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Digital Inequalities in Global South: The Perspectives of virtual migrants from North Africa and Sub-Sahara Africa

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Author's Declaration of Originality

I hereby declare that, to the best of my knowledge and belief, this Master Thesis titled "Digital Inequalities in Global South: The Perspectives of Virtual Migrants from North Africa and Sub-Sahara Africa" is my own work. I confirm that each significant contribution to and quotation in this thesis that originates from the work or works of others is indicated by proper use of citation and references.

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Abstract

The emerging field of virtual migration, encompassing forced migrants and digital identity - eCitizens is not only multidimensional, but also interdisciplinary. Through the lens of Estonian eResidency, virtual migration has the capability of providing solution to the digital nomad paradox, based on the State-backed eID that grants remote access globally to techsavvy migrants who desire to leverage digital technologies that facilitate location-independence, and autonomy while working exclusively in the cyber space, thereby eliminating the strict physical border processes. Although the universal access to the eResidency is open to all, with the additional advantage of countervailing geographical infrastructural dearth for certain regions, Africa's participation is the least compared to others in the virtual scheme, thus, potentially reinforcing global digital disparities. Therefore, this study investigates the experiences, expectations and opinions of virtual migrants from North Africa and Sub-Sahara Africa, using in-depth interviews across potential and actual eResidents from the region, to shed light on the underlying challenges catalyzing the inequalities. The findings of the analysis across the two groups reveal that the transnational virtual project is yet to capture the Global South context in relation to Africa. Moreover, unlike the North-centric SMET migrants, those from Africa are further challenged by limited resources and missing relevant skills to sustain the digital nomadic life; with Sub Sahara being the most disadvantaged. This paper thus argues that there is a need for context-based strategy to include and enable the Global South as presented in the proposed framework for policy action.

Keywords Virtual migration .eResidency . SMET migrant .Digital identity .Digital inequalities .North Africa .Sub-Sahara Africa .Global South .Digital nomad

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Abbreviations

NA	North Africa
SSA	Sub-Sahara Africa
EU	European Union
eIDAS	Electronic Identification, Authentication and Trust Services
EGDI	E-Government Development Index
UNDESA	United Nations Department for Economic and Social Affairs
UNCTAD	United Nations Conference on Trade and Development
AU	African Union
REC	Regional Economic Communities
AEC	Africa Economic Community
AMU/UMA	Arab Maghreb Union
EAC	East African Community
ECOWAS	Economic Community of West African States
ECCAS	Economic Community of Central African States
SADC	Southern African Development Community
WBG DE4A	World Bank Group Digital Economy for Africa
GDPR	General Data Protection Regulation
IHRL	International Human Rights Law
CIPESA	Collaboration on International ICT Policy in East and Southern Africa
NATO	North Atlantic Treaty Organization
OECD	Organization for Economic Cooperation and Development
FTTH	Fibre-to-the home

1 Introduction

What patterns of inequalities could emerge between aliens and citizens from the question: “will the real migrants please stand up?” Unlike the UN’s conceptualizations of “the migrant” (IOM 2020), Feldman's (2017) question was not aimed at atomizing “migrants” and “indigenes” rather a demonstration that “we are all migrants”. This sentiment seems to be gaining wider scholarly acknowledgment however in the context of virtual migration as digital tools and human activities increasingly interlock at individual and mass societal levels - socially, economically and politically (Heeks 2019). In this case data traces of users (Pink et al., 2016) who may or may not physically move, internally or internationally rather define “the migrant” (Kunushevci 2017). Contemporary migration, has metamorphosed over the years in scale, intensity and type with digital implications (Leurs & Smets 2018). In another twist though, the virtual migrant is rather an eCitizen (Masso et al. 2019), whose digital identity is concretized on a digital chip (Gelb and Metz 2017). Unlike others, some social groups tend to participate with ease in virtual migration based on their profession (Masso et al. 2019) and belongingness to a socio-economic class or socio-geographical regions (Tammpuu and Masso 2019).

Migration as a global social phenomenon has co-existed with man. Basicaly it occurs when, humans move by push-pull factors and within or cross-border, regardless of status, will, purpose and duration (IOM 2020). However currently such mobilities also tend to remind people that the inalienable right to free movement, is rather selective (Taylor and Meissner 2019). Moreover, certain push factors including political instability, conflict, environmental impact and climate change tend to produce more migrants, as the UN statistics shows there are 272 million international forced migrants globally (UN DESA 2019). Meanwhile in 2015, Europe alone received 1,005,504 migrants (UNHCR 2015). Nonetheless, these migrants are not desired by many countries for perceived risk to the wider society (Kunushevci 2017). Virtual migration is however an emerging field that in its breath, covers the digitally mediated migrant life, the migrants in the cyber space and digital data traces (Pink et al. 2016). It is not only multifaceted, but also interdisciplinary, therefore it is impossible to fully grasp its depth and breadth, without first understanding its links with different fields of studies such as post-colonial studies, geography and more (Leurs & Smets 2018). Meanwhile the concept of virtual migration in the case of forced migrants is not without human mobility, rather it is about the relationship between ICT and digitalization applied to migration processes and activities (Leurs & Smets 2018), which contrasts the aforementioned digital identity.

As countries seek to firm up security at their borders to restrict the in-flows of unskilled migrants (Masso et al. 2019), it is the reverse for highly-skilled migrants, mainly from the North who are authorized and welcomed (Kunushevci 2017). Moreover, this category encompasses individuals from the lucrative fields of Science, Technology, Engineering and Mathematics (STEM) (Masso et al. 2019). According to Robinson et al. (2020) STEM professionals are those influenced very early in life by education through in-school and extracurricular development activities right from primary school; which corroborates the UN suggestion towards digital literacy (UNDESA 2020a). The early exposure and skills of STEM migrants drive them to leverage digital tools to operate a nomadic, independent lifestyle, physically and digitally and beyond geographical confines while working strictly online (Masso et al. 2019).

However, the implication of digital tools in migration processes and activities as analysed by Leurs and Smets (2018) between border authorities in Europe and forced migrants differs from the case of SMET migrants. While the daily sociotechno experiences subjugate the forced migrant's body as platform for datafication (Latonero and Kift 2018), the digital tools facilitate the desired virtual freedom for the techsavvy professionals alongside their competences (Masso et al. 2019), especially in the European context where the tools are within reach (Tammpuu and Masso 2019) and mobility is unrestricted (Masso et al. 2019). While digital nomads could be perceived as people who have surmounted legacy digital inequalities and ahead of the emergent inequalities curve (Robinson et al. 2020), the scenario might not be even for similar migrants from other parts of the world where quality of education is low, like Africa being the region with the lowest average of Human Capital Index (HCI) (UNDESA 2020b), and particulary SSA being most disadvantaged in digital disparity as further evidenced with the COVID19 pandemic (UNESCO 2020).

Meanwhile, for the state, protecting both physical and virtual borders have equal priorities, therefore, policy debates about security apply to both (Brown 2015). In their forthcoming study, Masso et al (2019) stated that the Estonian eResidency eliminates physical mobility through state-provided eID, that empowers eResidents to remotely access government platform for active participation in the contemporary digital economy. According to the authors, it is capable of resolving the digital nomad paradox mentioned earlier, because tech-savvy individuals -SMET migrants can carry out their activities digitally and location-independently as eResidents. In addition, as part of its key priorities the eResidency partnered with the

UNCTAD “Free Trade For All” to attract, include and empower entrepreneurs from the developing regions through the Estonia’s well-established incomparable digital infrastructure. (Tammpuu and Masso 2019). In those regions, like Africa, eCommerce is challenged by weak technological infrastructures and administrative bureaucracy (eEstonia 2017; Patra 2019).

Whilst different studies have been conducted around virtual migration (Leurs & Smets 2018), with limited body of works about STEM migrants relating to the eResidency (Masso et al. 2019), discussions have not exclusively focused on Africa’s participation in virtual migration, in the context of the eResidency. However, there are studies in the field of eGovernment - digital inequality and digital identification systems (Masso et al. 2019; Patra 2019; Tammpuu and Masso 2019) relating to the eResidency, where Africa’s low participation in the eResidency has been discussed. Therefore, the motivation for this study is in line with the proposition of Patra (2019), to further examine Africa’s participation in the eResidency as to identify possible challenges confronting the region’s uptake of the scheme.

This study therefore focuses on investigating the perceived digital inequalities in the Global South by comparing the perceptions of virtual migrants from NA and SSA. Qualitative in-dept interview approach is adopted to engage potential and actual eResidents from the two regions as information-rich participants on a one-on-one interview about how the program equips actual eResidents in virtual migration, and how potential eResidents are attracted for its uptake. Also, how virtual migrants from NA and SSA perceive the datafication practices of the eResidency.The aim is to compare the findings from the analysis across the two regions based on the formulated research questions to see how the outcome might provide solution towards the inclusion of the region.

The thesis consists of nine main parts and starts with this section, which provides the background information. The next section presents an overview of theoretical groundwork. Based on the interdisciplinary nature of the study, literature spans across different theoretical domains (Cohenmiller and Pate 2019). The Estonia eResidency case is discussed in detail in section three, followed by the eResidency in the light of Africa in section four, while section five elaborates on the methodological underpinning of the study, and data analysis method. The findings of the analysis of empirical data are presented in section six, followed by the discussion of the result. The succeeding section provides the general conclusion drawn about the study, while the last section presents limitation and recommendation for further studies.

2 Literature Review

2.1 Digital Divide and Digital Inequality

In 2020, digital divide attains silver jubilee of persistent legacy digital inequalities -2.0; with emergent inequalities -3.0; where on the one hand prevalent patterns of inequalities in 1990s are still experienced today even across the basic access to internet, devices and software, while on the other hand the contemporary digital era simultaneously produces additional forms of disparities linked to the platform economy, digital labor automation, big data, the use of algorithms in criminal justice systems, cybersafety, mobility and more (Robinson et al. 2020). As a result, real-life social inequalities have equally persisted over the years, seemingly reinforced by and resulting from the continuous progress made in the digital world (Robinson et al. 2020) that empowers people based on their degree of accessibility and usage (UN News Sept 2019) which is further determined by digital literacy (UNESCO 2020), but also resources -income level (UNDESA 2020b) or economic class (Robinson et al. 2020). It is such that even after users gain access, it is hardly possible for some individuals or whole user group to be at par with others; in reaping similar benefits, even from universally accessible programs or services (Robinson et al. 2020). These patterns of disproportion in access to, use and outcomes seem to symptomize the underlying complex societal dynamics - "the complexity of our common existential condition" (Bauman 2018 p. 2), where digital capital is interlocked with social capital (Ragnedda and Ruiu 2017).

Contextualizing it to this debate, digital inequalities in the Global South manifest in various forms vis a vis the context of the phenomena implicated; visualizing it through the lens of virtual migration which is concerned in the current study, the emerging knowledge base is both multidimensional (Pink et al. 2016) and multifaceted (Leurs & Smets 2018). While the concept commonly applies to digitally-mediated migrants through the scope of forced migrants (Leurs & Smets 2018), it is an overarching notion that equally subsumes the highly-skilled individuals as introduced earlier, who contrary to the experiences of physical migrants, desire to conduct their activities online surmounting cross-border restrictions while concurrently undefined by location; given rise to the digital nomad paradox (Masso et al. 2019). In both aforementioned cases digital tools essentially deliver the processes and activities. However according to Robinson et al. (2020), beyond the reach, required competences and use of these tools, what is more important is the outcomes of the input phase, as it brings to light those whose use is productive and income-enhancing, and others whose outcome does not necessarily translate to

such benefits. The authors point out that the commonly repeating trend is that privileged social groups appear to produce more capital value from using digital technologies (Robinson et al. 2020).

Previous study in digital migration demonstrates the interplay of access, use and outcome of digital technologies in the context of Europe, between the European border authorities and forced migrants. While the EU as an institution stands at a vantage angle of having regular, reliable access with well-established and diverse tools to fit purpose, including resources that provide big data solutions (Taylor and Meissner 2019) for top-down mechanisms such as surveillance of the Mediterranean and identification of "the unwanted migrants"; forced migrants on the contrary being self-representing refugees, though equally supported through other bottom-up approaches, such as humanitarian migrant aids (Ajana 2020), evidently fall on the side of the digitally disadvantaged as their affluence across the three stages of access, use and outcomes does not measure up to that of the state. The mobile phone is the main tool leveraged, not only to guide their voyage from the Global South, but for other forms of communication essential for their subsistence (Leurs & Smets 2018). Interestingly even the migrant aids end up using sophisticated tools to manage migrants affairs that further reinforce the conditions that fuel existing inequalities (Kumar 2018). Moreover, based on the figurative illustration of Robison et al. (2020) about the layers of divide, the ability of forced migrants surmounting foundational divide -connectivity, device, software; is not sufficient to naturally confront higher level of divides such as literacy or skills. For example when supportive App was developed to help migrants, there was a significant disuse (Ekman 2018; Kumar 2018), because each new technological tool introduced creates a new gulf that needs to be filled by higher skills (Robison et al. 2020).

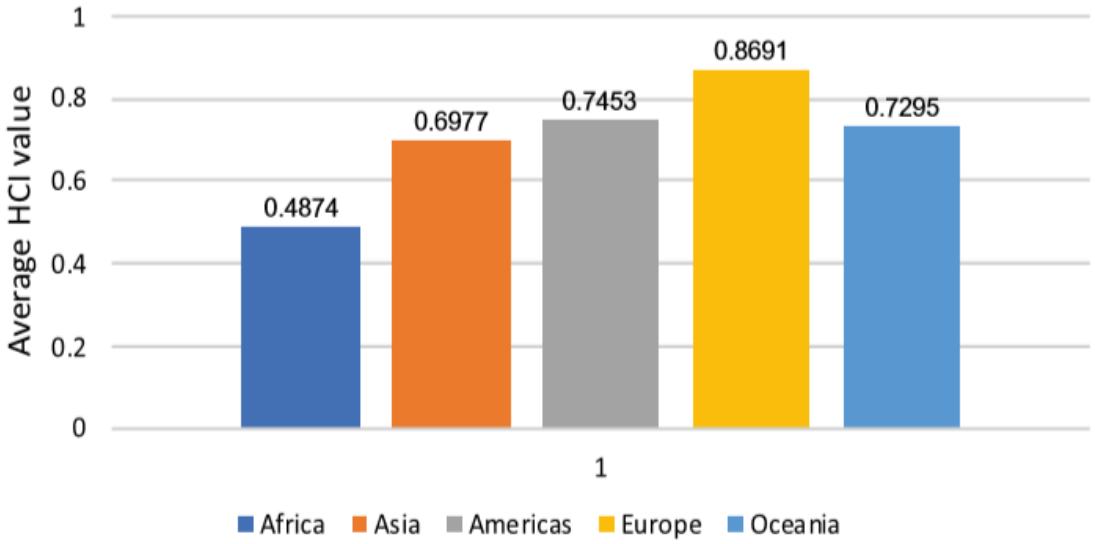
Relating it to the digital nomads, this social category encompasses individuals from the lucrative fields of Science, Technology, Engineering and Mathematics (STEM) (Masso et al. 2019). According to Robinson et al (2020) STEM professionals are those who had been influenced very early in life by education through in-school and extracurricular enrichment activities as early as primary school. According to the United Nations World Social Report (UNWSR) 2020, even though digital skills can be acquired at any stage in life, they should be integrated in the context of a wider quality of education enabling early exposure and benefit to individuals (UNDESA 2020a). In addition Robison et al. (2020) identify the implications of legacy inequalities that start early in life that further affect the subsequent educational and

professional progressions because they must work as a system for optimal result. Therefore, by their early involvement and acquisition of high level individual digital skills, this category of virtual migrants seeks to leverage technological infrastructures for independent form of work beyond the confines of geography, and transnationally (Masso et al. 2019). Unlike the forced migrants, they seem to belong to the positive side of the divide where they have not only access to and use, but are also reaping the meaningful life-enhancing "outcome" which is the nucleus of prevailing scholarship discussions around digital divide that Ragnedda (2017) and Robison et al (2020) conceptualize (the disparity in outcomes) as the "third-level digital divide".

