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Digital Integration Narratives

A Three-Stage Analysis of Immigrant Experiences in Finland

Intercultural Encounters

Master's thesis

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Abstract:

Existing research highlights the deep integration of digital technologies like AI into society, significantly impacting our everyday lives and raising concerns about environmental damage and surveillance. While digital technology use in immigration processes has been explored, a gap remains in understanding its impact on immigrants' integration pathways. With narrative analysis, this study prioritized interviewee control over their narratives through a methodological choice and interview questions were developed with a narrative approach. Digital immigration, a parallel process to physical relocation, occurs in three stages: *waiting*, *adjusting*, and *normality*, shaping immigrants' experiences in Finland. This framework, informed by Bangladeshi immigrants' shared experiences, underscores the dependent nature of digital infrastructure and accessible support. Simultaneously, this thesis explores the impact of digital authenticators on their lived realities in Finland's digital society. A paradox is presented in line with the waiting stage, where new immigrants are forced to rely on interpersonal connections for essential tasks, highlighting how the lack of this key digital identifier hinders their digital inclusion and full participation in Finnish society. Ultimately, this work encourages broader reflection on our digitally shaped lives.

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1 Introduction

The memories I have from my first few weeks in Finland are atypically obscure for someone who can recite memories far back into her childhood and, thus expectantly, from a couple of years ago. While most of it remains as hazy dream-like fractions, I do, however, vividly recall the check-in event at the University of Helsinki, where I was now a master's student. I mostly remember the confining feeling of being so marvellously disoriented by everything that was happening that I became uncharacteristically quiet. I had followed the instructions from the tutors, to bring my identification with me, although I was not sure why. I followed the instructions on site, finding my way to a desk for something called DVV and waiting in line with some of my fellow international students who I somehow assumed knew more than me. I refrained from stating my ignorance out loud, out of pure embarrassment and just hoped that I would soon get over with, whatever it was that I was there to do. Naturally, then, I had brought the wrong type of identification and had to come back the next day, with a passport.

This story is a fraction of the beginning of my journey as an immigrant and international student in Finland, where registering myself with the DVV office was the first step (although unbeknownst to me at the time), even though I was not sure what that registration entailed or meant. A few weeks after my two-day debacle with the DVV desk at the university's check-in event, I received a letter in the mail informing me of my new legal municipality and my personal identity code. Since then, physical letters and papers from DVV have been few and far between.

Digitalization and immigration are topics that have gained traction in academia, focusing largely on how artificial intelligence (AI) and algorithms can be applied and utilized in such processes and services (Yigitcanlar et al., 2023; Hanson, 2023) as well as social scientists are interested in the implications and effects that digitalization has on societies (D'Agostino & Durante, 2018). Governments across the world are applying AI in their operations (Árnason & Pétursson, 2024) and migration across borders increasingly uses AI in border control and security (Bircan & Korkmaz, 2021). Less is known about people's firsthand experiences with digital technology in their everyday lives and the relevant impact that follows, let alone how immigrants experience this way of being in the

world. This thesis will be a contribution to the field of social sciences and digitalization by addressing this research gap and generating new understandings.

Many, if not most, published articles on the topic of digitalization, algorithms, and emerging technologies start with the casual but loaded statement of how such technological innovations and changes have made an appearance in most facets of society (Lee & Larsen, 2019; D'Agostino & Durante, 2018; Verwiebe & Hagemann, 2024; Talvitie-Lamberg, Lehtinen, & Valtonen, 2022; Hoyer, 2023). This thesis will be no different. The emergence of new technologies, particularly AI and automative decision-making (ADM) has made a huge impact on societies across the globe, much of it positive with promises of improved public services, government operations, traffic, infrastructure, education, and beyond (Hoyer, 2023). It is therefore no wonder it has caught attention (Andrejevic et al., 2015). The arrival of 2025 signifies the emergence of Generation Beta, bringing with it a new wave of global citizens and a shift in the landscape of the world. This is the first generation that will grow up and come of age with AI and ADM as normal parts of their existence from day one. The times ahead can be expected to be stirring and entail vast social changes that the upcoming generation will experience differently than the older ones (Pálsson, 2024) underscoring the importance of research on the social impact of this change. The negative impact of AI is nonetheless a hot topic, not just in academia but in media and public discourse as well. The surge in AI-powered chatbots has accelerated the expansion of methane gas infrastructure, fuelled by significant investments from Big Tech companies. This rapid growth poses a significant threat to climate stability (Samuelson, 2024).

This thesis aims to contribute to the field of digitalization in society by shedding light on the complexities of digital existence and the experiences of immigrants navigating these complexities within a specific context and by answering the research question: What narratives are constructed through the lived experiences of digital immigrants in Finland? For this study, I conducted five semi-structured interviews with immigrants from Bangladesh, paired with narrative analysis as the research method. The Finnish personal identity code will guide the research process and following its path and using thematic narrative analysis to define the way it is used will hopefully bring new knowledge about how its mobility shapes the digital identities and integration processes of immigrants in Finland.

2 Literature review

This literature review aims to examine existing research on the role of personal identity codes in shaping the digital experiences of immigrants in Finland. While previous studies have explored the impact of digitalization on societies, limited research has specifically investigated how the use of Personal Identity Codes (PIC), a unique feature of the Finnish social security system, mediates the digital ontology, digital identity, and existence in the digital realm. This review will analyse existing literature on digitalization in society, digital identity, and the use of PICs in Finnish society to identify key gaps in knowledge and inform the development of a research framework that centres on the lived experiences of immigrants navigating digital spaces within the context of the Finnish PIC system.

2.1 Digitalization

2.1.1 Digitalization in society

The term *digital* refers to something that is used or characterized with electronic and/or computer technology (Merriam-Webster, 2024; Encyclopædia Britannica, 2024). With the personalization of technological devices such as the stand-alone computer in the late 1980s and early 1990s, the development of digital devices followed relatively fast. With social media emerging in the early 2000s, the pace accelerated even further, with scholars often referring to the *digital revolution*. Despite the older kinds of digital tools still being used with a persisting role and importance, the newer digital media is vital for people to fully reap the benefits of societal welfare (Van Dijk, 2019). The term *digital* and then the term *technology* often find their way to each other and are often used interchangeably. In this thesis, the emphasis will be on digitalization as a byproduct of technological developments.

This thesis will be built upon various theories and previous work done on the topic of digitalization and society. Digitalization in society refers to the transformation of traditional actions into digital formats, through devices such as smartphones, computers, tablets, or other digital hardware (Zhao & Wang, 2023). Simultaneously technology and technological advancements remain a vital part of a country's socioeconomic status (World Economic Forum, 2023) with correlating numbers between internet connections

and developmental rate and growth (Van Dijk, 2019). The digitalization of existing practices often entails a degree of transformation, as the digital medium inherently alters the form and function of the original action. An example of this would be an e-book versus a physical printed copy. If a physical book is made into a digital version (for example a pdf file that can be opened on a smart device) it will not be the same as a book that is published as an e-book. The e-book requires a different interaction than the digital copy of a printed one (O'Sullivan & Pidd, 2023). Digitalization does therefore indicate a new way of doing things, creating a society that functions and appears differently than before.

Given the swift emergence of new technologies, scepticism can be expected. Technology can never be considered neutral or a "quick fix" to complicated challenges in society, such as public services or governing operations (Gottardo, Finch, & Cooper, 2024). While technological advancements offer new possibilities, they also introduce unforeseen challenges. The intriguing aspect of digitalization within the socio-cultural sphere lies in its inherent capacity for rapid mobilization and widespread expansion across diverse domains (Mackenzie, 2015). However, this very speed and adaptability also present significant challenges and fuel ongoing debates.

People are increasingly expected to be actively digital. Governments in the Global North (and beyond) expect people to have some means of digital contact, an email address for example. Phone numbers and home addresses are sufficient links of contact but often require more effort to work with. Public services are accessible through digital platforms like websites and apps, education and labour increasingly require digital skills and people are at risk of losing contact with friends and relatives if they lack a digital presence which can have negative effects on their social life, hence their well-being. Events and social gatherings are often solely advertised on social or digital media with ticket sales to concerts and other big events being largely available on websites, requiring access to the Internet, a digital device, and knowledge of how to utilize the required function (Van Dijk, 2019). Not being an active digital participant therefore makes access and living more difficult.

We are currently living in the age of Big Data, characterized by unprecedented collection, storage, and utilization of information. Data is a continuous part of the mundane, both in terms of leisure and work life (Pink et al., 2018). Every individual participating in the digital sphere becomes subject to observation, as their online

behaviour generates data that is actively gathered by private corporations and platforms for enhancement and development (Andrejevic et al., 2015), generally to predict future outcomes (Mackenzie, 2015). This large-scale data collection, or data mining, has significantly challenged our understanding of humanness, creating a field of interest for social science scholars, in particular. Contemporary social and cultural theories, such as new materialism and object-oriented ontology, reflect this shift. These frameworks de-centre the human subject, viewing it as one element within intricate networks of interactions. This "flat" ontology, as Packer (2013) describes, aligns with the epistemological nature of digital media power, which prioritizes numbers over traditional ideological frameworks. This echoes Chris Anderson's (2008) "End of Theory" argument, presented in the online magazine *Wired*, suggesting that with sufficient data, direct observation and analysis of human behaviour through tracking and measurement can replace traditional theoretical interpretations (Andrejevic et al., 2015). There are multiple ways to critique Anderson's words and perhaps the simplest way is to pose the question: can mere numbers and metadata represent people fairly? Cultural studies and anthropology examine how people's daily lives, through their actions and routines, construct the fundamental nature of everyday existence. Numbers and statistics are not situated in the context of the circumstances where the events and activities take place. It is therefore no wonder that people look at data as the sole representation of people and their lives with questioning attitudes. Through an intersectional approach, data is always related to context and cannot be taken at face value without considering where, how, and why it is gathered in the first place (D'Ignazio & Klein, 2020).

