Internet for 3 years; 1 smartphone, 1 work PC; Free Wi-Fi without password for anyone	7 years	Depends on each day: availability of electricity, computer, network
65	Khang <i>Nam Dinh</i>	76	War veteran; Worked as a public official	Male; husband, father, grand father	7 million/ Month for pension Wife has no income Max 4 million for all expenses	1 PC, 1 Television (40 inches) Gifts by a son who owns and runs giant electronics shop in Hanoi 176,000/monthly subscription – paid by “state money” (i.e. pension paid by the government)	4 years	4 hours per day
66	Loan <i>Nam Dinh</i>	37	Wi-Fi Café and Karaoke owner	Male; Husband, father of 3 kids (elementary school and pre-school)	15-20 million/month	Smartphone – 3.5 million 165,000/monthly subscription	5	2-3 hours/day for personal use Play music whole day for business
67	My <i>Nam Dinh</i>	25	Local garment factory manager	Female	7-8 million/ month	Smartphone – 5 million 70,000/monthly subscription	7	3 hours in evening after work

#	Pseudonym / Location	Age	Occupation	Gender/Family Situation	Income (in VND)	Devices / Cost (VND) if Given	Years of Use	Hours of Use Per Day
68	Ngoc <i>Nam Dinh</i>	52	Retired	Male	Pension 3 million/month Wife works as a cleaner at a school	iPad – 11 million	8 months	2 hours
69 & 70	Ong & Oang <i>Nam Dinh</i>	36 11	Owner of an aluminium and glass shop	Male Female Father of three daughters (Grade 9, Grade 5, and a pre-schooler)	8 million/month	1 used PC – 7 million/month Shared Wi-Fi costs 70,000/month	1 year	30m – 1 hour at home
71 & 72	Phong & Phu <i>Nam Dinh</i>	39 35	Vice headmaster of an elementary school Literature teacher of a junior high school	Male Female The couple has a G6 daughter and a preschool son	12 million/month for the couple	2 smartphones, 1 iPad, 1 laptop (gifts from brothers in city) Shared Wi-Fi with other two household, each month cost 70,000	10	1 hour/day Check work email at home
73 & 74	Sun & Sung <i>Thanh Hoa</i>	35 30	Chicken trader Jobless	Both female Grade 9 & college graduate	5 million /M No income	None – second users	2 months 7 years	1-2 hours not regular
75	Truong <i>Thanh Hoa</i>	34	Teacher of English at a junior high school	Female Three kids: 1 years old, 7 & 9	10 million/M	2 smartphones, 1 laptop, 1 PC / 10 million for Acer laptop; Used PC / 3 million Oppo / 1.5 million each Internet shared with two other households. 90,000/each family/M	N/A	2-3 hours in the evening