In contrast to the everyday experiences of subordination and dominance between forced migrants and institutional authorities which seemingly sustain preexisting power asymmetry accentuated by digital technologies with underlying political, cultural, historical, but also socio-demographic and socio-geographic forces (Leurs & Smets 2018), the tech-savvy authorized migrant from the Global North does not confront such hassles associated with strict cross-border policy. First, in some regions of the world such as the EU, free movement is recognized as a political concept (N. Brown 2015), not only for individuals but also for economic activities (Godoy and Heal 2015). Whereas in the Global South, with the example of Africa, the AU is yet to fully achieve similar strategy (AU Agenda-2063 2020). Therefore, citizens experience both intracontinental and cross-continental restrictions that create barriers for them to move freely. This equally holds them back even in such instances where their physical presence is required to unlock opportunities to compensate for missing digital infrastructures in their immediate geographical area (Patra 2019). Moreover, the significant enabler motivating the "post-identitarian mobility" in the EU that produces capital enhancing activities such as telework and eLearning is the region's top-ranking eGovernment development as measured by the UN EGDI (Sutherland 2014; UNDESA 2020b) as displayed in figure 4.4, meaning the technological facilities needed for the nomadic way of life are available, unlike other regions such as Africa. According to Tammpuu and Masso (2019) technological development predetermines the adoption of virtual migration.

Inopportunely, the African region remains the least developed region in terms of eGovernment, based on the same measuring scale. Moreover, while the SMET professionals from the North have facilitated movement, as authorized migrants with relevant digital skills to participate in the digital world (Robinson et al. 2020), the recent United Nations eGovernment Survey shows that the quality of education is still relatively low in some parts of the world, specifically in

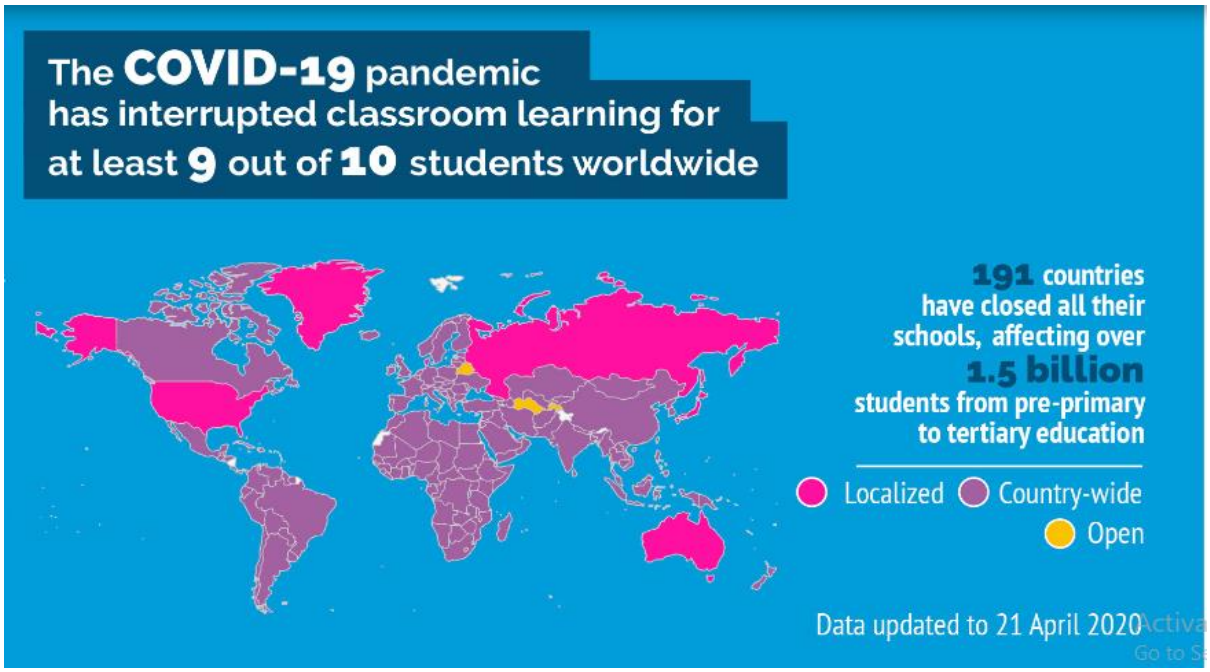
Africa being the region with the lowest average of Human Capital Index (HCI) value compared to other regions (UNDESA 2020b), particulary with Sub-Sahara Africa



Source: United Nations eGovernment Survey (2020)

Figure 2.1 Global average HCI value

being the most disadvantaged in terms of digital disparity, in a time when many countries are using these tools to sustain educational continuity especially with the COVID19 pandemic (UNESCO 2020). According to the UNESCO (2020) report 89 per cent of learners do not have access to household computer while 82 per cent are not connected. Meanwhile, while mobile phones which are largely used in the region could enable learners access information, connect with teachers and with one another, 56 million of the population live in places not covered by mobile communication service providers and this is almost half of SSA (UNESCO 2020).



Source: United Nations Educational, Scientific and Cultural Organization (2020)

Figure 2.2 Regional digital divide in education

Despite the prevalent digital divides and inequalities persistent over the years, the Estonian digital identity program has been identified as having the capacity to resolve the issue of the digital nomad paradox (Masso et al. 2019) while concurrently serving as a means of digital inclusion that enables individuals mainly from regions like Africa to surmount the challenges inherent to the aforementioned issues and participate in the digital economy as eResidents, shaping their opportunities along social and economic context (Kotka et al 2016). However, according to the UN World Social Report 2020 new technologies are amplifying diverse forms of inequality while perpetuating new digital disparities such that developed and developing countries are uneven in leveraging digital tools for eGovernment development (UNDESA 2020a). Similarly, Robinson et al (2020) point out that each new technological progress creates a new avenue for inequality. Furthermore, while eResidency plans to include those individuals from Africa, paradventure the basic infrastructures are missing they might still be excluded (Tammpuu and Masso 2019), as participation in the eResidency already reveals disparity between the North (Europe) and South (Africa) as 65% to 3% (Tammpuu and Masso 2019), while the program platform equally shows more NA applicants compared to those from SSA (eResidency.gov.ee 2020). Moreover, economic factor equally sustains digital inequalities at all stages including access, use and diversity of devices even in countries with high internet

adoption, such that social groups classified at the bottom of lowest-income category are more likely to be digitally excluded in part or as a whole (Robinson et al 2020). Regrettably, the African region has more of such countries compared to other regions of the world, more so unlike NA, SSA is the area demanding more attention as emphasized by the United Nations Economic and Social Commission for West Africa (ESCWA) (UNDESA 2020b).

Sequel to their emblematic digital inequality stack, Robinson et al. (2020) state that a missing first level divide (physical access to computer and internet) potentially produces a mechanical effect where superior levels are affected. They further stated that having access to digital tools per se does not suffice to attract the benefits that accrue to the adoption of such technology meaning navigating the internet is complex and unnatural even though it is accessible to the user (Robinson et al. 2020). According to Gelbs and Metz (2017) the Estonian eResidency being a specially designed system, requires highly digitally literate users. Similarly Robinson et al. (2020) added that despite universal access and mobility every new development in the digital world engenders new form of inequality as Ragnedda and Ruiu (2017) equally note that existing social capital is interlocked with digital capital in a symbiotic relationship that mutually and reciprocally influence each other while in turn reinforcing strong ties in virtual communities that rely upon users‘ ability. It would therefore be inadequate to tackle the issue of digital inequality exclusive of the social world that produces them (Robinson et al. 2020). Moreover, contemporary migration is a complex societal phenomenon that is increasingly manifesting superdiversity (Taylor and Meissner 2019; Vertovec 2007), and virtual migration is ostensibly displaying additional complexity as it increasingly intertwines with digital tools that are not neutral as can be justified by Milan and Treré (2019).

To walk towards providing solution, the issue of digital inequalities as it relates to digital migration could truly be misconstrued unless it is situated within the contours of certain heterogenous variables that impact migration similar to the debates around the notion of superdiversity (Vertovec 2007), meaning to capture different converging factors around virtual migration, but also as an interdisciplinary study to consider its links with other fields of study, as a way of providing nuance on the complex structural or systemic inequalities that often underpin the design of the systems, how they are rolled out and what they produce online to sustain the power inequality (Taylor and Meissner 2019). Regarding the digital identification systems, Gelb and Metz (2017) corroborate the aforestated arguments, that a lot depends on how the systems are designed, rolled out and used, because a system that has the capacity to

include can equally exclude; where some people cannot even use them, like the aforementioned migrant APP (Ekman 2018; Kumar 2018), or even the UNESCO‘s (2020) recent report of the Sub-Saharan population that lags in digital literacy. In order to include certain category of social groups to adopt a technology for its services, Gelb and Metz (2017) argue for context. Additionally, they assert that “convenience is key” because people want to experience practical efficiency with ID systems, to provide the services they are designed for, while eliminating bureaucratic hurdles (p101). Big data tools provide efficient ways of providing user-tailored information to contextualize these tools based on user profile which is one of the benefits of datafication, however, as opponents of datafication point out such practices could foster discrimination and widen prevailing inequalities or even reproduce new ones (Robinson et al. 2020; Southerton 2020) as discussed in the next section.

2.2 Social Datafication and Data Inequality

The contemporary information society that thrives upon Big data has provoked mounting debates around social datafication among scholars. Existing studies in the field of data colonialism point out that datafication is shifting from its business context (Mejias & Couldry, 2019) to “the datafication of everything” (Mayer-Schönberger & Cukier 2013 p. 93-94), including data that was previously unknown. Thus translating the concept to mean the appropriation of human (social) life for continuous data extraction (Mejias and Couldry 2019); prominently effective where people, laws, and human rights are the most fragile (Milan & Treré, 2019) and currently with huge impact on migrants (Ajana 2020) and more specifically “forced migrants” who are inseparable from their mobile phones (Leurs & Smets 2018). According to Milan & Treré (2019) datafication has been weaponized by institutions and corporations in the business of managing people. Moreover, the proliferation of digital identification systems (Gelb and Metz 2017) as a way of responding to the UN Sustainable Development Goal (SDG) Target 16.9, that seeks to include every citizen for legal recognition -*"legal identity for all, including birth registration, by 2030"* (UNSTATS 2020), has met with scholarly criticism that the rationale behind the project is capable of amplifying the prevailing datafication that reduces people to numbers on a database or a piece of ID, while concurrently putting at risk individuals or whole group with preexisting situations that could expose them to harmful situations should they become visible (Ajana 2020).

The advent of datafication ab initio was to help businesses to gain insight into big data for value by deploying advanced analytics to forecast outcomes and perform real-time analysis (Gardion & Haider 2015) in relations and patterns emerging from data (IBM, 2018; Mejias & Couldry 2019). However, as revealed by previous study, in the context of *"We can now collect information that we couldn't before, be it relationships revealed by phone calls or sentiments unveiled through tweets"* (Mayer-Schoenberger and Cukier 2013 p 30), the concept has made it possible for businesses and government agencies to explore the burgeoning piles of metadata gathered across several social media and communication platforms, including but not limited to Facebook, Twitter, in order to keep track on human behavior (Van Dijck 2014) and for value (Zuboff 2019). While distinct from digitization, yet digitization is part of it (Southerton 2020), meaning social datafication expands pari passu with the growth of the digital world.

However, proponents of datafication including data scientists and academics as well as institutions rely on its predictive ease vis a vis the complex social life and finding correlations with explanation, where data scientists mainly rely on data traces of users who enjoy the comfort of platform mythologically "free" services (Couldry 2015), whereas for social scientists it offers an exceptional opportunity to access data for research – *"the datalogical turn"* (Southerton 2020). Nevertheless, for media scholars like Van Dijck (2014), the ideology has become pervasive, where the use of big data especially scraped from social media is used to provide solution to social problems - *"dataism"*; meaning despite the opacity of the value and insight of aggregated data, *trust* and *belief* are legitimized in the state or agent that collect, interpret, and share metadata abstracted across social media, internet platforms, and other communication technologies (Van Dijck 2014). As the collective group of social quantification sector become dominant in sorting and categorizing migration related data, predicting human mobility for various institutions who seek big data solutions for migration related issues (Taylor and Meissner 2019); there are practical, ethical and political implications in the way people are seen by both public and private sector (Taylor 2017). Therefore varying methodological and epistemological queries are raised about the understanding made of such data emerging from new data economies, as they are potentially laced with elements of bias (van Dijck 2014). Similarly, Taylor (2017) expresses concern about the reliability of the outcome of commercially derived technological solutions to empower border authorities. Furthermore, issues of privacy breach, social inequality, discrimination, exclusion and large scale data leaks and hacks have equally been raised in relation to datafication and digital identity systems (Beduschi 2019; Chen 2019; Chen et al. 2018; Gelb and Metz 2017; Southerton 2020).

Datafication in the case of forced migrants has attracted a plethora of scholarly debates. For example Ajana (2020) describes it as "digital biopolitics" - methods by which human body and life itself are visualized, examined and governed digitally through data; as in the examples of the UN ProGres database, and the IrisGuard-developed *"Your Eye is your Card"* concept, where the migrant's eye is the ATM card. Also, as analyzed by Leurs and Smets (2018) in what the authors referred to as the "digital passage" reveals a situation where with advanced big data instruments, the EU border authorities automatically extract migrants data based on their mobile devices as they navigate their voyage and while they communicate through different platforms (Gillespie et al. 2018). These potentially exacerbate the prevailing power asymmetry in the social world as both parties employ digital tools but at different levels of access, use and outcome that results in a case of data rich and data poor (Boyd and Crawford 2011). Beyond the interoperable identification systems across the EU, (Ajana 2020), Taylor (2017) criticizes the surveillance beyond the EU borders that directly accesses the South; *"as population data become by-products of informational capitalism, this has consequences both for the way we can be monitored and the avenues we have to seek redress if we are subjected to unfair treatment"* (p 4).