With Big Data gathering more data than ever before, people question whether the data they provide is handled fairly and safely by whoever ends up collecting it. Ideologies revolving around data trust and data anxieties have therefore been circulating in research for the last few years. The notion that data is not entirely secure, no matter the measures taken to ensure its safety, is rather common as Pink et al (2018) state, as individual users of data consider it difficult to manage, store, and trust. Large-scale data breaches and cyber-attacks exacerbate this lack of trust. In July 2024, a glitch caused by a flawed software update to Microsoft computers from the Security company CrowdStrike caused computers to crash, making them inoperable for a significant amount of time. This had a devastating impact, causing widespread flight delays, crippling emergency response

systems, severely hindering healthcare services, and retailers completely unable to serve their customers. Over 8.5 million computers were affected, making this the largest data catastrophe in history (Satariano et al., 2024; Tidy, 2024).

Finland has been relatively progressive when it comes to digitalization and technological advancements. The case of Nokia exemplifies Finland's technological achievements, yet it also serves as a stark reminder of the consequences of failing to anticipate and respond effectively to emerging technologies and market shifts. In the late 1990s and early 2000s, Nokia was the largest mobile phone manufacturer in the world. With the emergence of the smartphone, the company fell behind and is often referred to as one of the biggest business failures of the 2000s and 2010s. Multiple elements anthologize Nokia's downfall, but the resistance to the smartphone is one of the main reasons the company lost its status and other manufacturers took the lead (Shrivastava & Bajj, 2024). Since the initial emergence of touchscreen smartphones, Apple and Samsung have taken turns leading the market in smartphone sales (Ray, 2024). The rise and fall of Nokia are mentioned here to showcase the importance of keeping up with digital developments for the economic growth of the nation.

While Finland no longer boasts a dominant presence in the "Big Tech" arena, it maintains a strong commitment to digitalization and technological advancement, particularly within its urban centres and larger municipalities. However, rural areas often lag in digital infrastructure and face challenges in accessing and utilizing digital resources, with data on their digital participation being less readily available. The Digital Economy and Society Index (DESI) is a scale that ranks and analyses countries' digital progress and provides insights for improvement. The European Commission publishes an annual report with the results. In 2022, Finland ranked number one among 27 member countries on the DESI scale with an impressive lead in the category of human capital and has reached the decade target of minimum digital skills of 80%. The basic level of digital intensity in Finland demonstrates high levels of achievement (European Commission, 2022). Finland has a strong emphasis on digitalization, digital solutions, and online security. This manifests in operations such as digital identification methods and online platforms for public services.

2.1.2 The Digital Divide

Digitalization is never neutral to people and mimics the pre-existing human biases or inequalities that are already present in society (Gottardo, Finch, & Cooper, 2024). Technological emergence is happening swiftly, as has been made clear in this chapter, which causes the inequalities to surface just as swiftly (Robinson et al., 2020). This turns our attention to digital inequalities that tend to mirror the present inequalities, regarding race, socio-economic status, education, gender, age, and so on. This has been conceptualized through the theory of the digital divide, which many scholars have dedicated their efforts to defining and researching (Lutz, 2019). The digital divide became a topic of interest in the 1990s (Van Dijk, 2019) and has therefore been a present theory in the scholarly field of technology and society since the field emerged. As can be expected of a long-running theory, the definition and credibility of the digital divide have ebbed and flowed as technological changes have taken place. It goes without saying that digital technology in the 1990s and the year 2025 are vastly different with new devices and hardware that might call for different viewpoints when studied (Van Dijk, 2019; Lutz, 2019).

Two leading scholars have developed frameworks for considering the digital divide and this chapter is based on the work of those scholars. One of them is Christoph Lutz with his article *Digital Inequalities in the Age of Artificial Intelligence and Big Data* from 2019 where he defines his three levels of the digital divide. As a social scientist Lutz has made impressive contributions to the field of emerging technologies and digitalization in society through various publications since the early 2010s. Lutz's article from 2019 builds upon a rich foundation of research on digital inequalities and cites Jan Van Dijk's work clearly and intentionally as a pioneer in research on this subject. Van Dijk has made august contributions to this field of research since the late nineties and early two-thousands with his books *The Network Society* from 1999, *The Deepening Divide: Inequality in the Information Society* from 2005, *Digital* Skills from 2014, The *Digital Divide* from 2020, and his most recent book *Power and Technology* published in 2024.

The reason for including both Van Dijk and Lutz in this chapter is to provide an overview of how two scholars can develop a similar yet different framework as well as further emphasize how nuanced and intersectional the theory of the digital divide truly

is. Both scholars build upon a rich background of literature that follows the development of digital technologies over the years providing an intricate analysis to the curation of the frameworks.

Lutz (2019) speaks of three levels of the digital divide: 1) unequal access to the internet, 2) inequalities in skills and usage, and 3) unequal benefits derived from technology. Meanwhile, Van Dijk (2020) speaks of four phases of the digital divide: 1) motivation, 2) physical access, 3) skills, and 4) usage. What both Van Dijk (2020) and Lutz (2019) emphasize is the access and skills to the Internet. It is now expected that people have access to the Internet in some capacity, have an email address, and some way of being contactable through a digital platform or function. Another commonality in Van Dijk and Lutz's descriptions is how each factor overlaps and intersects with one another. The absence of basic internet access precludes individuals from accessing the full spectrum of benefits offered by digitalization. Likewise, skills cannot be developed without access to technology and the Internet. Looking at Van Dijk's categories, it can be argued that motivation will overlap with usage, with users (who already have access) having different motivations based on the skills they have acquired (Lutz, 2019; Van Dijk, 2020). Digital inequality is a complex and multifaceted issue and a complicated ideology that calls for a nuanced approach.

The digital divide as a concept does however offer a crucial viewpoint on the user experience of digital platforms as well as it can reveal solutions and ways to build more inclusive and better accessible methods of being online for people regardless of their position within the dividing spectrum. As mentioned in the chapter above, Finnish digital participation is well above average when compared to other European countries on the DESI scale. This leads us to the question of how the digital divide manifests itself in Finland, a country with the highest score on the DESI scale, and great encouragement from the government to stay digital and apply digital solutions to people's daily lives. At this point, existing research on this remains scarce.

2.1.3 Digital Existence

Datafication and digitalization have pushed people to the digital realm (Van Dijk, 2019) making way for the study of digital ontology. The philosophical concept of ontology entails the study of existing and living, posing questions such as what is real, what is the

relationship between people and their lived experiences and what it means to exist in the world (Craig, 1998; Hofweber, 2023). Looking at digital ontologies, one can ask questions such as: what makes the digital realm exist and how do people exist within that? What is the lived experience of people as digital participants and even digital citizens?

Big data and digitalization provide great promises of solutions to both people and institutions, and consequently an added convenience to people's daily lives. With digitalization in governmental institutions, the way people interact with public services is increasingly digital (Bassett, 2015). The Digital and Population Data Services Agency (Digi- ja väestötietovirasto, abbreviated as DVV) offers the online service through the website Suomi.fi, where citizens and residents can "handle everyday matters with public authorities and organizations of general interest" (Suomi.fi, n.d.). A typical way of using governmental and public services through digital platforms is through a username and password, unique to everyone. The username and password element mimics the way social media platforms work, where users can create a profile where they connect with other users through messages or shared content (Laurent et al., 2015). Public services through digital platforms lack the connectivity function that social media has, individualizing the function and thus creating a feeling of added security. For instance, online banking services do not offer their customers the chance to connect with other customers through their websites or platforms but allow them to manage their personal banking without any human intervention. It is worth noting how customers can interact with customer service through these digital platforms which have made significant changes to the service landscape of various industries, particularly banking and public services (Nordea, n.d.). By this, online banking does not offer the same mode of expression to their customers as social media platforms do but still gives them a sense of identity and a way to handle their personal finances either by themselves or with the assistance of a chatbot or a person through a digital portal (Laurent et al., 2015). A username and password are easy to forge, and the online services can thus be accessed by anyone who obtains the correct credentials for it. To maximize online security, strong authentication has been implemented for Finnish residents and citizens which allows them to safely access and handle their online matters with less worries of unwanted log-ins, breaches, or hacks. In Finland, strong authentication to prove one's identity is commonly acquired through banking credentials, citizen certificates, or mobile certificates (Finnish

Immigration Service, n.d.). The use of strong authentication is highly encouraged by the Finnish government and organizations under the implications of better cyber-security and user data protection.

Despite grand promises of convenience, better quality of life, better health, and various benefits that being actively digital promises us, many people are choosing to either opt out completely or at least minimize their digital participation and prioritize human connection and in-person interactions instead (Zuckermann, 2024; Botsman, 2024) This resistance to spending time in the digital realm, sometimes conceptualized as *screen time* (Etchells, 2025), is vital to understanding how people feel about the pressure, need, and desire to be digital. One way of looking at this resistance is by understanding how people view AI which is often the main force that drives digitalization forward. The way AI works in modern society is not always clear to the public. They have limited control or agency over their personal use of it. The obscure image that people have of the technology they use daily fuels scepticism, and data anxieties and reduces data trust (D'Agostino & Durante, 2018), and the public perception of AI is still unclear in many ways (Yigitcanlar et al., 2023).

The boundaries between the "real" and physical world and the digital world have been blurred, with people existing simultaneously as physical individuals as well as digital (Zhao & Wang, 2023). This calls for the study of digital ontology and digital immigrants and how people experience their being as "real life" participants and digital participants in Finnish society. This will be further outlined in the following subchapters.

2.1.4 Personal Identity Codes

The strong authentication has been explained in the chapter above about digital existence, albeit it could just as well fall under the concept of digital identity. When speaking of the ontology of digital existence, digital identity must follow suit, whereas the relationship between digital identity and existence on digital platforms is crucial to deepen the understanding of user experience. This necessitates a deeper examination of strong authentication mechanisms, leading us to the Personal Identity Code (PIC), the fundamental identifier for individuals in Finland.