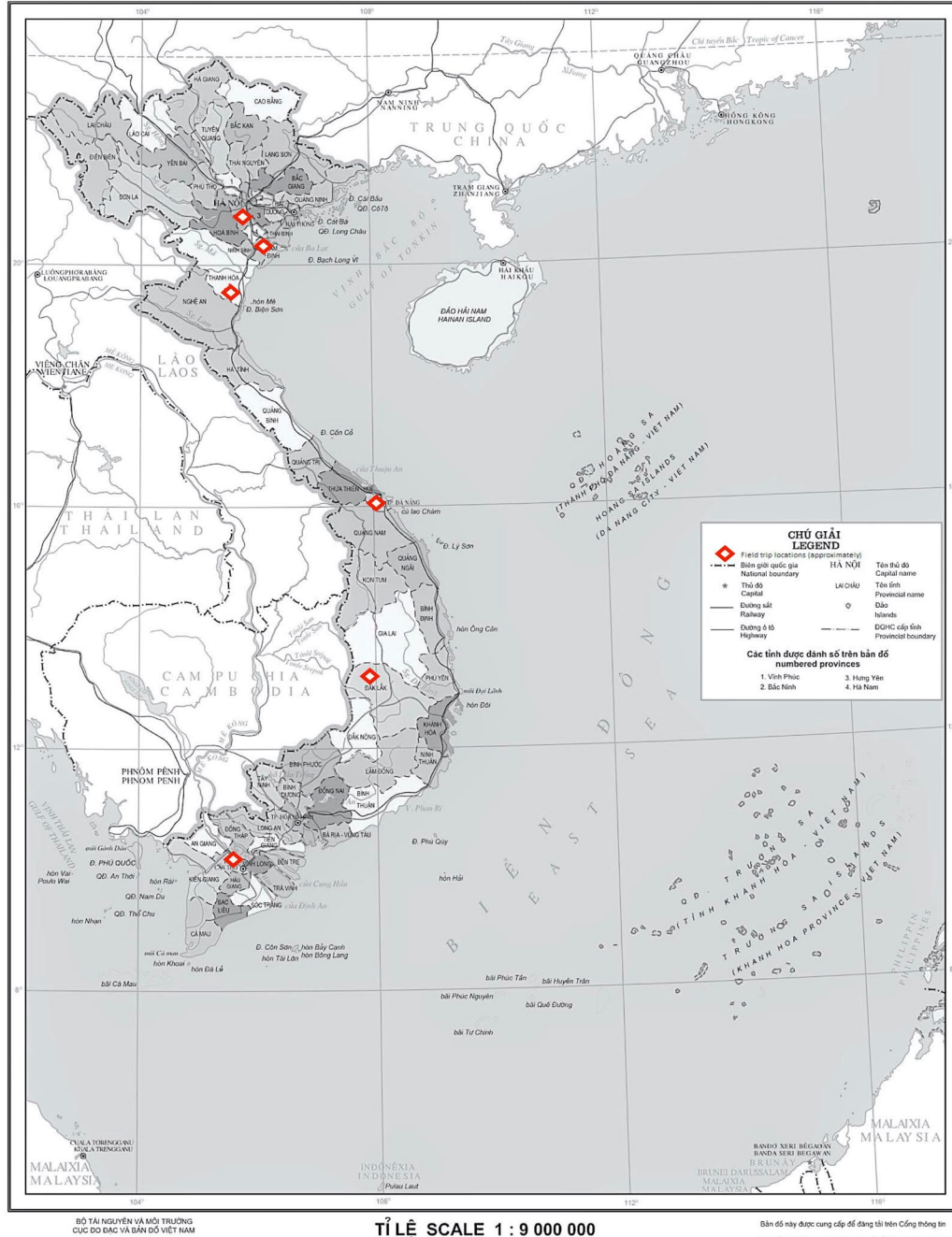
#	Pseudonym / Location	Age	Occupation	Gender/Family Situation	Income (in VND)	Devices / Cost (VND) if Given	Years of Use	Hours of Use Per Day
76 & 77	Xoa & Xoan <i>Thanh Hoa</i>	49 & 48	Chicken trader-farmer & Stay-At-Home Grandmom	Both female	Not revealed. Rural areas are getting better, income is sufficient for internet subscription. 40000/M more but can connect with both TV and phones	Smartphone / 3-4 million Phones & 48 inch TV Viettel / 220,000 per month x2	1 month 1.5 half year	
78	Xoang <i>Thanh Hoa</i>	32	Garment factory worker 2000 workers, 15 minutes on motorbike from the village	Female; Expecting mom 4-year-old son	4 million per month	2 Smartphones for wife and husband / 1.2 million each; TV; Wi-Fi subscription / 110,000 per month for 3 families. no Wi-Fi at work	3 months	
79	Vinh <i>Thanh Hoa</i>	48	Primary school teacher	Female		TV / 3 million 2 smartphones for self and daughter / 9 million Laptop / almost 14 million dong Subscription / 175,000 month, shared with 3 families	2-3 months at home	Intermittent use for self 4 hours for her daughter