Conversely, whereas datafication as a global social phenomenon implicates every connected user (Van Dijk et al 2018), nonetheless, the daily experiences of SMET professionals as virtual migrants is not similar to what has been described above (Masso et al. 2019). Migrants from the North who are highly skilled are orderly therefore approved and welcomed (Chouliaraki 2017). This social group are often technophiles with high computer literacy who operate exclusively in an online environment and that are unlimited by geographical boundaries (Reichenberger 2017). Based on their high individual digital competencies (Robinson et al. 2020), they push for deterritorialization, to enable them move physically and digitally; having leisure while working concurrently (Reichenberger 2017). The quest by this category of migrants has resulted in the digital nomad paradox – where the desire of the digital nomadic modus operandi contradicts government's desire to firm up cross-border movement. (Masso et al. 2019). These professional digital migrants could however find themselves at the intersection of the welfare state and their direct dealings with individual citizens on the one hand, while on the other hand they might be tax incompliant thereby become vulnerable to social insecurity (Colin 2018; Masso et al 2019). However as stated earlier, the contemporary digital era is experiencing a proliferation of emerging digital identification systems, both in developed and developing countries mainly as part of eGovernment development strategy even though in

scope and functionality they differ extensively (Sullivan 2018; Tammpuu and Masso 2019). Moreover, modern digital identification systems have the capacity to enable and control the way people operate in the digital world as citizens (Masso et al. 2019). Therefore, according to Masso et al. the Estonian digital identification system has the capacity to resolve the digital nomad paradox.

Estonia has created the first transnational digital identity system that offers government-backed eID to empower its holders – eResidents from anywhere on the planet, irrespective of primary citizenship to have remote access to the well-established digital infrastructure of the country in order to participate in the digital economy (eResidency.gov.ee 2020). Unlike policies that restrain conventional desert migrants (Masso et al. 2019), the geographically inclusive access to the technological infrastructures relevant for driving the nomadic living (Graham et al. 2015), in the context of the Estonia eResidency, presents a model that favorably aligns with the aspirations of highly tech-savvy virtual migrants globally. However, relative to the ostensible difference in class between the "traditional desert nomad" and the "digital nomads" (Masso et al. 2019), which scholars have identified to be emblematic of the North-South divide (Global South Voices 2015; Leurs & Smets 2018), depending on their underlying design and how they are rolled out and used, technological platforms including identity systems could be embedded with societal bias as a way of maintaining real-life inequalities (Gelb and Metz 2017; Leurs and Shepherd 2018). Despite the enormous benefits that abound in the emergent Big data and AI, alongside the great opportunities are also challenges for prosperity, security, law and order, and the future of work as pointed out by Robinson et al. (2020) where missing marginalized voices in algorithmic infrastructure have contributed to the persistent inequalities

Beyond the possibility of embedding the systems with discrimination in order to legitimize inequalities organically (Southerton 2020), vulnerabilities including privacy breach, leaks and hacks have been associated with digital identification systems (Aggarwal et al. 2018; Beduschi 2019), which Gelb and Metz (2017) equally affirm however exempting the Estonia eResidency system which the authors find to be less vulnerable to identity theft, because the system allows individuals to have more physical control of their credentials, which in turn mitigates hacks since the information cannot be used for identity theft (Gelb and Metz 2017). Moreover, the X-Road data exchange layer allows information exchange only as needed by each service provider and program, furthermore, individuals can always check to see who has access to their records, with the exception of law enforcement and security (Gelb and Metz 2017). In addition, Estonia's rapid response during to the ROCA vulnerability in 2017, also demonstrate the state's

preparedness but above all awareness of such possible risks despite being tech-savvy population, this might not have been the case in the context of the Global South (Aggarwal et al. 2018).

In the context of the Global South first of all the digital development at country level is not even as recent studies point out (Robinson et al. 2020; UNDESA 2020b). Moreover, considering countries in Africa there is a general missing implementation of democratic laws that protect citizens' personal data protection (CIPESA 2019). Therefore even where such nation-wide eID projects would have been implemented like the Tunisian failed model, issues relating to threat to the protection of citizens' personal data, privacy right, and cybersecurity, ambiguous language, and lack of essential safeguards for privacy, as well as missing definition for key terms including "digitization", "registration" and "administrative" characterized the project (Aggarwal et al. 2018). Worse still, unlike Estonians, Tunisians were not given room to access what data about themselves was going to be stored on the card, but selected institutions could, with the myriad of issue around it, the draft bill amending the Tunisian ID card was eventually withdrawn (Aggarwal et al. 2018). Gelb and Metz (2017) explicated that in most developing countries, democratic checks and balances are weak, as such data privacy may be absent or unenforced (Gelb and Metz 2017). Although in those countries, privacy laws may be documented however, to implement such laws would mean having sustained assistance to strengthen data privacy laws, and the will to apply them. Data privacy for those countries is not an item top on the agenda, especially were digital database is yet to attain maturity (CIPESA 2019; Gelb and Metz 2017). Therefore, besides the missing infrastructures there seems to be also missing democratic data laws fueling the divides.

Contrastingly, the European well-structured and enforced General Data Protection Regulation (GDPR) (EU-GDPR n.d.) sets out the rights of its citizens vis a vis their personal data. As previous study reveals that digital nomads originate mainly from Europe, specifically from countries that are already digitally well developed (Tammpuu and Masso 2019), this further empowers SMET professionals, in addition to being more digitally well-informed as earlier stated (Robinson et al. 2020) to participate in virtual migration. Therefore presumably being on the advantaged side of the divide contrary to some regions of the Global South, should the widespread datafication practices implicit as they have become in the way personal data is abstracted (Robinson et al. 2020), result in a breach on their personal data, these migrants can fall back on the GDPR (EU-GDPR n.d.) to seek redress.

Currently, the eResidency scheme has been identified by previous study as becoming increasingly selective like the traditional Estonian migration process, meaning it is introducing datafication practices on eResidents' data traces as a way of controlling activities, including stricter background checks for selection of applicants as a mechanism to prevent security issues related to economic hazards and technological risks (Masso et al. 2019). While it is crucial to guide against insecurity at a macro scope, this might lead to the exclusion of some regions that are not at par with digitally more developed regions (Gelb and Metz 2017). As stated earlier about SSA's low connectivity, affecting about half of the population from even mobile network services (UNESCO 2020), meanwhile it is part of the objectives of the eResidency to include people from that region (eEstonia 2017). In this case, mainly SMET virtual migrants from digitally developed regions with digital footprints may be selected similar to those the country physically welcomes (Estonia Ministry of Interior 2020). According to Leurs and Shepherd (2018) data-driven systems can extend discrimination against already marginalized population; while discrimination is not new, or linked to datafication alone, nonetheless, it is facilitated by the systems in a fashion that seems organic while normalizing inequality (Southerton 2020).

Meanwhile, as the virtual migration scheme's platform engages in datafication (Masso et al. 2019) like every other platform online (Southerton 2020), scholars in the field of big data and society have called out to keep digital identification projects within their defined scope, by engaging exclusively in such activities that are relevant for the realization of the specified aim without going beyond (Beduschi 2019). Specifically for states Beduschi (2019) further emphasized that information in their possession for digital identification should be respectfully used for what individuals have been informed and agreed to. Similarly, (Hu 2017) said digital identity platforms should not be transformed into digital surveillance.

Previous study in eGovernment has indeed stated that the Estonia eResidency program is a well trusted scheme globally, not strictly because of the strong infrastructure for cyber security, but more importantly because it is run by the state (Tampere 2015). Nevertheless, Beduschi (2019) states that technology by itself does not protect human right neither can it prevent discrimination, rather it has the capability of more efficiently perpetuating discrimination against some categories of individuals that should benefit from a program as they become more visible, as well as facilitating misuse of data or even persecution of data subject where information falls into wrong hands. This is why several other scholars raise concerns about the 2030 digital legal identity project by the United Nation as well, especially in relation to the

vulnerable in the society including low-income regions and migrants (Aggarwal et al. 2018; Ajana 2020)

As a way forward in favor of LMICs Gelb and Metz (2017) suggest identification system could serve as first point of defense in data privacy, Aggarwal et al. 2018 argue the contrary for LMICs. Gelb and Metz (2017) also suggested limited data collection for such countries with both weak checks and authoritarian regimes to avoid the visibility that can profile individuals (Gelb and Metz 2017). In contrast, Ajana (2020) rather challenges the obligation of subjecting people "into a system" for easy cabalistic control, especially through biometric information. Gelb and Metz (2017) added that the establishment of an independent privacy advocate, saddled with the authority and resources could respond to breaches and violations of agreed business rules on data sharing, could help with redress and penalties, against institutions (Gelb and Metz 2017). Moreover, for Makhtar Diop, the World Bank Vice President for Africa, "it is about making the voiceless heard" (World Bank 2017), Robinson et al. (2020) rather, raise concern as algorithmic platforms might underrepresent marginalized voices. Finally in order to mitigate the possibility of discrimination and promote privacy and data protection with such schemes, in this context the eResidency, Beduschi (2019) proposes compliance with IHRL and data protection instruments such as the EU GDPR. The next section focuses on the Global South where the implication of the shaping role of the data infrastructures (Milan and Treré 2019) appear to sustain the North-South divide (Leurs & Smets 2018).

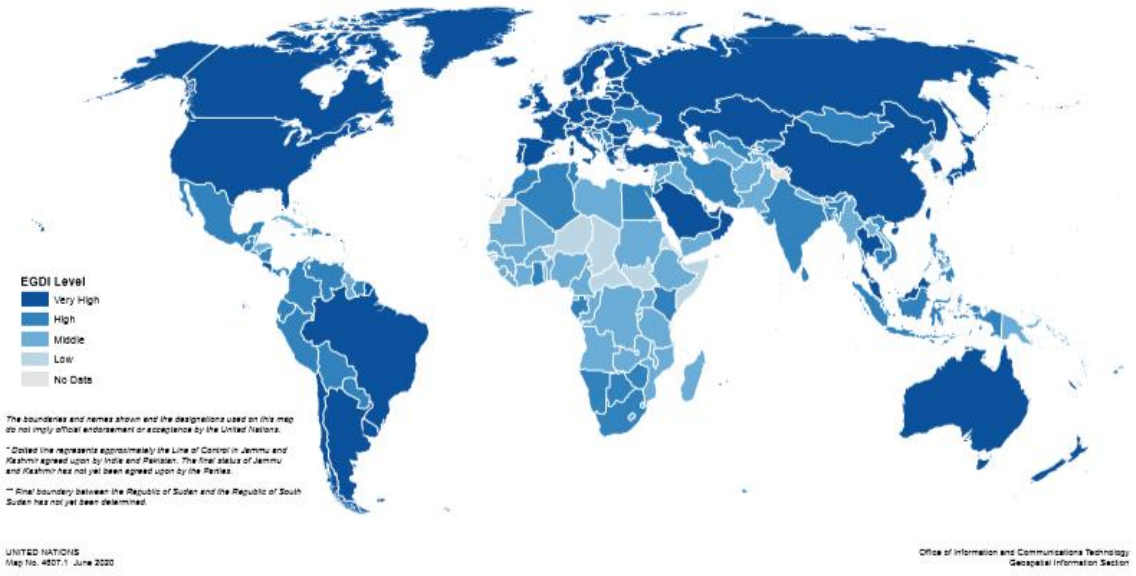
2.3 Global South and Data Colonialism

Virtual migration and the Global South matter are not only complex but also raise further questions. "The term "Global South" is more than a metaphor for underdevelopment. It has evolved through the family of similar terms such as "The Developing World" and "The Third World" (America and Ward 2012 p 2). Different scholars have presented arguments about the Global South concept; Tobias Schwartz highlighted that the migration section within the population division of UN-DESA, has two categorization of global migrants – developed (Global North) and developing (Global South), where the Global South as a broad term is a mere window-dressing; because the categorization of countries is unclear (see Global South Voices 2015).

In a more recent study in the field of digital migration the migrant categorization highlighted by Tobias Schwartz, has been more expansively debated. The paper by Leurs & Smets (2018) elaborately discussed the issue of certain migrants that are "unsafe", therefore unauthorized for mobility, whereas others from the Global North, mainly highly-skilled migrants are unrestricted. Migrants encounter different experiences, according to Leurs and Smets (2018), the modern-day migration patterns are not only characterized by complex social phenomena, but they are concurrently highly impacted by digital tools, that engender varying forms of challenges, which are easier for some migrant categories -digitally skilled (Kunushevci 2017) to overcome faster than others -unskilled. As digital migration extends the borders of a specialized discipline (Leurs & Smets 2018), its understanding emerges when situated in an interdisciplinary framework while contextualizing it (Pink et al. 2016), moreover with the digital data tools, everyone is becoming a migrant (Kunushevci 2017).

Meanwhile in relation to the highly techsavvy migrants, the digital tools serve their purpose of digital nomadism by facilitating working in the cyberspace while they physically move freely (Masso et al. 2019) since they are "safe" and "welcomed" in comparison to the "unsafe" and "unauthorized" migrants from the South (Kunushevci 2017). Moreover, the SMET migrants thrive more in the European socio-geographic environment on the basis of free mobility and the enabling technological facilities for such fluid work (Masso et al. 2019). In contrast similar migrants from the Global South like those from Africa may be challenged in terms of the absence of such features required for the nomadic life-style (Patra 2019; World Bank DE4A 2019a). While Leurs and Smets (2018) point out that the essence of migration control is a way of sustaining the North-South power inequality, Milan and Treré (2019) equally highlight the role of digital tools in shaping the North-South dichotomy. It is no surprise therefore, that these digital tools are frequently deployed, transnationally in the Global South, for migration processes and activities (Taylor 2017) ranging from surveillance, deterrence, predictive analytics of social media activities, offshore sensing and dronification of the Mediterranean (Frontex 2017), without accompanying transnational data laws (Taylor 2017). Digital migration being data-driven both in the case of forced migrants (Leurs & Smets 2018) and in the case of the Estonian eResidency SMET migrants (Masso et al. 2019), the matter that is of importance here is the role of the data generated by the technological tools, particularly in the context of the African region, considering Sub-Sahara where the data is unstructured, therefore unaccounted for or unregistered (Gelb and Metz 2017).

According to previous studies digital devices while being essential for migrants, could simultaneously engender exploitation and heighten surveillance (Gillespie et al. 2018), and they may also produce additional forms of exclusion through "symbolic bordering" (Chouliaraki 2017). However, as it relates to this study in the context of digital identification systems, Gelb and Metz (2017) point out the possibility of personal data theft and its (mis)use that could endanger data subjects, particularly those from the developing regions, where privacy laws are missing or unenforced. Furthermore, the authors asserted that digital identification systems that are designed to include can also exclude (Gelb and Metz 2017). By the same token, previous study about the eResidency, reveals the dominance in participation by digitally developed countries/regions, mainly from the North, when compared to regions with weaker digital development, for example comparing the ratio of European participants to Africa's, the ratio is 65% to 3% (Tammpuu and Masso 2019). According to Tammpuu and Masso (2019) the eResidency program in this sense potentially strengthens participants from countries where government already equip citizens digitally, compared to participants from countries with weaker EGDI.