Every citizen or resident in Finland must acquire a PIC. This 10-digit code is assigned at birth to Finland-born citizens and is obtained through the immigration

process for those who immigrate later. Given the diverse immigration pathways, influenced by factors like origin, reason for migration, and individual circumstances, understanding the role of the personal identity code within this complex landscape is crucial. While extensive research exists on Finnish immigration, with scholars from various disciplines offering diverse perspectives, the significance of the PIC in these studies appears underexplored. The main efforts of this thesis will be to gain insight into the ontology of digital existence through the viewpoint of PICs.

The PIC will serve as a reference point to get a glimpse of how the user operates within their digital territories and see where their digital participation takes place. Without this code, a person does not legally exist as a resident in Finland. One cannot be registered in the country as a resident, apply for public services, healthcare, banking, or financial aid, or be employed or enrolled in schools and academic institutions without a PIC (Finnish Immigration Services, n.d.). Furthermore, without the PIC, one cannot have strong authentication and must therefore take the "old-fashioned" route of going in person to service points or offices, which is not guaranteed to offer the services one might need if they do not have the PIC in the first place. The significance of the PIC extends beyond basic functionality. If a person who is born in Finland is not given a PIC at birth, they cannot be registered as a citizen, while a lack of PIC upon death hinders the issuance of a death certificate and the authorization of burial procedures (Hoyer, 2023). This underscores the impact that the PIC has and how an individual cannot exist (or cease to exist) within the nation state they reside in without one.

2.2 Immigration & Digitalization

2.2.1 Immigration in Finland

Finland is considered a desirable country to live in, praised for its welfare system, quality of life, and gender equality. Finland has received global attention for being considered the "happiest country in the world", seven years in a row, according to the UN World Happiness Report (2024). Nevertheless, Finland has been considered a homogenous nation, accepting and attracting fewer immigrants than other European countries (Ngwayuh & Croucher, 2017). The number of immigrants has stayed consistently high in the last ten years following the immigration crisis in 2015 as well as Russia's invasion of Ukraine in 2022 prompted a significant influx, with immigration services processing close

to twenty thousand applications for temporary protection that year. Despite an economic downturn, labour migration to Finland remains persistently high. However, data indicates a substantial decline in labour migration between 2022 and 2023 (as we know, the numbers don't speak for themselves, and it is unclear what is at play here). Among immigrants from other European Union countries, the primary motivation for migration is employment, with Estonia and Germany being the most frequent countries of origin. Concurrently, the number of international students applying for temporary residency permits in Finland experienced a rise in 2023, mirroring the expansion of international study programmes within the country (Press and Communication Services, 2024). At the University of Helsinki, international students make up eight percent of the total number of students (University of Helsinki, 2025). International students who graduate from a Finnish university face a challenging job market with a small number of 25% graduates finding employment that aligns with their specialisation within a year after they graduate. In contrast, around 63% of Finnish graduates find employment within a year after graduating (Yle News, 2024). Consequently, majority of international students have no choice but to return to their home countries after completing their degrees (Yle News, 2025).

Regardless of whether an immigrant receives a temporary or permanent residence permit, a personal identity code is mandatory for everyone, including international and exchange students (Åbo Akademi, n.d.). After an application has been accepted and registered, the code will be automatically created and sent to the applicant through mail or email and the individual can carry on their integration process (Finnish Immigration Service, n.d.).

2.2.2 Borders as countless points of interaction

Digital technology has made a strong contribution to immigration (Gottardo, Finch, & Cooper, 2024) and public governance (Van Dijk, 2019). Surveillance has been present in governance since the eighteenth century, commonly justified as a beneficiary for individuals, a health monitor for example (Peacock et al., 2023). Surveillance can take many forms, for instance, security cameras, location tracking, and biometrics (Grünenberg et al., 2022). Digitalization brings a new focus of surveillance to light and makes for an interesting point of view in the study of digitalization and society.

Let us look at health data. People's health data is collected and in a digitalized world, stored on digital databases. Digital health data is mostly dependent on people's participation and willingness to provide it (Peacock, et al., 2023), and considering how much health data exists (with the emergence of Big Data), it can be assumed that people are generally willing to give their data to the health sector, with the reciprocal promise of better or sustained health outcomes (Hoyer, 2023). In this sense, care and control are interlinked with people accepting their health data to be digitally stored without much knowledge of where that data travels, what is being done with it, or for who's (or what) gain. Simultaneously, people might enjoy the functionality of health technology and consider it an asset to their overall wellbeing. Shifting the gaze from health surveillance, participatory surveillance is evident in other aspects of people's daily lives for instance through participation on social media where users encourage and are encouraged by other users to monitor and report their whereabouts and activities (Peacock et al., 2023). This goes to show that surveillance is not always considered hostile or unwelcome, but quite the opposite. When being subject to being surveyed, people tend to value the benefits and convenience that follow and often allow the good to overrule the bad. However, contradicting viewpoints are nonetheless present with sceptical and cynical attitudes. This has led people to create ways of avoiding surveillance and making great efforts to exist without being monitored by institutions or governments (Andrejevic, 2005) like going "off the grid" with minimal social media participation or refusing to consent to their data being gathered (Talvitie-Lamberg et al., 2022).

The reason why health data is made as an example of digitalization here is that it encapsulates both the individual user level and the public benefits through authorities. People's health is vital for their well-being and quality of life, a convenient motivator for them to keep track of and allow institutions to store that information, for their own good. Self-tracking, wearable devices that are meant to regulate and measure the body have grown in popularity since the late 2000s when Fitbit released their self-tracking wristwatch that provided insight into various health data, such as sleep, activity, step count, heart rate, and caloric burn (Crawford et al., 2015). Authorities benefit from the health data for research purposes and knowledge about the health of the nation is valuable information (Hoyer, 2023). Another reason this is being mentioned is that health data requires information about physical bodies, which are increasingly manifested in

digital surveillance and immigration, commonly under the name of biometrics or biometric technology. Biometric technology, where the digital representation of the body is used as a mode of identification, has been one of the most important changes in immigration and border crossing since digitalization made its mark. Using this technology fingerprints, iris scans, bone scans, facial recognition, and even DNA samples are collected on individuals to categorize, identify and verify them (Grünenberg et al., 2022) with grand promises of improved security, more reliable data, and stronger border control (Aratek, 2024). Biometrics are also supposed to provide a solution to identity theft, with people's bodily identity being easier to protect and assign to individuals than alternative methods, such as identity codes or printed documents (Quay-de la Vallee, 2022). Despite the widespread use of biometrics, some problems arise. As Hoyer (2023) states, bodily data is unstable, with bodies changing as people age or endure physical trauma, for instance. This is worth mentioning, whereas it is common knowledge that people age and change with time. Developers of biometric technologies are no less aware of this and have offered solutions to this by offering people to re-admit their data after changes to their appearance, for example, injuries on hands and fingers that cause alterations in fingerprints (Aratek, 2024). Biometrics remains at the forefront of digital border development and is rapidly making an appearance in other domains where people are mobile, for example in tourism and this is a prevalent discussion in popular media. "The paper passport days are numbered […]", reports Burgess (2024) for *Wired* Magazine. According to his article where he cites various sources of news and governmental reports, soon, travel documents that allow for international mobility will be entirely digital, using facial recognition. Whether his reporting will prove true is yet to be known, but needless to say, digital authentication of identity has increased vastly in the last few years.

Surveillance and digitalization create an engaging convergence in immigration. With the rise of AI, digital methods of surveillance have become feasible across different domains, from people's homes to public governance. With digital and participatory surveillance, a constant state of being monitored and watched is created, causing the boundaries between the observer and the observed to blur (Peacock et al, 2023). Delving back into the concept of datafication where our every move in the digital realm is monitored, we have another layer of surveillance (Andrejevic, et al., 2015).

Digital technologies have fundamentally altered the traditional concept of the state. The clear boundaries of physical territories are challenged by the fluid nature of digital space, where borders are often indistinct. States operate within defined legal frameworks and jurisdictions. However, the digital realm transcends these boundaries, with information and data flowing freely across borders, making it difficult to establish clear ownership, control, and regulatory authority. This data flow presents significant challenges to state decision-making. It's increasingly difficult to determine which data falls under a state's jurisdiction and how to effectively govern and utilize this data for the benefit of its citizens while respecting individual rights and privacy. Essentially, this calls for the need to reconceptualize the state as territory, and therefore the idea of "digital territory" has been developed. This is directly relevant to this study for it introduces the "digital citizen" (Möllers, 2021). Being a citizen or resident in a nation does not only require one's presence in said nation but also their existence on paper, the bureaucratic element of existing. With digitalization, these documents and the storing of them have been through major changes, with a focus on individual identification through smart devices and other digital functions (Hintz, 2022). Digital citizenship and surveillance create a fascinating point of interest. As Möllers (2021) argues, an online environment necessitates online monitoring. Given the emphasis on digital literacy and the public expectation of online presence, individuals are increasingly defined by their digital existence and identity. This necessitates knowledge about individuals within this digital sphere. Governments, therefore, have a responsibility and need to ensure control and oversight within all areas of their jurisdiction, including the digital realm. Möllers (2021) further states how defining the boundaries of the digital realm so that they correlate to the boundaries of the nation state has proven to be more complicated than drawing geographical and geopolitical boundaries.

2.2.3 Technological normativity

As repeatedly emphasized, individuals are increasingly expected to actively engage in the digital sphere, maintain an online presence, and contribute to the development of machine learning, data collection, and other essential digital functions prevalent in contemporary society. With emerging technologies that manifest as daily operations and

tasks, such as identification, passports, banking services, and more, people's normative lives are influenced by technology in bigger ways than ever before.