APPENDIX D: INTERVIEWEES BY GENDER AND LOCATION



APPENDIX E: VIETNAM MAP – VISITED VILLAGES' LOCATIONS

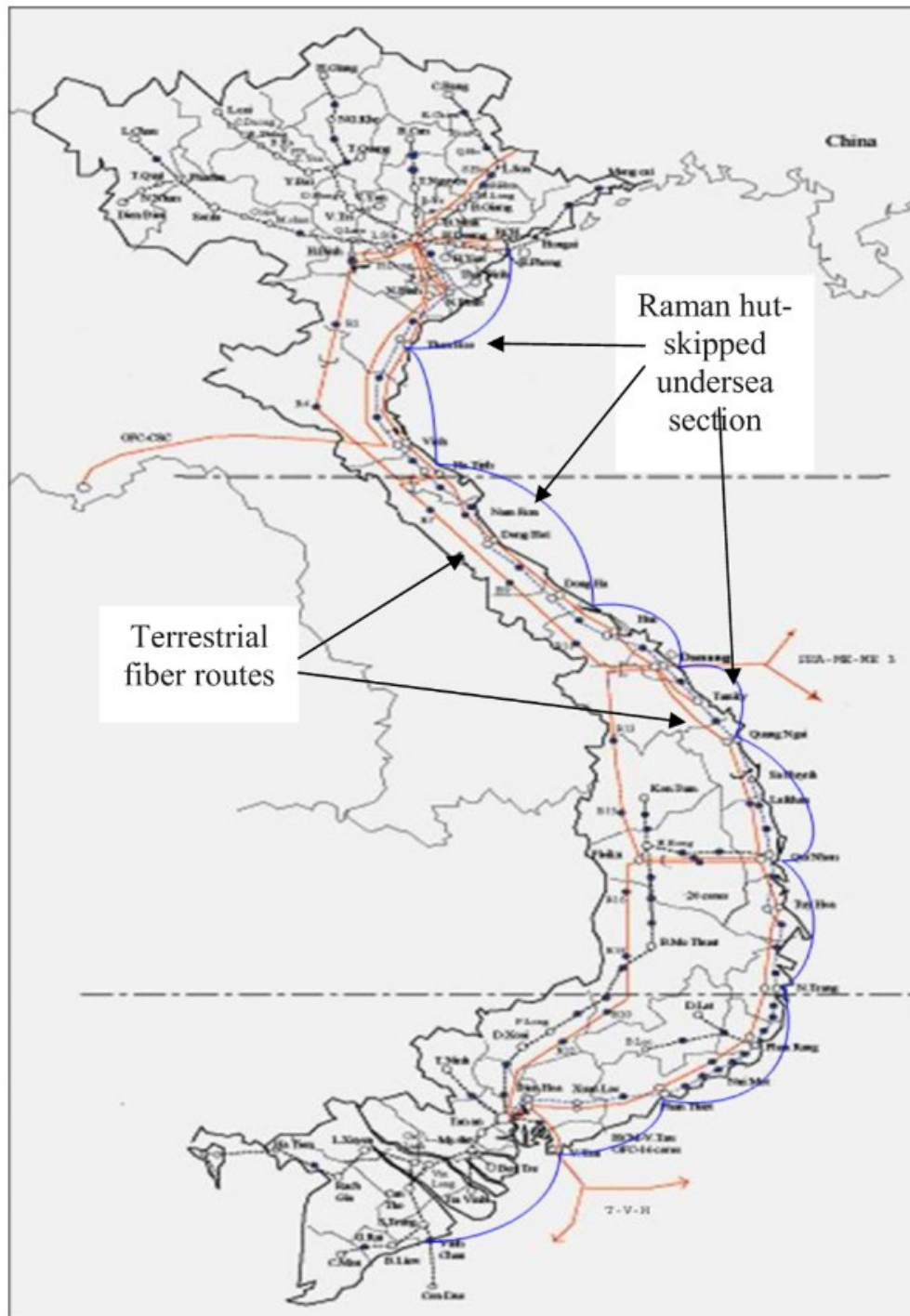
BẢN ĐỒ HÀNH CHÍNH NƯỚC CỘNG HÒA XÃ HỘI CHỦ NGHĨA VIỆT NAM ADMINISTRATIVE MAP OF SOCIALIST REPUBLIC OF VIETNAM



(Source: Vietnam Department of Survey, Mapping and Geographic Information

Centre of Survey and Mapping Data website: <https://www.bandovn.vn/en>)

APPENDIX F: VIETNAM BROADBAND INTERNET NETWORKS' MAP



(Source: Hanoi National University)