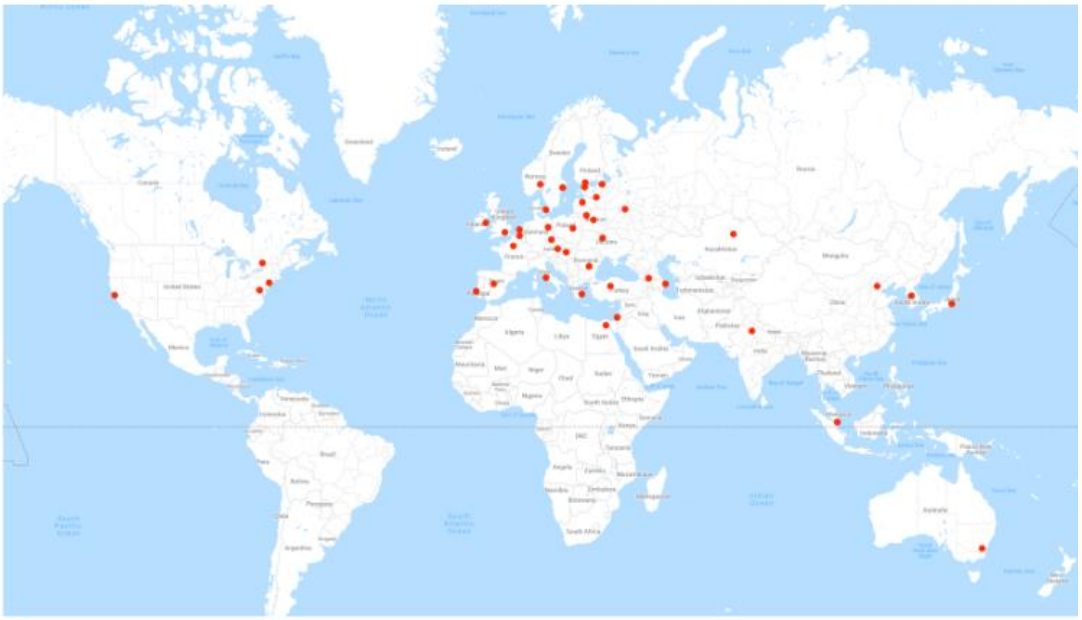


Source: 2020 United Nations E-Government Survey.

Source: United Nations Department of Economic and Social Affairs (2020)

Figure 2.3 Global regional EGDI level

Meanwhile, the African region being least EGDI region, as illustrated in figure 2.3 is also confronted with the challenge of accessing the eResidency toolkit, because only one center exists for 55 countries, while movement across borders is also restricted (Patra 2019). Whereas Europe where free movement of people is considered a key political concept (Masso et al. 2019), also has multiple pick-up centers that facilitate access to the eResidency toolkit (eResidency.gov.ee 2020).



Source: eResidency.gov.ee (2020)

Figure 2.4 eResidency toolkit pick up location

According to Gelb and Metz (2017), for identification systems to deliver for development then they have to be inclusive. Meaning in the case of the eResidency, if Africans are not able to access the eID or have barriers to use the system then its target outcome of empowering eEntrepreneurs from the region to surmount the infrastructural weakness and administrative hurdles to eCommerce would be stifled. They suggest certain actions that can facilitate the global reach of identification systems. Relevant to the case of the eResidency this would mean flexibilization of requirements for adoption by contextualizing the program to fit participants' background based on country/regional characteristics. Also, the acknowledgment that technology is infallible; meaning not everyone can adapt to the standard approach of use, therefore alternative means of enrollment and authentication should be provided. Furthermore, for some people they experience ease of use of technology when human help is reachable.

Besides, in order to support those regions or people challenged by reliable connectivity, the process should be supplemented by offline alternative (Gelb and Metz 2017).

To summarize, the Global South is confronted by multiple challenges; on the one hand issues such as the low EGDI, which can be perceived internal tend to deter the region's participation in digital migration, however on the other hand, there are external factors that could be linked directly to the systems, in terms of their design, roll out and what they produce online, that create a barrier for Africans -NA and SSA to adopt digital migration. Therefore, as a way of finding solution, first, increasing research in the field of virtual migrants -SMET around the South could help since previous study has criticized the dearth of scholarly debate in the region along that line in comparison to the West (Emmer and Kunst 2018). Also, as regards the data, Gelb and Metz (2017) suggest that in low-income countries with inadequate legal control measures, identification system could serve as first point of defense in data privacy. Those countries confronted not only by weaker checks and balances, but also by authoritarian regimes; thus, in such situations, ensuring that only essentials data are gathered is very important, in order to avoid the visibility of data that can profile individuals or discriminate against them (Gelb and Metz 2017).

3 Case Study – Estonian eResidency Program

3.1 Virtual migrants -Estonian eResidents

While traditional migration is concerned about physical mobility of individuals who may eventually also change their citizenship, eResidents are offered digital identity and state-led empowerment to operate in the digital world (Masso et al. 2019), keeping the citizenship of their origin,. "E-resident is a foreigner, to whom Estonia has created a digital identity based on identity of the country of citizenship and issued a digital identity card – digital-ID of an e-resident" (Särav 2015 pp. 13). The digital ID is the concretization of the identity of who the eResident is, what the individual has and knows as described by Gelb and Metz (2017) the same ancient patterns of identification which are today integrated into one digital ID called the Estonian digital ID, thus making it more powerful than the ancient pattern.

3.2 Estonian eResidency Program

The logic of the Estonian eResidency program emerged against the backdrop of the question on how to "scale-up a country' (Korjus 2018a). As Estonia's host of eSolutions continued to increase like a startup improving its services, the scalability was concurrently confronted by the limited users (citizens and residents of the country), by implication returning low dividend to the state (eResidency 2.0 WhitePaper 2018). The logic that emerged from this situation was to scale up users beyond the country's limited geography and small population while simultaneously expanding the economic base of Estonia, hence the "virtual residency" or "eResidency" program (Estonia eResidency n.d.). Meanwhile, for more than 15 years, Estonians and residents in Estonia have been using digital signature, and can complete almost any interaction with the state online from anywhere in the world, based on the legally binding digital signature, facilitated by the government-issued digital ID (Masso et al. 2019), for them it is a norm (e-Residency — e-Estonia 2020). However, for foreigners doing business with Estonian citizens/residents there was a problem with the introduction of the eID, in terms of signing documents, that resulted in time loss and document duplication (Masso et al. 2019). Therefore, the initiative to provide a residency version connected with digital services was introduced for foreign investors and people who already do business in Estonia, in order to flexibilize managing their activities internationally. Especially, to enable them to register their businesses, log into a bank or pay taxes online (Global Govt Forum 2019). Interestingly, while working with the original plan, the idea got expanded to include third world countries. Ott Vatter the program director said: *"We started out wanting to save time and money for existing*

businesspeople, and we discovered that – ... – we could offer financial inclusion for third world citizens through Estonia" Ott Vatter - (Global Govt Forum 2019).

Meanwhile the initial vision of the Estonian eResidency program was mentioned in 2013 (Masso et al 2019), by the Ministry of Economic Affairs and Communication in the national ICT strategy - the digital agenda 2020, stating that Estonia will start offering its well-established eServices globally (Digital Agenda 2020 for Estonia 2018). Subsequently, during the "Best Development Idea 2015" contest organized by the Estonian Development Fund on how to make Estonia attractive to investors but at global level, Taavi Kotka, Siim Sikkut and Ruth Annus submitted the idea of "10 million eEstonians by the year 2025", the idea was accepted and it secured an initial 12-month development grant (Kotka et al, 2016). The objective was to expand Estonia's economic base by getting 10 million people around the world to become eEstonians, by giving them the Estonian eID so that eResidents can have access to the eServices of both the government and the private sector while conducting digital business (Tampere 2015). Despite all the attractive digital accesses offered to eResidents, it is important to note that the eID does not confer right to any form of citizenship either to Estonia or to Europe. Furthermore it does not substitute for any form of valid travel document or passport (Kotka et al 2015).

The eResidency 'beta" version was eventually launched in May 2015, with online application opportunity, replacing the initially physical visit-demanding process, this dramatically increased the number of applications globally (Kotka et al 2016). The "eResidency 1.0" lasted through the first 4 years of the program, it was a period legislatively open to everyone to apply for eResidency and provide feedback that could help tailor the program to suit users' need (Kotka et al 2016). The eResidency program is being developed as a start-up model constantly undergoing transformation to meet users' specific need (Kotka et al 2016); even with the introduction of the eResidency 2.0 at the end of 2018 (eResidency 2.0 WhitePaper 2018).

eResidency adoption

Adopting eResidency begins with visiting the website to fill out the online form, provide a scan of international passport and identity photo passport, payment of relevant state fee of 100 EUR (which was 50 EUR in 2014, and is +20 EUR in 2020), and attaching a scan of a visa or master card to complete the payment process, while also selecting a pick-up location among the

existing Estonian embassies and consulate around the world. Subsequently, successful eResidents are contacted by email, to physically go to the center selected earlier, for physical identification (often with passport) and to provide biometric data before collecting the toolkit. (eResidency.gov.ee 2020). However, Kimmo et al. (2018) contend that the eResidency program is not entirely online because to complete the process, successful eResidents are expected to physically present themselves at a pick-up location. Unfortunately, this could create a barrier to entry for some countries such as those in Africa that neither have Estonian embassies, nor strong passport for unrestricted movement (Patra 2019). Estonia currently has 38 embassies and 196 consulates abroad (Estonia - Embassies and Consulates 2020), however, for the whole of Africa with 55 countries, there is only one pick up location (Patra 2019). This is illustrated in table 3.1

Table 3.1 eResidency pick-up location

(*Note – The cells in green color denote the countries that are among the top 25 e-Residency Application Countries)

Source: (Patra 2019)

Rank	European Countries	Pick-up Points	Number of Applications
	Austria	• Vienna	408
21	Belarus	• Minsk	707
24	Belgium	• Brussels	622
	Czech Republic	• Prague	342
	Denmark	• Copenhagen	356
	Estonia	• Tallinn	
1	Finland	• Helsinki	4853
11	France	• Paris	2279
4	Germany	• Berlin	3178
23	Greece	• Athens	675
	Hungary	• Budapest	576
	Ireland	• Dublin	219
10	Italy	• Rome	2281
13	Latvia	• Riga	1505
19	Lithuania	• Vilnius	766
16	Netherlands	• The Hague	1109
	Norway	• Oslo	305
18	Poland	• Warsaw	993
	Portugal	• Lisbon	388
	Romania	• Bucharest	566
2	Russian Federation	• Moscow • Pskov • St Petersburg	3700
15	Spain	• Madrid	1302
17	Sweden	• Stockholm	1048
6	UK	• London	2795
3	Ukraine	• Kiev	3431
	Asian Countries	Pick-up Points	Number of Applications
9	China	• Beijing	2494
8	India	• New Delhi	2511
	Israel	• Tel Aviv	368
7	Japan	• Tokyo	2704
	Singapore	• Singapore	
14	South Korea	• Seoul	1467
	North American Countries	Pick-up Points	Number of Applications
5	USA	• New York City • San Francisco • Washington	2833
20	Canada	• Ottawa	727
	African Countries	Pick-up Points	Number of Applications
	Egypt	• Cairo	541
	Transnational Countries	Pick-up Points	Number of Applications
	Azerbaijan	• Baku	150
	Georgia	• Tbilisi	99
	Kazakhstan	• Astana	99
12	Turkey	• Ankara	1897
	Australian Countries	Pick-up Points	Number of Applications
25	Australia	• Canberra	601

3.3 Objective of the eResidency for third world

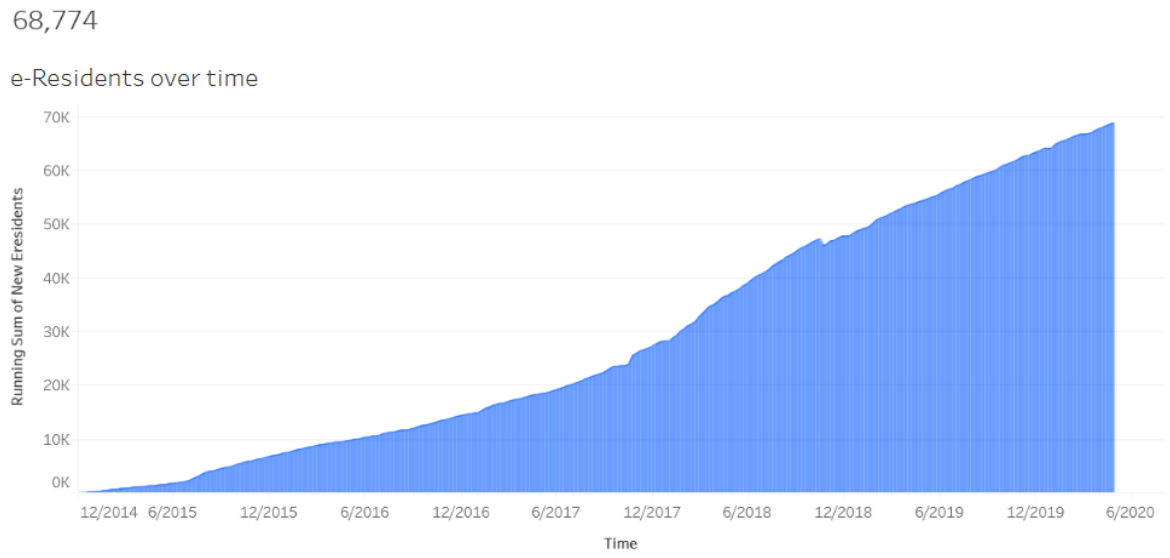
Beyond the initial target participants as identified earlier, part of the global vision of the scheme is to reach individuals from the South where entrepreneurs are confronted with issues relating to inadequate or nonexistent digital infrastructures, services and instruments, due to government's inability to provide (Kotka et al 2015). More so, the government-issued eID further unlocks the wider emerging EU digital market for non-EU virtual migrants, to gain broader global opportunities under the auspices of the eIDAS, (Godoy and Heal 2015; Tammpuu and Masso 2019). According to Kotka et al (2016), the benefits of the virtual scheme for developing countries are enormous as the next section presents. Moreover, the initiative of attracting entrepreneurs from the weak eGovernment developed regions, to become active participants in the digital economy, emerged by virtue of the program's founding partnership role in the UNCTAD "eTrade For All" (eEstonia 2017) to demonstrate the possibilities that access to the internet can offer entrepreneurs, including start-ups and established businesses, to nation-wide projects. During the launch of the eTrade For All platform in Geneva, Kaspar Korju, acknowledging the scale at which eResidency was empowering people stated:

> *"Small businesses shouldn't need to wait to integrate themselves into global trade. Why not support these entrepreneurs while at the same time helping entire countries overcome infrastructure deficiencies? 'With an e-Residency platform already internationalized and in place, entire regions can immediately be empowered. Businesses, financial companies, governments and organisations in every part of the world can integrate themselves into this platform for the benefit of their own citizens and clients"* (eEstonia 2017).

eResidency participating regions

From its inception in 2014, the eResidency application and participation has grown exponentially. During its "beta" version, the cabinet aimed for 2,000 eResidents per annum which means 8 eResidents per working day. This figure was overshot by 128% within just three quarters, as at May 2016, there had been 10,353 applications, the introduction of the online application in May 2015 actually resulted in 15 applications per day (Kotka et al 2016). By the end of 2016, the number of eResidents had risen to 14,748 and fast forward to 2018, the project had recorded 50,000 eResidents from 157 countries establishing approximately 6,000 companies (Korjus 2018b). In addition, the eResidency 2.0 was launched in December, 2018

with additional features to cater for participants' ease of use of the platform (Korjus 2018b). Currently (June 2020), more than 10,000 eResident companies have been created with approximately 66,000 eResidents from all over the world (eEstonia 2020).