This also requires us to think about what is *normal* and what can fairly be considered a norm. Certainly, people are diverse, even within communities, big or small. Be that as it may, some commonality or normativity can be found for most people, otherwise there wouldn't be concepts like anomalies or outliers. Personal banking can be considered a normal activity in modern Finland and perhaps something most citizens and residents must attend to weekly if not daily. In Finland, customers of all banks are presented with (and highly encouraged to use) online banking methods that each bank has to offer, whether it's a website or a smartphone application (app). By digitalizing personal banking, it can offer customers access and attend to their finances as often as they prefer. With digitalization comes the need to understand the reality this creates. As D'Agostino & Durante (2018) state, as we delegate tasks to machines and agents that mediate human relationships and make decisions for us and on our behalf, social sciences must address this impact. D'Agostino & Durante (2018) present the theory of technological normativity as "the embodiment of norms in automated systems, devices, and agents" (p. 501) and how that can diminish the social reflexivity or the way the public interprets, discusses, or assesses these norms. In other words, when something becomes normal, the weight that is placed on public opinion is diminished.

Being digitally present is the expected reality and norm that Finnish citizens face. For many, it is easy and perhaps easier than it was before digitalization. About 78% of Finnish citizens believe their lives to be easier because of the digitalization of daily public and private services according to the 2024 Digital Decade Country Report, published by the European Commission (not to be confused with the DESI scale). However, a striking number of 42% of people do not consider their digital rights to be well protected by the EU, the main concerns touching upon the online safety of children and people's digital footprint (European Commission, 2024). This is inextricably linked to anxieties regarding data privacy and a diminished level of trust in data management (Pink et al., 2018).

2.3 Summary

Having examined the existing body of research on digitalization and society, several key findings and areas for further investigation emerge. Digital technologies, including AI and

automation, are deeply integrated into modern society. This has significant implications, particularly for younger generations who are growing up with these technologies as an integral part of their lives. While AI offers many potential benefits, concerns exist regarding its negative impacts, such as environmental damage and government surveillance. Within the context of immigration, research has explored how AI is utilized in various aspects of the immigration process. However, there's a lack of understanding regarding how these technologies affect the everyday lives of immigrants.

3 Research design and methodology

Previous research on digitalization in society has introduced a variety of different methodological approaches to that field within the social sciences. For this study, I decided to pair together narrative analysis with semi-structured interviews. I briefly considered an ethnographic approach, given my academic background in anthropology and since ethnography has been utilized in similar research, as Pink et al. (2018) demonstrated in their research on data trust and data anxieties. Conducting ethnography would have allowed me to follow the physical movements of people in the way they navigate their digital presence, how they use their devices and so on. However, I realized that I was much more interested in the experiences, the feelings, the sense of identity and presence in the digital realm. Semi-structured interviews paired with narrative analysis were therefore the end results when making this decision.

3.1 Narrative analysis

While frequently associated with social sciences, narrative analysis might not be the first methodological choice considered when investigating digital realities. This is particularly true given the strong association of digitalization with quantitative research methodologies within fields like computer science and data science. Digital advancement and development are surely a rising interest in social sciences and this calls for critical assessments about how social scientists approach these social changes. As previously stated, various research methods have been introduced and experimented with delivering intriguing results within this sub-field. Narrative analysis is a valuable research method that offers unique insights into human experiences. It effectively captures lived realities by examining how individuals construct their understanding of the world through storytelling. This chapter argues that narrative analysis offers a crucial lens to understand the multifaceted and increasingly significant role of digital realities in shaping human experience and social life.

Narrative analysis has demonstrated its efficacy as a versatile research methodology across a diverse range of disciplines. This versatility renders it particularly valuable for interdisciplinary research, an increasingly prevalent approach in contemporary academic environments. Its appeal lies in its ability to encapsulate lived

realities through storytelling, something that has been an integral facet of the human condition throughout history. Storytelling can provide insight into both individual and social worlds by giving us information about how the people within that setting experience themselves as part of it, as well as how they experience the world around them. Narrative analysis uniquely captures realities and experiences by recognizing that individuals actively construct their place in the world, current, past, and future, through narratives. Narratives foster social connection by shaping our identities, building community, and offering shared experiences of diverse realities. It can therefore provide a nuanced and intricate perspective on human existence. Narrative analysis is, however, infamous for its notorious complexity and frankly chaotic nature, which can make it difficult for researchers, no matter how capable, to tame and apply this methodology to their datasets. Typical setbacks in narrative analysis involve the interpretive nature of the analysis and the potential for researcher bias along with challenges of coding and categorizing narrative data due to its diverse range of approaches (Robert & Shenav, 2014). While this interpretive depth presents analytical challenges, it also unlocks rich insights into the subjective meanings individuals ascribe to their experiences within digital contexts.

Stories and narratives are what people tell to others; what happened, how it happened, why it happened, what might happen in the future, who was there, why, when, and so on. At face value, a story is what is being explicitly told. Then what is implicitly being told? Feldman et al. (2004) discuss how there is much meaning to be found in what people may not say out loud but is implied in the way they phrase their stories or the way they pose it as something that is or is not, hence, what it contrasts. Say, the storyteller explains what they think is wrong with an event or incident that took place. Can it be derived from the explanation of what is wrong that the contrast could be what they think is right? Feldman et al. (2004) suggest that there is an implicit understanding of narratives that can be analysed by digging deep into the voice of the storyteller. Robert & Shenav (2014) state how it has been a common belief that humans express themselves with more than just spoken and written words. Given the subjective nature of personal narratives, their explicit content alone cannot provide a complete understanding. A critical examination is required to uncover the implicit meanings and underlying assumptions that shape these accounts. People are also not always completely truthful. Whether their

narrative expression is deliberately or accidentally untrue varies, but this makes for an important notion of separation between the narrative and reality. Narratives can offer us a way to access reality, operating as a bridge between the two. Narratives offer a window into the lived experience and resulting reality for those involved in an occurrence, rather than serving as historical facts or detailed descriptions of it (Robert & Shenav, 2014). This understanding of narratives as more than just explicit content will be crucial for analysing the interview data collected for this study. Recognizing narrative analysis as a tool for establishing a connection between narrative and reality, or the articulation of experience and its manifestation, offers a crucial point of view, as it prioritizes the role of experience within the analytical process.

Interviews are a prevalent research practice in social science disciplines (Koven, 2014) and pair well with narrative analysis. As Koven (2014) contends, while interviews constitute a widely employed data collection method, they inherently carry the risk of researcher misinterpretation. It is the role of the researcher to analyse and subtract what the interviewee is saying and create meaningful results from the interview. This approach enables researchers to construct a coherent narrative in which the interviewee, as the voice and as the storyteller, articulates their experience from inception to conclusion (Robert & Shenav, 2014). Consequently, interview questions are not merely intended to elicit concrete answers but rather serve as prompts that encourage the interviewee to weave their own narrative.

Narrative analysis accommodates the complicated nature of qualitative research with various specific approaches. For this study, thematic narrative analysis (Riessman, 2008) will be applied to the data. With thematic narrative analysis, an emphasis is placed on the storyline rather than the storytelling. In this case, I am more interested in the themes, emotions, and experiences shared by the interviewees rather than specific linguistic elements or vocabulary. For this study, a thematic narrative approach can help frame and shed light on reasons or motivations behind actions, opinions, or statements. When interviewees are given space and framework to tell a story, more details and reasoning are often included. For the interviewer, the story of *what* happened is supplemented with *why* and *how* it happened, providing a deeper understanding and description of an event or phenomenon. As Riessman (1995) says, when qualitative interview questions are constructed with narrative analysis in mind, responses will be

delivered as longer answers and hopefully stories. This study will aim to look for thematic narratives of digital realities, constructed by immigrants' experiences as digital residents in Finland. Through the application of thematic narrative analysis to the design of interview questions and the interpretation of resulting data, this research aims to illuminate the pathways through which immigrants experience and articulate their integration journey in relation to obtaining digital authenticators, specifically the PIC and strong authentication.

3.2 Research Objectives

This study aims to answer the following research questions: *What narratives are constructed through the lived experiences of digital immigrants in Finland?*

This research question aims to explore immigrants' everyday engagement and their lived experiences with PICs and digital authenticators. The methodology will involve eliciting narrative accounts from interviewees, detailing their trajectory as digital immigrants from the initial stages of their immigration to their present circumstances.

When it comes to research about digitalization and society, thematic narrative analysis is essentially a useful method of analysis, as Riessman (1995) goes on to say, when interviewees form their answers in a qualitative interview designed around a narrative approach, they often speak of themselves in a "breach between ideal and real, self and society" (p. 3). She gives a further example of how her interviewees sometimes talked about their divorce by discussing their marriage. This emphasis on implicit meanings makes narrative analysis particularly pertinent to understanding the digital aspects of immigration. Experiences of non-digital aspects can illuminate their digital counterparts, especially considering the common dichotomy between "real" and digital worlds. This study aims to challenge this binary, proposing an ambiguous reality where individuals exist simultaneously in both spheres. Riessman's (1995) insight into self-perception within narrative construction aligns effectively with this research.

3.3 Interviews and Participants

For this study, I sought participants from a non-European country exhibiting significant cultural and geological disparities from Finland. I was limited in my knowledge of Bangladesh and its people, let alone Bangladeshi immigrants in Finland. I wanted to arrive

at this study with an uninfluenced outset but a hint of familiarity through my own experiences with similar concepts, as I will outline later in this chapter.

I conducted five interviews with immigrants from Bangladesh who had been living in Finland for a minimum of six months but no longer than three years. Bangladesh is a country of over 175 million people in South Asia, cradled in the Bay of Bengal with a near-surrounding border to India in the West and North and Myanmar to the East. The country has a significantly high population density of more than one thousand persons per square kilometre (in contrast, the population density of Finland is 19 persons per square kilometre (Worldometer, 2025)), and most citizens live in rural settlements. Characterized by a warm monsoon climate and extended summer periods, the nation possesses a fertile landscape conducive to abundant vegetation. However, the dependency on agriculture contributes to seasonal unemployment among farmers as well as a generally low standard of living across the country (Tinker & Husain, 2025).

I began by contacting an individual who I was already acquainted with for a potential interview. After successfully scheduling one interview, I carried on snowball sampling (Baltar & Brunet, 2012) through that initial contact. One interviewee was recruited through contacting BAFFU, the Bangladeshi Academic Forum of Finnish Universities (Hasan, 2024). The Bangladeshi immigrants in Helsinki have an active community and were happy to refer their friends and acquaintances to me. Although my initial intention had not been to solely interview students, all interviewees were either current students or graduated students from a university in Finland and had received their residence permit based on a granted study place. All interviews were conducted in February of 2025 in private study rooms at Kaisa-House, the University of Helsinki library in the City Centre Campus area, except one interview was conducted in the interviewee's home. Each interview lasted between 40 to 60 minutes.

The interview questions were split into three categories: 1) Immigrating to Finland, 2) Personal Identity Codes and Digital Authentication, and 3) Digital Communication Devices. The focus of each category was presented to the interviewee as they succeeded each other. The categories were designed in this sequence with the narrative analysis in mind, to prompt a narrative as a sequence of events, starting with the beginning of their journey in Finland and to the current situation of it. Naturally, the sequence was not entirely the same for all interviews, whereas some questions

intersected across categories, and the interviewees often mentioned something unprompted that I had hoped to ask about later in the interview. I embraced the interviewees' own narratives while I ensured that all interview questions were answered to some extent. As the research question indicates, the objective is to gain insight into the storyline the interviewees share, and a narrative approach does not only support my analysis in this study but also assist the interviewees to frame their experiences and produce coherent answers. Recognizing that immigration does not unfold linearly, the development of a conceptual framework becomes crucial for effective narrative inquiry. Moreover, this study prioritizes autonomy and control for the interviewees to generate a detailed and comprehensive narrative. By presenting them with interview questions designed with a narrative approach in mind such answers could be better expected rather than standardized questions and short answers.

3.4 Ethics and Positionality

I brought a unique positionality to this research, being an immigrant and an international student in Finland myself. Consequently, I had some shared experiences with the interviewees. Moving to Finland and getting an identity code, setting up banking credentials, and strong authentication while trying to keep my head above water during all the in-between stages of those processes was all familiar to me. I approached this research and the interviews with my commonality in mind. Despite this commonality, I do possess an advantage that my interviewees do not and that is being a Nordic citizen. Because of Nordic cooperation, I do not need any residence permits, I do not fear deportation, and my presence in this country is safe. After registering my legal address through the DVV office I can come and go as much as I please and do not need a specific motivation or reason for registering my legal municipality in Finland. My country of origin, Iceland, is also a stable and peaceful country with a prospering economy, progressive equality, and a high standard of living. Furthermore, I bear a physical resemblance to native Finns, being white with light facial features. "Fitting in" has therefore never been particularly difficult for me. This advantage is important to keep in mind. For non-EU citizens, moving to Finland is a much more complicated and expensive process than it is for EU or Nordic citizens and requires an approved residence permit based on a valid motivation (work, studies, asylum, etc.).

3.5 Analysis of Data

By identifying and analysing the thematic content of the narratives, the study will illuminate the key aspects of their experiences with digital life in Finland, including their interactions with PICs and digital authenticators. The interviews were all audio recorded, and the recordings were manually transcribed to text while listening to the recordings. The interviewees' real names were redacted in the transcripts as well as no indicators of their identity, such as workplaces, study programmes, residing neighbourhoods or names of friends, spouses, family members, or other acquaintances they mentioned. Transcription was solely conducted by me and the interviewees were informed of and consented to that before the interviews began. The interviews lasted from 40 minutes to an hour and the transcriptions spanned from eleven to 14 pages.

Given the narrative focused design of the interview questions, the analysis employed a thematic narrative analysis approach (Riessman, 2008). This involved a close reading of the transcripts to identify recurring narrative themes related to the interviewees' experiences with digital authentication, their sense of digital presence, and their integration journey. I paid particular attention to the narrative trajectory within each participant's story, examining the initial situation, any challenges or turning points encountered, and the eventual resolution or current state. Within each thematic category, a narrative could be discerned. Analysing the transcriptions for similarities and differences revealed a similar narrative trajectory between the interviewees, facilitated by the sequential structure of the interview questions. The analysis was an inductive process, allowing themes to emerge directly from the data. By open coding, I grouped related codes into broader themes along with constant comparison and refinement of themes to ensure they accurately represented the data. I analysed the structural elements of the participants' stories looking for common narrative elements such as specific types of plotlines or turning points while also paying attention to variations. From there, I could organize the data and form results, that will be introduced in the following chapter.

4 Results

The results of this study present a narrative sequence of how the interviewees constructed their digital integration from the beginning stages of immigration to where they were at the time the interview took place. Three stages have been identified; 1) Waiting, 2) Adjusting, and 3) Normality. Presenting a consecutive narrative, these three stages describe the progression of immigrants' integration journey as it manifests in their digital engagement. The interview data revealed enough shared experiences to construct these three stages. At the same time the individual variations provided valuable nuance that ultimately reinforced the validity and argumentative strength of this three-stage framework. All names are pseudonyms.

4.1 Waiting

The first question (after a quick icebreaker introductory question) was meant to direct the interview to a starting point, parallel to the beginning of the interviewees' immigration journey in Finland. To my surprise, all interviewees began their story in Bangladesh redirecting my original interview question back to their home country before they made the move to Finland. All interviewees shared the commonality of their immigration journey beginning in Bangladesh by applying for a residence permit through the Finnish embassy. This was easier said than done, whereas there is no Finnish embassy located in Bangladesh, and they all had to travel to India to the Finnish embassy in New Delhi after successfully securing a study place in Finland which allowed them to reserve an appointment with said embassy. All interviewees spoke about this experience unprompted, as I was not familiar with this procedure before conducting the interviews. According to the interviewees, this was a great inconvenience and a tedious process. Other occupations had to be put on hold, time and money had to be spent on travels, as well there was great urgency to attend their appointment because rescheduling would have taken months. It is important to keep in mind that all interviewees went through this process and had therefore already successfully applied for a residence permit upon arrival in Finland, as they were granted one based on their accepted study place in a Finnish university. Sabrina gave her insights on this:

> "*So, just two weeks before the interview with the Finnish [embassy] they send me an email… and I had to sort out everything in 2 weeks, getting Indian visa, getting all the papers ready, so it was, it was quite hectic […]*."

In Sabrina's case, she could not select the date or time for her interview but had to comply with the set timing the embassy offered. She therefore had two weeks to prepare for her interview, which included booking airfare and transportation to India, among other things. Once she had that sorted and had arrived at the Finnish embassy in India, the process of getting a residence permit was not too complicated, she says: "[…] but for the Finnish residence permit I think it was getting the social security number [PIC] was quite easy for me. The interview was like 2 minutes." Manu had similar viewpoints of this process when he spoke of his residence permit and PIC process:

> "*So, I got the number within one month of application, but that card came to me like two weeks after the acceptance of that application. So that was I think… easy. Even though there was some like rerouting through India but apart from that, that was like… like just a simple application*."

Here, he is referring to the residence permit card that all successful applicants are given. Manu was relatively relaxed about the residence permit application process compared to the other interviewees. He did, however, address that his situation might have been different from others, based on conversations with his Bangladeshi peers.

After crossing the border to Finland with their valid residence permit cards, the first stop was the DVV office. This was universal for all interviewees and myself when I first arrived in Finland as an international student. The interviewees did not have much to say about their appointments at the DVV, other than if they had made those appointments beforehand or booked them after arriving in Finland. The waiting time after a successful appointment was what they mostly spoke of. Two situations were immediately evident that split the interviewees. The interviewees had either received a PIC along with their residence permit or had to wait for a few weeks after arrival and after they had registered with the DVV office to get one. The reason why some residence

permits also provide a PIC but others don't was unclear to the interviewees, although they had some conjectures as to why. Mehedi spoke of this:

> "*Usually, people get it [PIC] with their residence permit card but there are some exceptions as I said when somebody's name or the same date of birth, somebody already exists there. So, the personal identity code maybe they give it the first digits are your date of birth and some three or four digits which are unique*."

The time spent waiting for a PIC varied between interviewees, ranging from a few weeks to a few months. Mehedi spoke of his experience of not getting the PIC before coming to Finland and having to wait for three months. For the duration of those three months, Mehdi did not have access to a Finnish bank account and had to pay with cash wherever he had to make a money transaction. Not all shops accommodate cash payments, and this caused issues for him. Mehedi was fortunate enough to have an already established connection with a person who had a Finnish bank account and could help him pay for his rent. Another interviewee, Sabrina, ran into a similar problem, although she had already obtained the PIC before arrival. Sabrina told me she had been well prepared before immigrating; however, she was not aware of the police identification requirement for getting a bank account. So, after a seemingly successful appointment with the bank, she could not access her online banking, and her payment cards were not valid. Sabrina also spoke about issues with paying her rent and accepting and paying her deposit for student housing while she was still in Bangladesh, preparing for her relocation. Confirming the housing offer was vital and had to be done within a few days as well as the deposit had to be paid simultaneously. Her bank account in Bangladesh could not accommodate this payment:

> "*[…] it was quite a struggle for sending money from Bangladesh to Finland. Because they think that I am doing money laundering. So yeah, I was struggling a lot with the money, and I was at the bank for five or six hours with my mom, but nothing happened so at some point I started crying…*"

Sabrina spoke of this experience with some humour, laughing at the notion of the bank's supposition that she might be attempting to make illegal transactions to Finland, but evidently this caused her stress. After the dismaying visit to the bank in Bangladesh, she resorted to contacting her fellow students in the same university programme as her to ask for advice on the situation. Luckily for her, one of the students offered help by paying the deposit for her while she sorted out her problems with the bank. After arriving in Finland, she then contacted a friend who was already living in the country and was willing to pay the rent for her until she had obtained Finnish banking credentials. Along with Mehedi and Sabrina, Amin also spoke of similar struggles and solutions. He was granted a study place and an offer for student housing before obtaining his residence permit. He requested his friend, who was already living in Finland to go and pick up the key on his behalf as well and she paid the first few months of rent for him, while he waited for the Finnish bank account.