Source: (eResidency.gov.ee 2020)

Figure 3.1 eResidency participating regions

However, as identified in previous eGovernment study, most of the participants responsible for this increase originate from the vicinage of Estonia, evidently depicting the ease of reach based on geographical proximity (Tammpuu and Masso 2019). Moreover, from the existing pick up locations, Europe equally has more centers. Specifically, 27 out of 43 pick-up stations are assigned in Europe, whereas, the remaining16 pick-up points are spread across North America, South America, Asia, Australia, Africa and Antarctica combined (Patra 2019). As stated earlier some regions will find this highly challenging to reach the eID (Patra 2019). Structurally, African region is likely to be excluded. This claim can be justified by the findings from existing study that reveals the participating percentage of Africa as 3% compared to Europe with 65%. (Tammpuu and Masso 2019). Recently though, some non-embassy pick-up centers have been created but none of these is in Africa (Patra 2019).

3.4 eResidency and Traditional Migration

Estonia being a member state of the EU, shares similar values and respect for human rights and applies common EU immigration policy (Estonia Ministry of Interior 2020). However, Estonia's choice of immigrants comprises those who could provide value to the Estonian economy. The prevailing policy and immigration quota is to admit not more than 0,1% of the total Estonian permanent population (Estonia Ministry of Interior 2020). According to the International Organization for Migration (IOM), Estonia is restrictive towards unskilled migrants, while it opens its borders to highly skilled professionals (Estonia IOM 2015). Nationally and internationally, eResidency is considered a success as it grants hassle-free cross-border remote opportunities that save virtual migrants the stress of the strict border policy (Tammpuu & Masso 2018). Nevertheless, the eResidency's universal global accessibility and applicability has been questioned based on the disparity in socio-geographic adoption (Tammpuu and Masso 2019). Indeed, previous study identifies changes around the program's selection processes, that replicate similar strict selective measures of the traditional migration processes including strict background checks and biometric information collection for both virtual and physical migration (Masso et al 2019). While the program started out being non-restrictive to all regardless of location, and country of citizenship, with no predefined condition for exclusion apart from issues relating to crime, currently it is perceived as being more STEM attractive (Masso et al 2019). Meanwhile, as stated earlier, the amendment of the general migration policy that currently embraces labor migrants (Estonia Ministry of Interior 2020) equally reflects the STEM migrants that the eResidency digital-selection process seems to favor (Masso et al 2019). That being said, the digital program can equally be described as effectively communicative. For example, during the COVID19 period, eResidents were kept abreast of the situation in the state, and despite the lock-down, as it is the norm of Estonians they worked digitally and location-independently (Brown 2020). In addition government's compensation for small businesses in the state was extended to eResidents such as those into tourism, that were directly impacted by the pandemic (Brown 2020). Moreover, seeing the example of the UK, with increased applications after the referendum, Kimmo et al. (2018) in their previous study about nation branding suggest that for Estonia to build a true nation without digital borders, it is necessary for eResidency to adopt context-driven marketing strategy that deliberately addresses the uncertainties of eResidents from regions with economic and political instability. However, according to, Masso et al (2019) the online application process, the reach of the eID through the embassies globally, and prevailing target marketing mechanisms beyond the EU, are steps that currently promote the digital scheme.

4 Estonian eResidency and Africa

4.1 Historical Background and Demographic Setting

The geographical setting of this study is Africa. The continent is broadly divided into the North and Sub-Sahara, The continent is made up of 55 countries (AU-REC 2020). The Sub-Sahara is composed of 1) East African region; 2) Central African region; 3) South African region and 4) West African region. It is across these five regions that empirical data was gathered. As this study focuses on eEntrepreneurs as digital nomads, figure 4.1 visualizes the economic communities of each of the five regions (REC) which together form the building block of the African Economic Community (AEC) (AU-REC 2020). While the continent is characterized by a very high linguistic diversity of about 3000, the African Union official working languages are: 1) Arabic; 2) English; 3) French; 4) Portuguese 5); Spanish; 6) Kiswahili and any other African language. Africa's political seat is in Addis-Ababa- Ethiopia (African Union 2020).

Source: African Union website (2020)

Figure 4.1 Map of Africa with RECs

According to the United Nations population report, Africa has the fastest growing human resource -1.3 billion (NA-246,498 and SSA-1,106,968), at a current global growth rate of 17 per cent with a projected growth rate of 26 per cent in 2050 and 39 per cent in 2100Currently the median age of Africa is 19.5 (UN-Population 2020) which is approximately 70 per cent of the population (UNDESA 2015).

4.2 Imminent sources of Digital Divides and Inequalities

Additionally, the region is confronted with mobility restriction which previous study shows is equally linked to political, as well as economic and administrative factors (Deutschmann et al. 2019). As this study focuses on digital inequalities in Global South from the perspectives of actual and potential eResidents from NA and SSA about virtual migration, the issues associated with physical mobility and how they impact the digital realm – eEntrepreneurship is important. Internal movement within Africa has not really been unrestricted for its citizens (AU Agenda-2063 2020). According to Deutschmann et al. (2019) between 1967 and 2018 about seven different free movement treaties have been adopted, while some regional ones succeeded, others have not with the most recent being the 2018 Free Movement Protocol (FMP) and the African passport, as flagship projects of the agenda 2063 to allow for the unrestricted mobility between countries of the African Union (AU Agenda-2063 2020). As previous study in eGovernment point out, restricted mobility within the region creates a barrier towards adopting the eResidency as participants cannot reach the eID (Patra 2019). While the eID can however be accessed outside the continent, the study by Deutschmann et al. (2019) reveals that NA has higher access to extracontinental mobility compared to SSA. This might be contributing to the regions higher uptake of the eResidency compared to SSA, thus, a potential source of inequlities. In addition, there are technological and legal implications to the digital inequalities as discussed below.

Technological and Legal Implications

While regional and intercontinental restrictions on mobilities potentially disrupts the *raison d'être*, of the nomadic professionals in the African context, technological challenges yet launch more serious concerns at the foundational stage. According to the recently published AU digital transformation strategy in May (2020), 200 million Africans are without internet access (AU-Digital Strategy 2020), confirming the report by the UNESCO (2020) that approximately half of SSA does not have the means of getting connected because telecoms services are not available in the places they live. Moreover, the World Bank equally reported that fibre backbone is an unfinished project in Africa, while NA has abundance of cable connection, internet in rural area is not available and FTTH is more advanced in NA but has a long way to go for SSA (including schools and offices) (World Bank DE4A 2019b). The SSA however, appears to lead in mobile (money) technology, which Robinson et al.

(2020) equally identify as a way of leapfrogging for SSA where the widespread of regular technological devices are limited. Nevertheless, NA (Egypt and Djibouti) has stronger international connectivity links (World Bank DE4A 2019b). In addition to the weak infrastructural facilities, government regulations increasingly disrupt online businesses while democratic laws for data protection are either missing or unenforced. According to reports by CIPESA and Deloitte (CIPESA 2019a; 2019b; Deloitte 2016), institutional interferance violates digital rights of individuals and businesses in the cyber space including arrests, intimidation, blockage of sites and a myriad of laws and regulations that are unfavourable not only to users but also to the socio-economic and political development of the continent in terms of what technology can offer. Meanwhile, at least 23 African countries have established data protection frameworks, albeit, both law and practice are deficient in compliance with international best practices as government and private sector continuously collect personal data including biometric data for different purposes, including SIM card registration which is mandatory in most African countries where telecom companies request for extensive sensitive personal data. (CIPESA 2019). These conditions could hamper virtual migration.

4.3 Opportunities for Africa

While there is an uptrend of different digital identification systems the Estonian eResidency project is outstanding based on its capacity to include citizens of other nationality with a government-backed digital identity card that enables them to remotely access public services similar to physical residents in the country or citizens in diaspora (Mobile-ID — e-Estonia 2020). In addition it potentially unlocks the EU single digital market to eResidents (Tammpuu and Masso 2019). Beyond the capacity of facilitating inclusion and enablement in the digital economy, it's pioneering partnership role in the UNCTAD "eTrade For All" further targets the Global South (eEstonia 2017), such that the aforementioned challenges associated with Africa that hamper ease with virtual business can be contained as it is accessible from anywhere and officially non-selective, except on criminal grounds (Godoy and Heal 2015; Tammpuu and Masso 2019).

However, people join the eResidency for different reasons as visualized on the program platform. The largest percentage of participants (31.88%) join the program for business-related objectives; the possibility of administrating "location independent international business ", while about 21.15% signed up for "bringing business to Estonia ". Additionally, there are

eResidents whose aim for belonging to the scheme is not business-related issues, rather "fans of eResidency", the combined percentage of these categories is 46.11% (eResidency.gov.ee 2020). Kotka et al (2016) categorize eResidents broadly as 1) friends of Estonia, 2) fans of Estonia and 3) virtual entrepreneurs. Meanwhile, the eResidency also yields benefits for three types of non-governmental stakeholders: 1) eResidents; 2) the private sector in Estonia and 3) the Estonian society as a whole (Kotka et al. 2016). While the eResidents benefit from Estonia's secure and trusted government provided digital ID, the companies created by eResidents engage private firms, and equally yield economic benefits such as tax returns (Korjus 2018b). Furthermore, the scheme outlines several benefits that could be gained by participants from developing regions such as Africa.

In the context of this study for virtual entrepreneurs, especially those eEntrepreneurs from Africa as a developing region that face huge challenges in today's disruptive global business environment, and whose home country limitations discussed earlier hold back from growing eBusinesses, according to Kotka et al (2016) the eResidency could be the solution to enable them establish and manage digital businesses that connect them to clients from various parts of the globe, while their services and products are sold via eCommerce channels.

To begin with, ownership and control of established company remains fully in the hands of the founder, without the need to engage a local director. Also, they can surmount the issue of trust that result from the experience of political or economic instability in their home countries which makes it difficult for them to gain trust in western business climate, because as Estonia is covered by the EU legal framework, it provides a basis for eResidents from developing regions to build the same level of trust as residents elsewhere in the Western world (Kotka et al 2016).

Additionally, it can provide solution, to home country complex bureaucracy, and unpredictable political climates that destabilizes location-based businesses (Kotka et al 2016). Furthermore, internet access in these regions is much low; even in countries where the internet access may be comparatively high, digital services such as online payment providers may not be accessible, thus the eResidency can facilitate the whole process as captured below:

> *"The solutions to these problems is simple: as Estonian e-residents, these business owners can establish and manage a trusted EU company online; open an Estonian bank account and transfer money online; gain access to trustworthy Estonian payment provider services; and*

> *sign contracts, tax declarations, and administrative filings online. While these functions provide particular advantages to e-residents in the developing world, they also allow all e-residents the chance to run location-independent international businesses -the ultimate freedom of mobility while at the same time keeping the administrative costs to a minimum"* (Kotka et al 2016).

Moreover, being Estonian eResident means being a part of the most digitally advanced nation that is also a member of the EU, NATO and the OECD, trading in euros to mitigate the risk of currency fluctuations, and minimal corruption in a transparent business environment (Global Govt Forum 2019). Being Estonian eResident unlocks access to highly streamlined virtual system for administrating business globally and securely (Global Govt Forum 2019). Moreover, the country's semi-automated tax system for instance which uses APIs connects tax authority, company records office and registered companies' bank to generate tax returns in minutes, while reducing the need for financial administration (Global Govt Forum 2019). Moreover the system eliminates double taxation, which means if income tax is paid in a country for a business resident in that country or as a result of a transaction carried out in another country, income tax will no longer be assessed in Estonia for that business (Estonian tax and customs board 2020). Also, as a rule Estonia extracts a flat rate of 20% income tax but only on distributed profit, not on profits reinvested in which case tax-exemption applies. (Estonian tax and customs board 2020). Additionally, as non-residents the only tax applicable to eResidents is the income tax. Nevertheless, tax returns must be submitted on the 10th day of the following month, stating payment or reason for withheld tax (Estonian tax and customs board 2020). Tax transparency is particularly important for African eResidents as they seem to have a different tax culture (Olaniyi and Akinola 2020).

Nonetheless, the antecedents to the overall uptake of the eResidency or individuals' intention to apply for the digital identity issued by the scheme, seem to be affected by the eGovernment and economic development of a country (Tammpuu and Masso 2019). According to Tammpuu and Masso (2019), a greater percentage of participants of the virtual scheme belong to countries with very high or high level of eGovernment development, based on the UN EGDI, compared to those from the developing regions with limitations in digital infrastructures as stated above. This is despite the fact that applicants from countries with weak eGovernment development seek to join the project as a way of counteracting their home countries' technological deficiencies (Tammpuu and Masso 2019). The authors further stated that the status quo has not

changed over the years, meaning, those who are already equipped by primary home government seem to be the same group of beneficiaries of the Estonian sophisticated digital infrastructures, while those who have usage-related need of the system seem not to be currently empowered (Tammpuu and Masso 2019).

Therefore by the share of the geographical distribution of the participating regions of the digital program, Tammpuu and Masso (2019) assert that the eResidency is “highly uneven” (pp 10) despite its global accessibility and world-wide coverage. The findings of the authors reveal that 12 countries alone produced almost two-thirds (60%) of participants, between December 2014 to December 2017. Mainly from Finland and Russia, then followed by Ukraine, United States, United Kingdom, Germany, Italy, India, and France. Moreover, across regions, the study identified inequalities where European participants made up 65 percent while Africa had only 3 percent (Tammpuu and Masso 2019).