The importance of contactable individuals who were already residing in Finland was quite evident for the interviewees as we have seen in the examples above. Another interviewee spoke about similar notions. Fatima and her husband immigrated to Finland together, she as a student and he as her spouse. For the first few months they relied on a family member in terms of housing, Fatima's uncle, who had already been living in Finland for three decades. He hosted them as guests for the first few months so rent payments were not an issue during that time but both Fatima and her husband were aware of the necessity for a bank account for other purposes and expressed satisfaction over how the process of obtaining those accounts for each of them was relatively quick, but not without limitations: "But you need that bank ID for everything official, […], so we weren't able to do anything officially before that."

Here we can see how despite the initial split between the interviewees who had the PIC beforehand and those who had to register with the DVV in Finland first, the waiting time for bank accounts proved to be similar. The PIC is required to register for banking credentials, so it has a vital role in their, as Fatima called it, "official purposes". Additionally, they also needed a Finnish Identity Card that is issued by the police and needs to be applied for separately from the DVV registration. This card is necessary for opening a bank account in a Finnish bank as an immigrant from a non-Eu country. Manu, who had already successfully applied for a residence permit without any incidents, spoke

of this: “I could not get a bank account right away, but I had to apply to a Finnish identity card through the police station […] I think it was done within a month.” Compared to the other interviewees, less than a month after arriving in Finland and securing banking credentials is a rather good position to be in. Nevertheless, Manu did have to take some detours in terms of rental payments at the beginning of his stay here by going to a shop such as *R-Kioski* and paying the rent through a paper-based receipt.

Ostensibly, the beginning of the interviewees’ journeys in Finland was characterized by waiting times for various authenticators. While they waited, they had to rely on help from others who had already gone through the same process or take detours in order to get by in their new country of residence. Some of the most pressing issues during this time were finances, whereas making cash payments has its limitations and cannot be done for rental payments, deposits, and sundry other payments.

The *waiting stage* begins when the immigrants arrive in Finland with a valid residence permit and can register for a legal municipality at the DVV office. In some cases, they must wait for their PIC, but every interviewee in this study had to wait for something, whether it was their PIC, their police issued identification or banking credentials. The time spent waiting can be a few weeks or a few months, depending on various factors. Already having the PIC can speed up this process but lack of preparation or prior knowledge can hinder it. During the waiting stage, there are limitations to what they can do, and this forces them to resort to coping mechanisms such as taking detours or asking for help from friends or family who already reside in Finland.

4.2 Adjustment

Once the interviewees had already established their awareness and knowledge of their PICs, I directed the interview toward questions about their perception, use, and experiences of their PICs which then developed into questions about their strong authentication through their Finnish banking credentials. All interviewees had to use their PICs or their strong authentication through a bank account frequently. The most frequent use of it was in the medical sector and when asked about their use of their PIC, health clinics and hospitals were some of the first things the interviewees spoke of. Fatima had experienced some health problems in recent months and had to visit doctors’ offices routinely:

> "*I have been using it frequently for the [last] couple of months I would say […] like for the last couple of months I have been visiting doctors, I have been buying medicine from the pharmacy […] So whenever I go to doctor, they use this, I need to show them this and when I buy medicine I need to show my personal identity code so yeah I use it a lot.*"

Because of Fatima's regular doctor's appointments and having to show her PIC for every visit, she knew the code from memory. Other interviewees spoke of their typical use of the PIC as well, Kela, HSL, Finnish registration websites (Suomi.fi and DVV), Oma Vero (taxes), and online banking often mentioned. Some interviewees knew their PIC by heart, likely due to frequent and deliberate use in in-person interactions at places like hospitals or offices and could easily recite it (this information was never requested nor was it volunteered).

When asked about their perceptions of their PICs, the overall viewpoint of it was positive. There was a strong notion of comparison to their home country and even other countries they had experienced firsthand or through friends and family members of personal digital identity codes. Mehedi was particularly positive toward the functioning and convenience of it:

> "*[…] in Finland you just put your personal identity code, and they get everything, every information from that code, which is… magic, magic thing! Because in Bangladesh, whatever reason whatever service you want to get you have to first submit ten to fifteen documents, physical copies of those documents and to collect those documents you have to first visit those offices…*"

Mehedi continued his declaration of appreciation of the Finnish PIC and compared it to his home country, where digital authenticators were not as advanced in his opinion. Other interviewees were equally appreciative. Fatima was one example of this:

> "*I like it that everything is sorted and then you have you information with this just one number. They can see your information when needed so I think it's good. I like to be in a system, to be honest, I like when everything is in a system, and I like when*

> *policies make system that is beneficial to people… I, I like these kinds of things. It's not a negative thing for me*."

In this instance, Fatima describes her connection to a "system" through her PIC, indicating her sense of being part of it.

Despite the common notion of practicality and convenience and the initial positivity, there was a hint of scepticism that could be sensed in the interviews, particularly when it came to privacy. Amin spoke of how he faced uncertainty when deciding whom to share the code with and whom to refrain from:

> "*I was confused whether I was doing the right thing. I had to think about it more before sharing it with someone. Like to whom am I sharing it? […] But I don't know I mean how to identify who are the right authority to share this with or not*."

Amin also considered that this information was not sufficiently delivered to immigrants who have just obtained their residence permit and/or PIC: "[…] there should be some clear guidelines where I can share these things and where I shouldn't. I don't have any clear guideline." Sabrina concurred with this when she told me about how she did not like the idea of sharing her PIC with just anyone. Sabrina's experience further illustrated this point as she mentioned declining to apply for an online job she was interested in solely because the application process required her to include her PIC, emphasising her reluctance to share it freely. The notion of surveillance came up for all interviewees to some extent, in line with ideas about privacy and confidentiality. Mehedi gave his insights:

> "*[…] whenever someone gets your personal identity code its being recorder that you have been here, and you did take this service […] every movement is being recorded… so, you are being surveyed through that personal identity code […] how it is being used, the surveillance is what matters. So, the government can use it for whatever they think, the services – you get the services, your medical history is being recorded or something but… it can be used like to harm you in some cases."*

While he stressed that he was aware of the positive sides of this surveillance, particularly in the health sector, he was conflicted: "It can be conflicting issue, for the personal independence." Fatima spoke of similar entities, saying how she would worry if her PIC would end up in the wrong hands and used for something illicit, she would be associated with that since her PIC and its movements are automatically assumed to be concatenated. However, overall, the interviewees felt like they could trust the Finnish government and the "system" they felt they were a part of.

Being a part of the "system" seems to be important to the interviewees and Sabrina supported this when she told me about her interaction with other immigrants and refugees who were already in Finland but did not have a PIC:

> "*[…] I feel like the personal identity code gives you huge privilege yeah. I'm saying it because I met a refugee woman there [in Finnish class] and she doesn't have the personal identity code and therefore she doesn't have… exist, like almost anywhere. Yeah, so when she hears that I have a personal identity code she was like, it was like I have won the lottery or jackpot or something like that. But otherwise, I think that like, it is a way of… reducing your existence to a number, yeah. Because for example, she doesn't have the personal identity code and that's why she… is deprived of many things. And… it reduces her to a non-existing person in Finland. I feel like that it is a way of governmentally like how you govern and control, uh people. Yeah. And… it helps you to being, being a political being in Finland, yeah.*"

Certainly, immigrants and foreigners in Finland have different motivations and grounds for immigration and this can affect their immigration and integration processes. Having or *not* having a PIC can therefore determine and shape immigrants' journey after arriving in Finland and as Sabrina told us, slow down the integration processes and deprive them of rights that other immigrants have, pushing them further to the margins. As is previously known, the waiting time that the interviewees had to endure when they had not received a PIC or bank accounts forced them to take detours and rely on the help of family members or acquaintances and this time often caused them stress and worries. The interviewees could all imagine the various situations immigrants may find themselves in.

Many interviewees spoke of adjustments, since in their home country, their digital behaviour patterns had been different. In Bangladesh, they had been assigned a national identity number but their descriptions of this varied. Some of them said that their national

identity code was very similar to their Finnish PIC while others said it was completely different. One interviewee even stated that, in Bangladesh, they simply did not have a number sequence assigned to them. Furthermore, the interviewees had never had to use their national identity number digitally, whereas it was written on a physical ID card. A couple of interviewees referred to this as their voter ID card which they did not use very frequently. Despite the disparities in narratives about their comparison of PICs to their home country it can be concluded that immigrating to Finland and using their digital strong authentication and PIC regularly required some adjustments.

The interviewees were all asked about their connection to their PICs, a question that many of them found rather challenging. Fatima's answer was interesting and even before asking her about the connection, she had told me that she perceived the PIC as important in Finland, because of the element of individuality through it: "I think it's very, very important in Finland especially. Because it distinguishes you as an individual from other people." She further supported this by explaining how the code has information about her that can be accessed by health professionals (in her case) better than by just using her name or other indicators of her identity. Manu spoke of this as well, telling me about his awareness of the information the PIC entails: "So… if that code has like a brain of its own it… in that sense it can know me pretty well".

The *adjustment stage*, which often spans months, can be considered part of the integration process that immigrants go through. Adjusting to digital authenticators is parallel to the overall integration in the country, whereas after getting used to using PICs and other digital authenticators in Finland, the interviewees had positive attitudes toward it and were confident in their way of using it in their daily lives. It can therefore be argued that a PIC is not only a critical entity to obtain to be able to exist as a resident in Finland but having the knowledge and confidence to use it is no less vital. As the interviewees declared, having or not having a PIC proved vital in immigrants' settling and integration. As time went by and people got more settled and adjusted to life in their new country, the concerns about digital authenticators and discourse about that diminished. Furthermore, the available information about the appropriate ways of handling one's PIC was scarce, and the interviewees often felt insecure about this lack of knowledge, particularly when it came to privacy. This knowledge was developed over time but even after residing in Finland for a while, they were aware of this lack of information and worried that other

fellow immigrants might get in trouble over it. The adjustment did therefore not only include adjusting to the utilization of the PIC and strong authentication but also adjusting to the idea of being digitally registered in what they often called a "system". The coping mechanism that can be identified during this stage is simple trial and error.

4.3 Normality

The importance and dependency of digital communication devices were immediately evident for all participants. When asked about their most used devices, they all said smartphones and laptops, strongly emphasizing the need for a smartphone in their daily activities. What the interviewees listed were mundane things, such as transportation tickets, street navigation through apps (Google Maps and Apple Maps), and checking the weather forecast of the day. News and entertainment were also largely sourced through their smartphones as well as their communication with friends, romantic and domestic partners, family members, and co-workers. Text messages and emails were mostly mentioned as methods of communication through their devices. Their smartphones were also frequently used as payment methods (through Google Pay or Apple Pay) as well as they checked their bank accounts and balances in the online banking application. Sourcing ideas for recreation through social media content was also commonly listed, such as cooking recipes, but such content also provides entertainment value.

All interviewees shared the common notion of carrying their smartphone with them wherever they went, and they all told me that without a smartphone, a full regular day could not be achieved. One of the interview questions asked the interviewees do describe the hypothetical situation if their smartphone would be misplaced for a day and how that would affect their daily activities. All interviewees told me that losing their phone would have terrible consequences. As Fatima told me: "without internet you cannot really do anything."

The interviewees all shared the notion of embodiment regarding their digital communication devices, their smartphones in particular. When asked about the importance of his devices and whether he always carried them, Mehedi told me "It's like a body part" emphasizing the urgency of always keeping the phone either in his hand or close to him. Manu had similar views about his devices, telling me "I don't think I can live without them" and "I consider my devices like my best friends". Manu further supported

these statements by saying that he would rather trust advice sourced online from his phone than advice given by a person and he often double-checked statements said by others by looking them up online.

Many of the interviewees spoke of personal information being available to them on their phones, stored by themselves as well as being available on specific apps (card numbers on online banking apps for example). Some of them spoke of keeping private information on files on their phones and laptops and when asked about safety matters, the answers were somewhat mixed. The general perception of the possibility of their information being stolen was present but did not urge them to take any extensive precautions to protect it, since their phones were either password or biometric protected. Some individual apps can also not be accessed without passwords or biometrics, either fingerprint identification or facial recognition. But passwords and biometrics are not completely secure and as Manu told me: "if somebody is really committed to getting that information they can get that information." The interviewees did express the potential worry and anxiety that would follow, were there information to end up in the wrong hands but surmised that perhaps the information was not valuable enough for others to want. Overall, the interviewees did not trust their digital communication devices fully although it did not have much impact on their dependency or use of those devices.

Given the nature of digital authentication, it is understood that the interviewees accessed their PICs and performed strong authentication via their mobile phones. While the interviews did not explicitly elicit direct discussion about their PICs or strong authentication being located on their phones, this connection can be inferred. One possible explanation for this lack of direct mention is that the interview questions heavily focused on these concepts, perhaps leading respondents to discuss other aspects. However, it is also possible that the habitual and frequent use of strong authentication in their daily lives has made it an unconscious practice, no longer requiring deliberate thought or explicit articulation.

The notion of community was not something that I had previously planned to ask about, however, since it came up unprompted by the end of the first interview I decided to implement it to the rest, presented as a bonus question in the end. Not all interviewees were actively involved in a Bangladeshi community in Finland, but most of them had established connections. When asked if they had come across any discourse or

conversations about digital authentication or frankly, anything that we had spoken of in the interview so far, the answers were rather negative. According to the interviewees, there were other things more pressing than this, for example, the job market, housing, cost of living, and language learning. Furthermore, concerns about residence permits and fear of deportation were often topics of discussion. Perhaps the reason for the lack of discussion about digital authenticators and PICs within the Bangladeshi community was the overall positive perception, as Amin points out:

> "*These are not recurring things […] you have to face the job scarcity every time whenever you are staying here but once you arrive in Finland […] within one or two months everything […] is sorted […] and they don't have to think about it after that. So maybe that's the reason they don't have to discuss these things further*."

Here, he refers to the process of obtaining digital authenticators and getting acquainted with their functions as a non-recurring event. Note that Amin's time frame is not universally applicable to all interviewees. Sabrina pointed out that while the discourse about digital immigration decreased with time, there were still important elements to consider: "It will show on your residence permit if you're looking for a job or if you work here […], so yeah. It will give you another meaning of who you are." Consequently, their digital authenticators were essential implementations that facilitated their sense of being and, potentially, belonging in Finland despite not being common topics of discussion or regular anxieties. Their PIC's perceived security was tied to the validity of their residence permit, which represented a far more substantial risk and, consequently, a greater source of potential worry. Furthermore, the interviewees often revealed to me that they had not previously thought about their PIC or digital authenticators in the way the questions were framed.

After the interviewees had adjusted to the use and idea of their PIC and strong authentication, it became a part of their daily lives and something they did not give much thought to. This stage is called *normality*. The fact that some interviewees confessed that they had not thought about their digital presence before I interviewed them further supports the connection between this stage and the theory of technological normativity, pointing out that their PICs and digital authenticators are so ingrained into their daily

functions that their presence goes almost unnoticed. Privacy was an important consideration for the interviewees when discussing digital authenticators, and they generally trusted the Finnish government and its systems to maintain the confidentiality of information within their PIC. Beyond this, they also found the convenience and simplicity of digital authenticators to be a benefit once they became comfortable using them. The duration and end of the normality stage is hard to foresee. However, systemic errors leading to temporary PIC malfunctions or the need to adapt to new digital implementations could disrupt it. Moreover, any setback in immigration status, potentially returning them to an initial stage, poses a risk to their digital participation and as the interviews revealed, the fear of deportation and losing one's residence permit was tangible within the Bangladeshi community in Finland.

5 Discussion

5.1 Digital Immigrant

The concept of a digital immigrant has been examined and developed through the analysis of the data the interviews provided. The term digital *citizen* was introduced in the literature review of this thesis, but since citizenship includes criteria that greatly differ from individuals with residence permits, that concept cannot be applied to the interviewees who partook in this study. All immigrants in Finland will experience themselves as digital immigrants during some, if not the whole duration, of their immigration process and to various extent. This is evident in the stark comparison between their home country and Finland, with several interviewees highlighting the stark differences in online service accessibility. The interviewees were not new to the modern technology that is required for the use of digital participation in Finland, and when it comes to hardware and digital devices, they were all well versed in the use and function of their own digital devices, although some more than others. They were, however, new to the idea and the expected behaviours of active digital participation in Finland.

5.2 Theoretical Discussion

The stages that have been identified all correlate with theories or concepts that have been outlined in the literature review of this thesis. To begin with, there is a correlation between what is experienced in the waiting stage and what Lutz (2019) and Van Dijk (2019) have outlined in their publications on the digital divide, principally when it comes to access. During the waiting stage, access to necessary digital authenticators is not equally available to all new residents and this delays full digital participation, as was described by the interviewees.

When considering the second stage of adjustment, it's relevant to recall chapter 2.2.2, which introduced biometric technology and health data. During the adjustment stage, the interviewees had to learn and adjust to the functions and idea of being digitally present through their PIC, often through simple trial and error. The development of their digital identity emerged as a critical element in their integration into Finnish culture. This observation aligns with Möllers' (2021) assertion regarding the societal expectation of

digital literacy and proficiency, suggesting that individual identities are progressively constituted through their digital participation and existence.

The final stage of normality reflects theories of technological normativity (D'Agostino & Durante, 2018), where modern technology's pervasive integration into our daily existence leads to an unquestioning acceptance of its functions and ethical consequences. The prevalent positive sentiment and valuing of digital authenticators among interviewees exemplify this normativity, echoing Chapter 2.2.2's observations regarding the dual benefits for individual users and governing bodies. Despite normality and a decreasing discourse on these matters, according to the interviewees, the data indicates that identity and personal independence are scrutinised through people's digital authenticators, particularly their PICs. This is further supported by interviewees' concerns about privacy and their digital footprints, particularly their awareness of surveillance, with a notable internal conflict. Their general trust in the Finnish government and its institutional "system" acted as a partial buffer against these anxieties, without entirely negating their sensitivity to privacy and security. Being part of this "system" meant more to them than just being a statistic. It implied a feeling of belonging and the advantage of being recognized as a resident in Finland. Considering this, the digital divide can be persistently identified throughout the analysis of the data. The interviewees' acknowledgment of the difference of being in the system or being outside of it, based on having or not having a PIC indicated the awareness of self, situated within this context.

An interesting paradox emerges when considering the waiting stage, while digitalization is often framed as a process of individualization, streamlining services, and empowering individual users (Hoyer, 2023), the results of this study reveal that during the period before obtaining a PIC, the interviewees were more reliant on interpersonal connections to navigate daily life in Finland. The PIC is the key to full social inclusion and participation in Finland and without it, an individual's full participation and recognition within the Finnish digital sphere is significantly hindered. Without their own PICs, interviewees described needing to rely on the digital accounts of friends to complete essential online tasks or having to navigate bureaucratic processes in person, highlighting a dependence on social capital rather than individual digital capacity. The waiting stage

highlights how the absence of this key can delay and complicate the process of true digital inclusion for new immigrants.