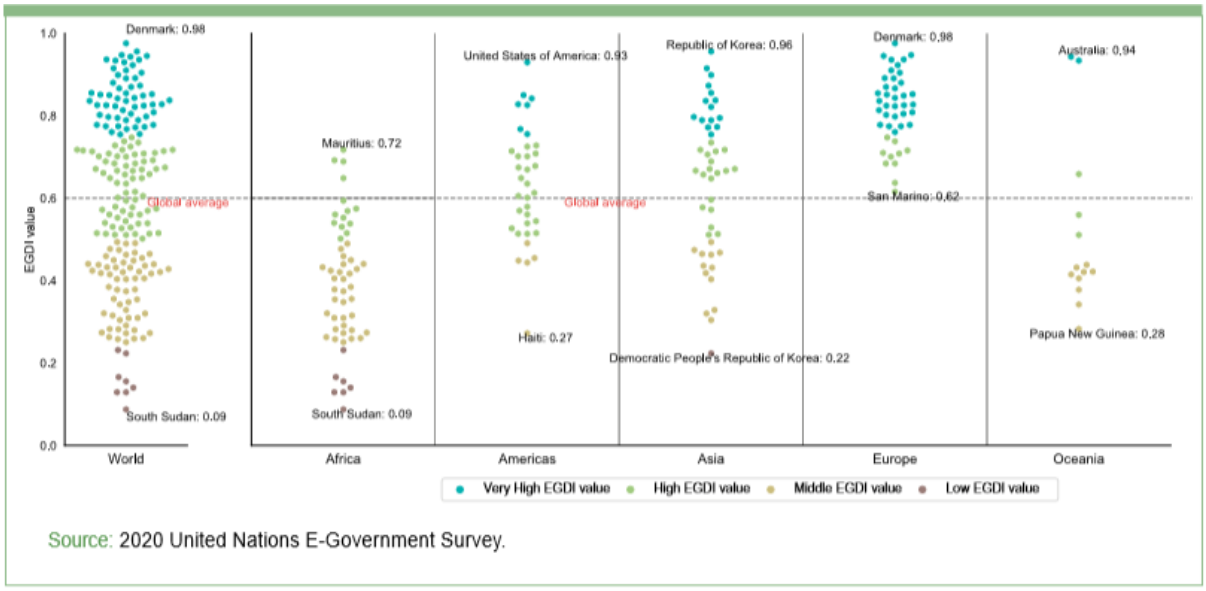
Source: (eResidency.gov.ee 2020)

Figure 4.2 Number of eResidents

Beyond the potentials of digitally replicating real-life historic ties, the situation which prevails to date (eResidency.gov.ee 2020) is capable of undermining the goal of the program‘s partnership with UNCTAD towards supporting digitally weak regions like Africa to surmount those inhibitions and participate in the virtual economy (eEstonia 2017). Moreover, the

inclusion and equipping of the region in the socio-economic opportunities of the digital world could face more fierce challenges where the relevant basic infrastructures are missing at home country level thus, undermining the scheme's outcome for such target category (Tammpuu and Masso 2019), while extending the gulf of inequalities.

As stated earlier based on the findings of Tammpuu and Masso (2019) where high EGDI level countries tend to participate more in the eResidency, based on the 2020 EGDI regional average, which is a measurement in relation to the Online Service Index (OSI) and Human Capital Index (HCI) of the participating countries, and which determine the eGovernment development as shown in figure 4.4, while the regions belonging to Europe and America have higher EGDI values, a major part of Africa seems to be disadvantaged due to low EGDI (UNDESA 2020b)



Source: (UNDESA 2020)

Figure 4.3 Global regional EGDI

The regional EGDI averages is based on the global average which indicates an upward trend for all regions in 2020. Europe leads with an average of 0.8170, where all countries rise above the global average, with 8 belonging to very high EGDI. Interestingly for the first time Asia occupies the second position with an average of 0.6373 ahead of America having a regional average of 0.6341(UNDESA 2020b). The shift in position can be attributed to improvement among some countries in Asia, with Korea, Singapore and Japan belonging to very high EGDI (UNDESA 2020b).

While the 2020 UNDESA report affirmed a global improvement, the efforts made by Oceania and Africa, could not move them up to the line - Oceania (0.5269) and Africa (0.3914). Oceania missed the mark by 0.0731 while Africa, still falls conspicuously below the world's EGDI average. Meanwhile, for Oceania, Australia and New Zealand still maintained their top EGDI value, however, the rest 12 countries fall below the world average. Conversely, none of the countries in the African region rose to the very high EGDI group, a larger part of the region (61 per cent) is in the middle EGDI group; nonetheless, the region's high EGDI category has almost doubled since 2018, (8 to 14), increasing to 26 per cent of the region. Moreover, Mauritius, Seychelles, South Africa and Tunisia have EGDI values above the global line (0.6526 to 0.7196) and are spearheading eGovernment development in the region. For countries in the low EGDI group, the region experienced improvement between 2018 and 2020, as the figure dropped from 13 to 7; therefore, currently Central African Republic, Chad, Eritrea, Guinea-Bissau, Niger, Somalia and South Sudan are the low-income economies, countries in conflict, and fragile States.

Concerning eResidency application countries, the region as visualized in figure 4.5 (eResidency.gov.ee 2020), shows that only Sudan among the 7 African countries with very low EGDI and low-income economies appears under eResidency application countries. As stated earlier, from previous study, a clear definition of the strategy of the program, will guide the eServices the project provides in the context of its target participants (Masso et al 2019), the lack of eGovernment development and low-income within the African region (Gibles & Meltz 2017) appears to influence the accessibility to the eResidency program. Even though the prime minister Jüri Ratas, has pointed out the need for a more convenient online user environment for eResidents, but this is to improve user experience for current participants, owing to their huge contributions to the Estonian economy (Ministry of Economic Affairs and Communications 2019). Currently most eResidency applications originate from HICs (Tammpuu and Masso 2019).

Source: (Patra 2019)

Figure 4.4 eResidency African countries

Background checks and data

When eResidency application is submitted the PBGB conducts a background check to verify that the applicant corresponds to the documents submitted (Republic of Estonia 2018)

> *"Background check: All applicants receive background checks by the Estonian Police and Border "Guard Board, the organization that manages the entire application process, to ensure digital identities are used by verified people with honest intentions"*(eResidency.gov.ee 2020)

While the checks are conducted with the applicant's consent, as spelt out on the eResidency site, seeing the technological and legal challenges in the African context, this approach might exclude prospective eResidents from the region and amplify the inequalities. The checks while aimed at preventing technological and economic risks (Global Govt Forum 2019), Gelb and Metz (2017) stated the need for alternative approaches for such participants who might not meet the criteria for standard processes. The eResidency however, reassures virtual migrants of the schemes transparency without introducing new risks (Global Govt Forum 2019).

5 Research Design

5.1 Problem Setting and Research Questions

Human mobility is not a new phenomenon to mankind, it has been part of human history from the beginning. People move within and across national borders; triggered by either push or pull factors generated by different geo-political and socio-economic forces (IOM -Migration Report 2020). While this phenomenon has been part of the societal constructs, what is new however, is the emerging field of digital migration, which applies to digitally-mediated migrants, such as the increasing mobile population forced to emigrate their homes to seek refuge in more developed and stable environments of the world (UN-IOM 2020). On the other hand, the world is currently experiencing the proliferation of digital identification systems (Gelb and Metz 2017), with growth in the population of digital nomads (Masso et al. 2019) whose mobility is within the cyber space, as it is the case of the Estonian eResidency (eResidency.gov.ee 2020).

Digital nomads are a peculiar social group of highly digitally qualified professionals with SMET qualification or in related profession (Robinson et al. 2020) who yearn to disrupt the status quo in the conventional mobility standards (Masso et al. 2019). They want to be autonomous, by leveraging computer-based tools to work conveniently in the cyberspace as well as having the liberty to move freely, thus achieving a balance between work and leisure (Reichenberger 2017). Moreover, their reach to digital infrastructures relevant for driving the itinerant living (Graham et al. 2015) facilitates their objective. More so as previous study shows that they are mainly European-based (Tammpuu & Masso 2019) where freedom of movement is institutionally recognized (Brown 2015).

Previous study by Leurs & Smets, (2018) demonstrates that migration has metamorphosed into a complex societal phenomenon. In the case of the forced migrants, increasingly, digital tools are leveraged by government for top-down control processes, against unauthorized migrants; similarly, by migrants through bottom-up strategy, to navigate across borders. On the contrary, Masso et al. (2019) point out the desire of highly skilled individuals -SMET who prefer to conduct their activities transnationally, but as digital nomads. Masso et al (2019) assert that the digital nomad paradox, wherein individuals seek to move physically and virtually across borders through digital means, while government strives to close its borders against such mobility in order to maintain security, could be resolved by the Estonian eResidency program.

However, as this study focuses on virtual migrants from the Global South where such virtual migrants might not be digitally at par with their counterparts from the West, it is necessary to take into account the implications of digital tools in the contemporary datafied world where even the eResidency is shifting from its initial modus operandi to more strict measures of controlling participants‘ activities; as well as perform strict background checks for the selection process of applicants and decision making, including automatized biometrics (Masso et al. 2019). On the one hand creating more visibility for those well represented online but on the other hand being capable of eliminating the underrepresented from life’s chances (Robinson et al. 2020).

The eResidency program was originally launched by the Estonia government to facilitate business processes for foreigners doing business in Estonia, however, soon after its launch, the program has also become a founding partner of the UNCTAD – “eTrade For All” agenda, which specifically focuses on getting more entrepreneurs from the developing regions of the world on board eCommerce, such as those found in Africa (eEstonia 2017). According to Kotka (2016), the eResidency program can offer a whole wide range of benefits mainly to developing countries in doing business online and particularly in the wider EU market through the use of the well-established Estonian digital infrastructures; including having a competitive edge, overcoming digital inhibitions and escaping the complex conditions inherent to those countries (Kotka 2016).

The eResidency program creates equal opportunity for all and is accessible on a planetary scale, however, based on previous study in eGovernance, there tends to be dominance in participation by entrepreneurs from developed regions as compared to those from the developing regions (Tammpuu and Masso 2019). In addition, the analysis by Patra (2019) reveals a gap that Africa’s participation in the eResidency is the least, therefore further investigation should be conducted across aspiring and current entrepreneurs from the region for clear understanding of their challenges leading to this inequality and promote inclusion of this region.

This study therefore aims to add to existing literature by focusing on investigating Digital inequalities in the Global South based on the perspectives of actual and potential virtual migrants from both NA (which appears to participate more (eResidency.gov.ee 2020)) and the SSA (which participates less despite being the hub of most IT/tech start-ups in Africa (Forbes 2020)), with the example of the Estonian eResidency. Participants were identified and selected

based on the assumption that they are digitally skilled and have experience in eBusiness. What this means is selecting eEntrepreneurs from the IT sector in those regions so that they can provide the relevant data for the study.

Therefore, in line with the aim, the following objectives have been set for this study:

1. To investigate "how the Estonian eResidency program equips actual eResidents from North Africa and Sub-Sahara Africa to participate in virtual migration"
2. To ascertain "how the Estonian eResidency program attracts potential eResidents from North Africa and Sub-Sahara Africa to adopt and actively participate in virtual migration"
3. To examine "how virtual migrants (actual and potential eResidents) from both North Africa and Sub-Sahara Africa perceive the datafication practices of the eResidency"

Based on the objectives, the research questions framed to guide the study are listed below:

Research question 1

"How does the Estonian eResidency program equip actual eResidents from North Africa and Sub-Saharan Africa to participate in virtual migration? "

This question is meant to gain insight into the user experience of the eResidency. How the information, tools and services, and activities equip eEntrepreneurs from Africa

Research Question 2

"How does the Estonian eResidency program attract potential eResidents from North Africa and Sub-Saharan Africa to adopt and actively participate in virtual migration? "

This question is meant to gain insight into the understanding of potential eResidents about the scheme, in relation to its capabilities and how likely that they may adopt it based on perceived usefulness

Research Question 3

"How do virtual migrants (potential and actual) from both North Africa and Sub-Sahara Africa perceive the datafication practices of the eResidency? "

This question is meant to elicit the perception of both categories from NA and SSA about institutions' access to and use of their data traces

5.2 Method -Qualitative In-depth Interview

This study adopted a qualitative in-depth interview approach. In order to investigate virtual migration in its complexity, to provide a comprehensive, holistic and in-depth understanding of how it is perceived in the context of the Estonian eResidency by actual and potential eResidents from Africa (both men and women) (Anderson 2010). In-depth interview technique with semi-structured interview questions were used to elicit details of the experiences, expectations and opinion from participants about the eResidency (Boyce & Neale 2006). The semi-structured questions allowed for the preparation of questions with the main topics as interview guide or schedule. This approach made it possible for flexibility between the interviewer and the interviewee, such that a spontaneous response led to unanticipated questions for further probing, because the interviewer‘s interest was in the content and context of the interviewee - the perspective of the interviewee, and the questions were reordered when necessary to accommodate real-time changes (Edwards & Holland 2013).

The focus of the interview was to explore the perspectives of existing and potential eResidents from Africa -NA and SSA about their understanding of the eResidency program, the process of its uptake, the program platform in relation to their accesses to and use of digital technologies and skills, the benefits and probably challenges that confront them. Furthermore, to investigate their awareness and opinions about datafication practices in the cyberspace by institutions, and to understand from them about existing regulations in their regions concerning such practices. Also, to gain insight to their opinion about Africa‘s participation in the eResidency program, how to improve it holistically. Moreover, to elicit their knowledge about the relationship between physical mobility and digital mobility, control measures and their impacts. Finally, to understand their ideas about the future of the eResidency and Africa’s eEntrepreneurship. Mainly from subjective perspectives of participants.

The semi-structured interview was conducted with the two contrasting cases and the findings were compared to illuminate insight about the reason for the low participation of the region’s entrepreneurs in the virtual migration program (Patton 2015). The interview schedule was divided into 4 main topics: 1) digital divide and digital inequality; 2) datafication and data inequality; 3) Global South and data colonialism and 4) data justice. These topics were used to encapsulate the entire virtual migration processes surrounding the eResidency program with a focus on African entrepreneurs; and were divided accordingly across the three research questions formulated above. With the 4 major topics, the interview schedule was constructed

as open-ended questions, having the main questions (marked in normal font in the schedule) and supportive questions (marked with italic font). The main questions begin each topic; followed afterwards by supportive questions; should the need for additional questions arise to cover all aspects of a specific field. The interview questions were developed partially relying on the previous qualitative studies conducted in this field (Badmaeva 2019; Ibrahimi 2019; Patra 2019).

In addition, to the above plan, each section of the interview questions was started with a descriptive question (for example beginning with "How would you describe..".) in order to get the interviewees to understand the subject before posing the analytical questions (such as "how do you consider ..."). Then questions for comparison followed afterwards, in order make them give reasons and explanations for their answers and to gain better insight of the participant's subjective perspective.

The interviews were conducted online to cater for transcendence of time and space between interviewer and target participants. While it could be argued that it may reduce the impact of face-to-face social cues, this approach however was useful in surmounting certain constraints associated with face-to-face contact for example the interview was conducted during the COVID19 pandemic when social distancing was enforced (Edwards & Holland 2013).

Current eResidents were contacted through the eResidency platform even though they spread across different geographical locations of the same region. While other participants were reached through snow bowling via actual eResidents, the wider social media platforms, and other personal contacts. Additionally, in order to achieve rigor, which is essential in qualitative research (Anderson 2010), all interviews were conducted via video call, while recording (with the consent of participants) interviews for subsequent transcription into texts. Transcription was done both manually and by computer aided technique to ensure reliability, have all text safe in one place and increase transparency (Edwards & Holland 2013).

While it was assumed that the interviewees are *"*tech-savvy" being identified and selected from the IT sector as eEntrepreneurs, it was still helpful to introduce certain projective techniques during the interviews in order to support the understanding and experience of participants with abstract subjects. This way unanticipated limitations in knowledge were eradicated or highly reduced while participants were also more expressive in thoughts and feelings which could

otherwise have been difficult to access. Most importantly visual aids created a fun and engaging atmosphere for respondents as they got deeper into analysis and interpretation of their experiences or thoughts. The technique was cautiously applied to avoid manipulation, as a vulnerability associated with it (Catterall and Ibbotson 2000).

5.3 Purposeful Sampling – Contrasting Cases Sampling Technique

In line with the research problem defined and the research questions guiding the study, the preferences in choice of participants for the interview were purposeful. Including male and female participants as actual and potential eResidents from NA and SSA to examine their viewpoints about virtual migration through the lens of the Estonian eResidency program being the case study. The reasons for choosing to interview participants from these two regions as stated earlier include first, the gap identified in previous studies about Africa's low participation in the eResidency (Patra 2019) being 3% (Tammpuu and Masso 2019) of global participation despite the universal accessibility of the eResidency. Second, of the 3% participants in Africa more than half of them are from NA whereas most of Africa's IT/Tech start-ups are created and run in the SSA (Forbes 2020). Therefore, identifying and selecting samples from the two regions was considered appropriate for the in-depth inquiry.

Purposeful Sampling was applied as it is concerned with selecting information-rich cases for in-depth study (Patton 2015). "Information-rich cases are those from whom we can learn a great deal about issues of central importance to the purpose of the research, thus the term purposeful sampling" (Patton 2015 pp 172). In this context the identification and selection of participants as data sources was based on their being in the IT/Tech sector; in both SSA (where the sector has a growth rate of 50% per annum) and the NA (where majority of the participants reside) so that the issue of low representation of Africa in the eResidency program which is the central issue of importance driving the research could possibly be comprehensively explored through them. The selection also included current and prospective virtual migrants in order to have information-rich cases that might provide a greater deal of understanding about Africa's low participation, in the transnational project. It is important to point out that it was not necessarily about being representative of the population of Africa, rather the relevant informants on the issue at hand. This would, inherent to qualitative research, produce rigor while purposefully addressing the research objectives (Yin 2014).

For the above reason, the contrasting case strategy was adopted to explore the perspectives (experiences, understanding and challenges) of the four groups (actual (those who use the eResidency services from NA and SSA) and potential (those do not use the eResidency services from NA and SSA) eResidents) of participants. About the potential eResidents, it is necessary to clarify that some of them were not aware of the Estonian eResidency program, however, based on the core elements of belonging to the IT/Tech sector and eEntrepreneurship that cut across the four groups, there were relatively homogenous grounds for such comparison. The contrasting sampling strategy, helped with gaining in-depth insight to each informant's perspective (such as experience, expectation and opinion) while maintaining the core elements consistent to the cases (Patton 2015).

In addition to the premise of their knowledgeability about the phenomenon investigated, their availability and willingness to provide information as well as ability to communicate were taken into account (Palinkas et al. 2015). In this context, half of the participants are related to the eResidency program, thus it was possible to reach part of them directly through the project platforms and social network groups, while as earlier stated, the others were contacted through snowballing (through the members), and personal contact. Also, participants' experience in digital business, facilitated engaging them virtually despite the challenges of time and distance, they were equally able to communicate efficiently on the subject under investigation since it is directly related to them and their regions.

This sampling strategy, as with qualitative approach does not seek to generalize its findings, based on the carefully selected small sample across the wider program. It is rather concerned about identifying the significant recurrent patterns (being in the IT/Tech sector) that cut across the two varying cases (actual and potential eResidents) and from the two varying regions as well in the heterogeneity of each case whose outcomes can be compared during analysis for the possibility of providing information that might shed light on the factors responsible for the poor participation of African entrepreneurs in the eResidency program (Patton 2015; WHO 2004).

Demographic Characteristics

Therefore, besides the core dimensions uniform to the four groups, the key distinguishing variable is the eResidency status, while internal heterogenous factors exist within each case, as

displayed in the table below, for this study however, focus was mainly on 1) educational background and 2) sex. The purpose is mainly to validate the criteria about the participants and ensure a balance representation of gender. A total of 12 participants were interviewed across NA and SSA regions, with each region having equal number of 6 participants regrettably at the ratio of 5 males to 1female. 58% of the participants have education in computer-technology whereas 42% studied other courses before acquiring relevant skills to become tech-entrepreneurs.

Table 5.1 Sample strategy of information-rich contrasting cases

Category	**SSA**		**NA**		**SSA/NA**
Status	Actual	Potential	Actual	Potential	
Gender -F/M	1/2	0/3	0/3	1/2	12
Age <30	0	0	0	2	12
31-40	3	2	2	1	
41-50	0	1	1	0	
Countries	Senegal Kenya Côte d'Ivoire	Ghana Nigeria Cameroun	Egypt Algeria	Tunisia Sudan	10
Pseudo for participants-potentials/actual	01,04 & 05	02,08 &11	06, 07 & 10	03, 09 &12	12
Computer technology background	3	1	2	2	12
Other background	0	2	1	1	
First degree	2	0	2	1	12
Master+	1	3	1	2	

However, the common attributes established the fundamental criteria, and were given preeminence over other features for the identification and selection of information-rich cases. The sample strategy is partially relying on the previous qualitative studies carried out in this field (Badmaeva 2019; Ibrahimi 2019; Patra 2019).

5.4 Data Analysis

Thematic analysis method was adopted to analyze the data. In order to derive meaning out of the text transcripts from the recorded interviews, first the transcripts were grouped according to the cases (four cases of 12 participants), after which each account of the interviewees was

carefully studied to make sense of all respondents‘ accounts. Then the accounts of each interviewee were compared across the questions. This was replicated for all four group, with the goal of identifying those aspects of the data that reflect interviewees‘ experiences, expectations and opinion that are relevant to the issue under investigation, significant recurrent patterns were identified and coded. After which, each respondent‘s account was compared across every participants’ account, in order to identify similarities and differences across cases. This comparison resulted in identifying categories across all data. Significant statements were reconnected to interview for cross-checking and identifying themes and subsequent themes development, while paying attention to internal homogeneity – the extent to which data under a particular category hold together meaningfully, as well as external heterogeneity – showing clear differences across categories when compared between the topics (Braun & Clarke 2006; Patton 2002). Mainly the within-case and across-case (Ayres et al. 2003) analytical approach was used. In addition, for the analysis both manifest meanings – what has been expressly said by the interviewee such as “I love Africa” and latent meanings - interpreting additional contextual meanings from how the interviewee reacted like non-verbal gestures such as widening eyes about certain aspects were taken into consideration and noted following the professional manner of presentation (Vaismoradi et al. 2016). The same steps were applied for each group (case) and the outcome of the analysis are reported in the next section. Interview transcripts could be made available on request.

The described analysis methods was combined with computer-aided qualitative analysis techniques, with the help of MAXQDA software (Woolf and Silver 2017). This software typically facilitated the analysis of the transcribed qualitative interview text, it greatly enabled the management of all the interview data at a single place, coding of the textual data and also retrieval of the coded texts. Although it is criticized for the independence it assigns to qualitative data from its context by storing data in electronic format but performing analysis with MAXQDA made the process a lot faster, less complex and more transparent.

6 Findings

This section presents the findings based on the analysis conducted around the empirical data gathered from participants in the one-on-one in-depth interview. Five major themes and sub-themes emerged through the interpretive process of coding and categorizing, they encapsulate experiences and expectations shared by interviewees. Which are compared first, regionally across cases, then broadly between regions. Therefore, there are three subsections of comparison, of the analysis tying outcomes back to literature findings to provide answers to the research questions. The three research questions guiding this study are: 1) how does the Estonian eResidency program equip actual eResidents from both NA and SSA to participate in virtual migration? 2) how does the Estonian eResidency program attract potential eResidents from NA and SSA for the uptake and active participation in virtual migration? And 3) how do virtual migrants (potential and actual eResidents) from NA and SSA perceive the datafication practices of the eResidency? Therefore, the themes identified and compared include: 1) Conceptualization of eResidency in Africa; 2) platform tools and services; 3) Participant's data traces; 4) barriers towards adoption and 5) enablers towards inclusion.

6.1 Comparing Contrasting Cases from North Africa

Conceptualization of eResidency

This sub-section begins with comparing the analysis across North Africa. In relation to the eResidency's partnership with UNCTAD "eTrade for All" which seeks to include the Global South in the digital economy as a way of bridging the digital inequality, it was relevant to compare the meanings interviewees gave to the eResidency program, in order to gain insight about their understanding in line with the program's objective of helping such entrepreneurs to surmount home country infrastructural and administrative challenges, to participate in the virtual economy. Actual eResidents generally described the program as a global business model that enabled them to establish and manage location-independent business. However, interviewee 10 described it as a way to sign document online. Without having anything to do with being eCitizen or migration, he said he would not even term it as eMigration.

> *"… from my point of view, it's not even eMigration. It's just a way to sign document in another country… I don't have access to all as a resident benefit… my last visit to Estonia, me I used the public transportation, as a tourist, so, there is no special dealing"* (10).

In contrast, most potential eResidents only discovered the scheme during the interview. Interviewee 12 affirmed she was getting to know about the eResidency during the interview, despite her role in tech-hub leadership in Africa: *"I don't have too much information when you see names like that…maybe it's only Estonians who are concerned… questions about the feasibility, what are the consequences...*" (12)

The conceptualization of the eResidency differs across the two groups. What actual eResidents consider a global scheme was yet to be known by interviewee 12, from the same region, and the same industry. Moreover, both cases reveal lack of clear understanding of the notions. For interviewee 10, being eResident he expected to be treated specially when he visited Estonia, without which for him the scheme does not even qualify as eMigration. In contrast, interviewee 12 questioned the feasibility of including all countries, based on country-level legislation that might necessitate physical visit to Estonia to recover payments for digital activities. A point of convergence could not be established between the two, due to missing relevant knowledge about the virtual universal project. This outcome does not depict the "eTrade for All" objectives (eEstonia 2017) earlier mentioned in this paper. Moreover interviewee 12 had asked during the interview *"how do we know if we are not informed?"* This question relates to what was stated in literature that depending on their design these technological systems could perpetuate real-life bias by excluding the already marginalized (Gelb and Metz 2017; Robinson et al. 2020)

Platform Tools and Services

Beyond sharing their understandings about the program, participants' opinions about access to and ease of use of the platform tools and services, were compared, to shed more light on how actual eResidents are equipped to administrate their businesses remotely. Similarly, expected usefulness potential eResidents attributed to the platform, were also compared. This theme encapsulates all codes relating to interviewees' experiences and expectations about the platform tools and services.

Experience with Use

The Interviewees who have gone through the application process commended its ease, however, about the tools and services, while most of the participants expressed similar ease with access, a significant differentiating pattern was identified in what interviewee 06

expressed. He mentioned having difficulties when navigating the platform. He stated that it is neither user-friendly nor easy, moreover, he said there is no automated guide when searching for information. In addition, he mentioned getting output from the platform in Estonian language, which he had to translate to English with google. What he expressed was a feeling of dissatisfaction, resulting from missing ease of use.

> *"…like the interface it's not user friendly…if you want people to … use eResidency…create an easy interface like 123... the Wizards,…from one screen to another the taxes,…,"no I don't want this"… automatically …VAT, … notify me… like timeline …,"* (06).

Expectation about Usefulness

On the other hand, majority of the potential eResidents, highlighted home-level challenges that hinder them from participating in virtual migration. However, interviewee 09, having heard about the eResidency, expressed optimism about the platform's capability in providing solution to challenges specific to his country, such as facilitating international transactions, which Sudan is sanctioned against, based on international legal order. Moreover, he emphasized the need for around-the-clock real-time support considering both temporal and spatial variations

> *"So..., the eResidency platform …Estonian government needs to give us 100% support... If they can provide* ***24/7*** *that…means they truly make a service… everything virtual …, will be doing a lot of money transaction … a secure gateway, to transfer the money"* (09).

By implication actual eResidents would feel better equipped using a platform that is effortless, and adapted to their skills set, rather than struggle to navigate among several tools. Similarly, as emphasized by interviewee 09, perceived usefulness such as enabling international transactions and having twenty-four-hour real-time support, would be key attractions to adopting the program. In conclusion, the outcome of the compared experiences and expectations support what was earlier stated that the platform needs to be modified for easier access to services (Ministry of Economic Affairs and Communications 2019). Moreover, it perfectly ties with what was stated in literature that navigating the internet is complex and unnatural even though it is accessible to the user without the relevant skill (Robinson et al. 2020).

Digital Tools and Skills

Moreover, participants' access to, and use of the platform's offerings, are dependent on the access to and use of their own digital tools, which also facilitate their activities. Most interviewees identified the mobile phone and internet as the tools that support what they do, as it is equally common to majority of the connected in Africa. They pointed out benefits of collaboratively communicating with their teams in real time, which they acknowledge to be both time-saving and cost effective. Conversely though, they stated internet cost implication, as well as risks, such as infrastructural vulnerability and data theft as associated downsides. Beyond the tools and access, the issue of digital competency required was raised in relation to specially designed tools. Most of the participants stated that there was no need for special skills for them to use the mobile phone. However, interviewee 03 mentioned digital literacy with English language competency, as well as knowledge of the law as some of the skills required for the software, they develop that support firms to digitally manage their businesses.

> *"in the digital world…most companies are using CRM software... we can offer…other services... completely online... computer literacy … that's number one… access to internet connection, … basic understanding of the law, of English… those are the skills"* (03)

On the contrary, among the actual eResidents, interviewee 06 said he communicated and shared documents with his team using the mobile phone and the social media. However, with the eResidency, he initially encountered challenges with the special signing, therefore he suggested that the program should provide manual supportive processes for Africans:*"... remotely we can also use the Google doc ...editing like ... collaboratively, in the same time and we can share ... using the mobile..."* (06)

> *"the signing part, after a while ... I watched the demo but ... the system itself ...needs a lot of polishing ... it's not user friendly ...eResidency services ...for Africans in those countries...not everyone is able to deal electronically"* (06)

By comparing the analysis across the two groups about digital skills, the result leads to the conclusion that, specially designed tools require special skills, in contrast to basic mobile phone usage, as described by interviewees 03 and 06. This result is consistent with what Gelb and Metz (2017) asserted, that being a specially designed system, eResidency participants need to be highly digitally literate. However, interviewee 06 expressed the need for manual support because in the African context not all eResidents have the required digital skills as justified by the recent UNESCO (2020) report on digital literacy.