The vitality of the PIC and the casual but regular use of it makes it efficient for this sort of research as it is accessible and personal to the interviewees and presents a clear image while also raising less prevalent questions and worries. Most of the interviewees shared sentiments about not having thought much about their digital authenticators or PICs before, not questioning it or scrutinizing it. The PIC has therefore proven to be a valuable entity for gaining insight into the digital behaviours and perceptions of digital identity among immigrants, for it has provided a direct link from the interviewees to their digital registration in the Finnish "system". As was outlined in the results chapter of this thesis, being aware of their presence in the "system" bolstered their experience of belonging and participation in Finland.

5.3 Critical Evaluation

This study addresses a prominent gap in the literature when it comes to research on both immigrants and digital society, whereas available research on personal identity codes and digital authenticators within the context of social sciences and humanities is scarce. This study has made an effort to bridge that gap. The results of this study can be assessed as a valuable contribution to the field of digital social sciences but not without its limitations. The small data set is one example, but the homogenous nature of the participants is also important to keep in mind, with them all having the same nationality and immigrating to Finland for the same reason. All interviewees had been granted residence permits before they arrived in Finland, although not always without ramifications. The process of getting a residence permit was complicated by a necessary travel to India and the appointment was only granted on the basis of an accepted application to a Finnish university. Prior education and good grades guaranteed a study place, but the application process was long and tedious. The interviewees were therefore a small example of a larger group of immigrants that had, with a mix of hard work and luck, been granted permission to move to Finland. The interviewees' status as either previous or current academics in various fields is also important to keep in mind when considering the interviewees' comments and answers. Due to their academic training and efforts, they all possessed an outstanding competence to express their thoughts, emotions, and ideologies in a clear and concise

manner, along with a strong English vocabulary further strengthened their confidence to discuss complicated matters. In a similar vein, despite the lengthy and challenging integration process the interviewees faced, it is essential to differentiate the initial circumstances of immigrants arriving in Finland for higher education from those of refugees or asylum seekers. As one interviewee's experience illustrates, through conversations with other immigrants lacking PICs or digital authentication, she became aware of the privilege afforded to those entering through educational pathways.

The interview questions composed for this study proved to be appropriate for the construction of the results, whereas they paired sufficiently with narrative analysis. The interview questions gave space for the interviewees to share their stories with me and as Reisman (1995) states, the nature of a narrative makes it easy to locate and form. Presenting interview questions that assume a narrative answer, further enhances the interviewees' storytelling by providing them with an opportunity to tell me about their experiences, what is meaningful about them, how and why they came about, who was present, and perhaps most importantly, how they experienced themselves in those situations. When conducting research with narrative analysis, the questions must be designed with a narrative answer in mind. The questions I presented did just that, without having to deliberately state it to the interviewees. Moreover, the interviewees all directed the beginning of their immigration journey in a different direction than I had anticipated. My first question asked about their first few days or weeks in Finland as the beginning of their immigration, while the interviewees all began by telling me about the initial steps that had to be taken when still residing in Bangladesh. It can therefore be surmised that the interview supported storytelling for all interviewees.

5.4 Suggestions for Further Research

Research has yet to focus on the study of immigrant groups in Finland who come here for various other reasons than higher education in this specific context. Refugees and asylum seekers are often in precarious positions after arriving in their new potential country of residence and after being granted asylum it can be expected that access to digital authenticators could be delayed or at the very least, a long waiting time can be predicted. It has been pointed out in this study that the homogeneity of the interviewees has

influenced the results and therefore would it make for a compelling study to consider different backgrounds and motivations for migration within the same theme.

Furthermore, for future research, the mind-body dualism ontological aspect of PICs and digital authenticators could be of interest. This study has briefly mentioned concepts of embodiment, particularly when it came to the interviewees' digital devices, along with their feeling of representation, connection, and feeling of individuality through their digital authenticators. Potential research objectives could address questions such as how the digital representation relates to immigrants' physical sense of self in a new country or how they embody their digital identity through their PIC and digital communication devices. Moreover, this study has briefly introduced the two-fold ontology of an immigrant in Finland whereas the immigration and integration processes are both on a physical and a digital scale and further research on digital integration processes could shed light on interesting findings, not only for the field of immigration research but no less for the emerging field of digitalization in societies.

6 Conclusion

Digitalization in society brings us to the topic of the digital divide. It argues that digital technologies often reflect and amplify existing societal inequalities, such as those based on race, socioeconomic status, education, gender, and age. Lutz (2019) and Van Dijk (2019) have developed frameworks to understand the digital divide, considering factors like access to the internet, skills, usage, and the benefits derived from technological advancements. These factors are interconnected, with access to the internet being crucial for developing skills and benefiting from technology. Despite Finland's high digital participation rate, research on how the digital divide manifests itself within the country is limited.

Digitalization offers many conveniences, such as online access to government services through platforms, like Suomi.fi. These platforms use usernames and passwords for secure access, similar to social media platforms but without the social connection features. Security is a major concern in the digital world. Finland uses strong authentication methods like mobile certificates to minimize unauthorized access and improve security and cybersecurity. Despite the benefits, some people choose to minimize their digital participation due to concerns about excessive screen time and the lack of transparency surrounding AI, the driving force behind digitalization. The line between the physical and digital world is blurring as people increasingly exist in both spheres simultaneously. This thesis aimed towards an understanding of the complex relationship between people and the digital world, with both benefits and drawbacks considered. Digital identity has a rich body of knowledge already and this thesis contributed to that existing literature by looking at digital identity through the personal identity code which is essential for legal existence and participation in Finnish society. Without a PIC, individuals cannot access public services, healthcare, education, or employment. Furthermore, it is crucial for registering births and deaths.

Digitalization has significantly impacted various aspects of society, including immigration and public governance. Surveillance, while often associated with negative connotations, can also serve beneficial purposes, such as public health monitoring. Digital technologies have introduced new forms of surveillance, such as data collection through digital health platforms and the use of social media for participatory surveillance.

Biometric technologies, such as facial recognition and fingerprint scans, are used to enhance security and streamline immigration processes. However, concerns exist regarding the accuracy and potential misuse of biometric data, particularly considering the dynamic nature of human bodies. The concept of "digital territory" and the challenges it presents for states have also been mentioned. The fluidity of the digital realm challenges traditional notions of territorial boundaries, making it difficult for states to govern and regulate data effectively. By looking at immigration in the context of digital identity and personal identity codes, the importance of it for all individuals residing in Finland, regardless of their immigration status is reiterated.

Digital technology is increasingly shaping everyday life and influencing societal norms. While many Finns perceive digitalization as improving their lives, concerns remain regarding data privacy and the protection of digital rights, particularly for children. This highlights the need for a nuanced understanding of the impact of digital technologies on individuals and society. The main framework for the research of this thesis revolved around the intersection between the blurriness of people's general perception of digitalization and the blurred boundaries of existing as a digital immigrant and a physical immigrant in the "real" world. When bodily data (such as biometrics), and bodily functions (holding a device or handling any kind of digital hardware) intersect with digital space (logging into a service with digital credentials), it creates an intersection where ontology is uncertain. The distinct way people use digital solutions in their daily lives without fully comprehending their functions or having a clearly defined judgment of them is what makes digital existence an under-explored phenomenon.

This study has defined the concept of a digital immigrant within the understanding that immigrants do not only go through typical immigration processes in the physical world but must also go through digital processes. Digital immigration in this context unfolds in three stages: *waiting*, *adjusting*, and *normality*. These stages both follow and shape immigrants' journey in Finland during their initial months or even years. The identification of these three consecutive stages provides a valuable framework for understanding the digital integration journey of immigrants in Finland. While individual experiences offer unique variations, the shared experiences revealed in the interview data strongly support the validity and argumentative strength of this model. This framework highlights the critical role of digital infrastructure in the integration process and

underscores the need for accessible information and support systems to facilitate a smoother transition for newcomers into Finland's digitally driven society. While the technical and legal dimensions of digital authenticators in Finnish immigration are relatively accessible, a crucial gap in knowledge persists regarding their lived impact on individuals, particularly within integration processes. Empirical research is lacking on how individuals experience and interact with these digital functions and what this means for their sense of self. This thesis seeks to bridge this gap by using the PIC as a focal point in the integration narratives of Bangladeshi immigrants in Finland, offering innovative insights into their experiences and ontologies as they navigate the digital landscape as immigrants and residents.

Ultimately, this thesis hopes to inspire others to consider and evaluate their digital ontology and look at the way our modern digital everyday lives are shaped through mundane (yet indispensable) functions. To underscore a point made earlier in this thesis, digitalization has created the need to understand the new and emerging realities that we are now intrinsically part of and further comprehend how these realities both shape and are shaped by our engagement as individuals within them.

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8 Appendixes

8.1 Interview questions

Introduction

1. First, can you tell me a little about yourself?

Coming to Finland

2. Can you tell me about your first few days or weeks after making the move to Finland?
3. I am assuming you have a personal identity code. Can you tell me about the process of getting a personal identity code?
4. Before you received your personal identity code, were there any challenges you faced here in Finland?

Personal identity code and digital experiences

5. Tell me about your typical use of your personal identity code. (Do you use it a lot, do you see it a lot, do you use it directly/indirectly?)
6. How do you perceive your identity code, as in what do *you* feel like the purpose of it is?
7. Tell me about your typical use of strong authentication. (Do you have it, how long had you been living in Finland when you obtained it, what do you use it for?)
8. Do you feel connected to your digital authentication? How would you describe that connection?

Digital devices

9. What digital communication devices do you mostly use? Do you have always them with you?
10. How important are these devices to you?
11. Can you walk me through a typical day of using your digital devices, from the start of your day until the end of your day?
12. What would happen if your digital device would get lost or misplaced?
13. If you had your functioning devices but no internet connection, how would that affect your day?
14. Can you tell me about your trust towards your digital communication devices?

Bonus question about Community

15. Tell me about your Bangladeshi community here in Finland. Is there any discourse about what we have just talked about within that community?

Final remarks

16. Is there anything you would like to add or any question you would like to go back to?