Participants‘ Data Traces

As human activities increasingly entangle with progressive and ubiquitous digital tools social datafication is amplified through social relations which algorithmic platforms’ extract in real-time, profile and categorize (Southerton 2020). Moreover, emerging technologies have the capacity to revolutionize individual identification and identity verification (Beduschi 2019). In the context of virtual migration where digital nomads as SMET professionals operate in the cyberspace as in the case of the eResidency, this theme cuts across their opinions about institutions‘ use of their data traces left behind on the eResidency platform. Actual eResidents generally established trust in both the Estonian government and the EU, even though some had reservations when they recalled the Snowden revelation saying with data it is difficult to trust institutions as the future is unclear. However, Interviewee 10 expressed fear about the extent to which the program makes his data visible, he stated that data could accidentally get into wrong hands such as his home government, and that could be harmful for him.

> *“...there is something I am afraid of, I am open to discuss my data…not to be tracked by state, … they are showing all information to a lot of people, … keep some data hidden, …why show to all of people… I am an Egyptian, I don’t mind…, the European government, but I am afraid, too afraid to be tracked from Egyptian government (he laughs)”* (10)

In a similar fashion, interviewee 12 demonstrated lack of trust in her discussions and expressed fear of misuse of data because according to her, Algeria had been through bitter experience recently, resulting from unfair use of citizens’ online data, therefore, she said the average Algerian does not share data:*“...Uh, we're afraid, there's fear too, we don't trust, I'm telling you, we don't trust, we're just afraid… we say ah the DRS is listening to us...(she smiles*)” (12).

To sum it up, about institutions’ use of participants’ data, the comparison revealed interviewees' fear of possible unfair use of data, in both cases, especially where home government gains access to such data accidentally or otherwise. This substantiates literature findings that as people participate in online community programs, such as eID programs, the risk of data theft and harmful use of personal data could be high (Gelb and Metz 2017).

Barriers Towards Adoption

Several issues were raised by participants resulting in the low adoption of the eResidency by Africans. These have been grouped into internal and external categories. Actual eResidents raised some internal and external (to the eResidency) factors that influence their participation in the program, correspondingly, potential eResidents also presented issues mainly at the primary home level, but also in relation to the eResidency that create barriers to entry.

Internal Factors

Different issues relating to financial tools and services were raised. For instance, actual eResidents expressed how the structured tax culture is complex for them, because they come from a part of the world where tax duties could be optional and are not enforced. But beyond questions surrounding tax and VAT, the fundamental concern central to both cases was about fund repatriation. Most of them stated that their primary countries' institutions were yet to acknowledge transactions between Fintech and traditional home banks, in light of that, interviewee 07 for example expressed concern about the safety of his fund with Fintech which the platform marketplace proposes.

> *"TransferWise goes bankrupt … they don't assure like a bank company that my money is not going to disappear so it's … risky they are legit …but they don't have the same kind of protection"* (07)

Similarly, potential eResidents specifically demanded for clarifications, on how the program could assure them of getting equivalent value in their local currency, as in Euro, based on their investment in Euro, during conversion to local currency, before repatriation to home bank. According to Interviewee 03 there is historically, a systemic bias, that persistently challenges that.

> *"…even … the Russian currency is convertible … but the African currencies are not, … historical relationship …Africa and Europe that is one of the master...say slave... the humanitarian side of it has vanished, the financial social and economic implications...in time, money talks..."* (03)

Observing the result of the comparison, it leads to the conclusion that participants are concerned about fund repatriation from foreign accounts. On the one hand Interviewee 07 wanted a guarantee that with Fintech he could get his money back even in the event, that something went wrong. On the other hand, beyond the safe recovery of fund, interviewee 03 was concerned about the devaluation of the African currencies, relative to the Euro, which consequently triggers home authorities' reactions against fund transfer in foreign currency. These issues with finance seem complex but then the outcome reinforces what was stated earlier that the eResidency cannot provide financial inclusion for all (Global Govt Forum 2019). Financial exclusion therefore potentially draws a line challenging both actual and potential eResidents from Africa to participate in virtual migration.

Other prominent issues that were concurrently raised with the questions around finance including missing information about the eResidency program in Africa, inaccessibility to the eID and the use of English as single language for the program – "threefold" challenge. Based on the missing information, both groups of interviewees unequivocally expressed feelings of marginalization about the eResidency. Words like "hijacked", "unfriendly" were used to characterize the scheme. Interviewee 06 stated that Estonia did not consider Africa because it perceives the continent to be immature developmentally, to participate in a global project of this nature.

> *"I'm not sure… they look... African countries… like "we don't have business with them", …so they do not open the…embassies…third thing is…they want people …around the world…in the Estonian economy… Africa...poor continent they have resources… they do not have the capacity to invest it, so they will not let anyone… from Africa..*" (06)

Along the same lines, interviewee 03 while discussing, called into question the marketing approach of the eResidency.

> *"… publicity perhaps, language, … how Estonia is marketing its eResidency program in other countries …marketing approaches …should be different in North Africa and Africa … inclined on purpose …the reason,… if we don't understand…we don't look,…survival mode yeah... pickup locations in Africa as well that would be a reason"* (03)

Based on the comparison, the "threefold" challenge - missing information, single pick-up location for the eID in Africa, and the language barrier, contrasts the program's stated objective

of empowering developing regions to participate in the digital world, as earlier indicated in this paper. Moreover, as pointed out earlier, these challenges, create unequal opportunity which deter majority of African countries from joining the scheme (Patra 2019). In addition, interviewee 03 asked for Africa-focused approach in marketing the eResidency. This context-driven marketing is perhaps the most significant finding here and it corroborates previous study as stated in literature to market the eResidency in the context of different regions (Kimmo et al. 2018).

External Factors

In addition to the factors internal to the eResidency, participants also highlighted issues unique to home country legislative restrictions and technological limitations, but also political issues, the later which is common to the entire continent, that contribute to their weak participation in the scheme. To begin with, participants pointed out movement restriction as a major challenge that confront both groups from the African region, such that they have difficulties accessing the eResidency toolkit. Beyond the macro-level effect, individual eResidents that deal in physical goods online, suffer additional difficulty when they need to visit product sites and more. Interviewee 10 said eResidency is getting increasingly sophisticated for digital products therefore he might face challenges in the future

> *"I think eResidency right now is more and more sophisticated, for digital products, we may face some time of difficulty because, we are dealing with physical products, but for digital ones there is no need, there is no difficulty, just go on"* (10).

Along the same lines, interviewee 09 described the control measures as policies and procedures that had been predetermined to profile certain migrants as "threat" therefore, automatically excluding Africans. He said however that the criteria for such categorization and restriction are not clear. Moreover, he had been a victim of such deprivation in the past, where he was denied visa to attend a business meeting in the Netherlands.

> *"..., once I make a visa to Netherland, ... a business meeting ... my visa been rejected ... they say to me that we check your bank account ... you don't seem important enough ... we are afraid ... an immigrant and pose a problem to us, ... pure (stresses) speculation* (09).

Summarizing, based on personal experiences shared by both categories of interviewees, current virtual migrants dealing in physical goods according to interviewee 10 have an uncertain future

with the program, while according to interviewee 09's experience, the restrictions on physical movement, affects virtual mobility as well such as accessing the eID. The outcome compares well with previous findings earlier cited that the existence of a single pick-up point for the entire Africa could be a hindrance to adoption of eResidency (Patra 2019). At the same time, it reinforces what Masso et al. (2019) stated that the eResidency is becoming more favorable to STEM participants, in this respect, the objective of reaching out to entrepreneurs from the developing regions like North Africa could be undermined.

Technological and legislative barriers from home countries were also identified as determinants for the adoption and active participation in the program. According to Interviewee 12, Algeria does not have the right infrastructure. Therefore, the country has a special form of eCommerce called "pay on delivery." *We don't have the infrastructure, we don't have a favorable ecosystem, we have nothing …that's not eCommerce, payment is not there, we don't trust, I'm telling you, we're just afraid*" (12)

Additionally, the law in Algeria does not allow fund repatriation in foreign currency, therefore interviewee 12 concluded explicitly that eResidency might not have been developed for all countries. Again, interviewee 06 described his ordeal in Egypt for making fund transfer between fintech and home bank, where he was persecuted up to the point of closing his bank account *"I don't know if all countries allow digital migration ... their digital companies to migrate… when and how to get your money back legislatively? ... in Estonia then you have to be there, to get it back*" (12)

> *" Africa especially in Egypt... this mentality what is Fintech, …you need…a real bank account (he laughs) … to withdraw the money they closed my bank account in Egypt … these are … they are approved, … i withdrew this money to my Saudi bank"* (06).

As can be seen, these are issues that are more or less country-specific and they create first level hindrance towards the adoption of eResidency. This outcome agrees well with what Tammpuu and Masso (2019) stated that home country's level of eGovernment development affect the overall adoption of eResidency. In addition, interviewee 12 laid emphasis on legal constraints which disallow the transfer of foreign currency, this recalls the question posed by interviewee 03 under the financial limitations about how to ensure a corresponding equivalent of the African currencies in relation to the Euro during conversion before fund repatriation, based on home country legal requirements. Therefore, in addition to eGovernment development, this result showed primary country legal requirement as additional source of influence towards the adoption and active participation of both potential and actual eResidents .

Enablers – Towards Inclusion of NA in the eResidency

This theme encompasses all the codes representing suggestions by participants on how to improve adoption of eResidency in NA. Interviewees suggested that Estonia should first of all push information relating to the program to Africa through context-driven marketing. Also, that they should facilitate accessibility of the eID through increased pick up locations, furthermore in the form of a special project, participants from the region should be allowed to pay reduced entry fee and in local currency. Interviewee 03 captured most of what was said by interviewees in his comment

> *"I think maybe a special project on African countries …, allowing them to enroll in the eResidency with a lower fee or with local currency…having partnerships with the African governments themselves, … that would I think to Estonia..., uh diplomacy wise … I mean Africa has one of the youngest populations … most brilliant as well…"* (03)

Actual eResidents similarly shared the same opinion, however, according to interviewee 07 lack of tax treaty can undermine the outcome of eResidency for Africa. He said it is challenging because most Africans do not have a tax culture. To simplify the process therefore, he proposed that the program should have a tax treaty with African countries as well.

> *"…more about taxation because when you open a business with eResidency, your business location is in Estonia but your activity is in where you are, … it's not clear …, I think they have the double taxation treaties with European countries, with some Asians countries, but for Africans for example they don't have that treaty … they should probably do better* (07)

To sum it up, the compared analysis depicted participants' perspectives on how to improve the uptake of eResidency in the context of NA, but mainly also on country-specific terms. The outcome supports what was stated earlier that the increasing complex social phenomena that surround migration and migration patterns, are not contextually captured by the digital systems (Taylor and Meissner 2019). In addition, the missing African context as pointed out by interviewee 03, challenges the general perception about eResidency being a global program (eEstonia 2017), while lending support to the ideas of context-driven promotion/marketing proposed in previous eGovernance studies (Kimmo et al. 2018).

To summarize, this sub-section presents the analysis of the empirical data gathered from potential and actual eResidents from North Africa with a focus on their shared experiences and expectations that seemingly shed light on the three research questions as stated earlier that guide the study. Participants‘ conceptualization of the notion of eResidency showed missing knowledge of the scheme. Also, based on their practical experiences the platform lacks ease of use. on the contrary potential eResidents expressed enthusiasm about the platform but demanded further clarifications in terms of its capability to provide solutions for cross-border digital transactions with real-time support. They further shared key challenges inhibiting the region’s participation in the context of NA-regional challenges but also shortcomings with the eResidency and finally proposed solutions towards inclusiveness. The succeeding sub-section presents the findings across SSA participants.

6.2 Comparing Contrasting Cases from Sub-Sahara Africa

This sub-section is similar to the previous, however with a focus on Sub-Sahara Africa, bearing in mind the three research questions which are stated in sub-section one. This part also compares the five major themes and sub-themes that emerged during the analysis across potential and actual eResidents from the SSA region pointing out similar and differentiating patterns. The comparison begins with the concept of eResidency in the SSA context.

Conceptualization of eResidency in Africa

Consistent with the objective of the UNCTAD “Free Trade for All” partnership with the eResidency (eEstonia 2017) described earlier, the analysis of the concept of eResidency was compared across the two groups of eEntrepreneurs from the SSA region in other to gain insight to their understanding. Interviewee 01 referred to it as an eNationality, being currently the perfect model for digital entrepreneurship to expand business globally, however, he raised concerns about its capacity to concurrently keep track on online behaviour that could impact the physical person.

> *it is the perfect fit at the moment in entrepreneurship … the concept of eNationality… difference between physical person and its digital identity but the both are linked…If you make a fault in the digital space... is repatriated to your physical body... it can be tricky or difficult to understand”* (01)

On the contrary, none of the potential eResidents from this region ever heard about it until the interview call, however, interviewee 11 was able to provide a description based on what he found on the site, he described it as a way of accessing the EU market, in the form of a virtual firm through Estonia.

> *"it was just when you shared all of these details with me, I never heard of it… I mean it basically facilitates your access to the European market um establishing virtual firm that is a European status but based in Estonia"* (11)

Based on the result of the comparison, both cases identify the model as a mechanism to participate in the digital economy and internationally, but the underpinning objective of the eResidency as an enabler for developing region such as theirs, was not reflected in what they described. Given the circumstances, especially in relating it to the outcome of the preceding subsection, the relevant information about the eResidency might not have reached some areas like the SSA regions. On this premise, it could be concluded that the outcome relates back to what was stated in literature that discrimination occurs when a neutral rule –"digitally promoting eResidency" tends to disfavor some individuals or group of people (Beduschi 2019).

Platform Tools and Services

The program platform being the key interface between eResidents and the program. beyond the understanding of the program, the analysis of the experiences with and expectations from the platform tools and services by actual and potential eResidents were also compared.

Experience with Use

Most of the comments of actual eResidents were about reconfiguring the platform to depict Africa's reality. Interviewee 05 went further to express how her expectations before, and after becoming eResident conflict; she stated that the perceived usefulness of the platform was not realised as she could not find start-ups, investors, but also the inability to have a voice, missing stakeholder tools, lack of opportunities and support for Europe-Africa market. What she expressed as concern was mainly about sociotechnical affordances of the platform.

> *"…so, my understanding initially and what it became I think are very different... I've always wanted to explore opportunities in Europe in general, and how we could help businesses in*

> *Africa…So when i got in, that was not the case…(she laughs) ..., there were no start-ups that were looking, … pivoting into this market, there are no investors in the platform, I didn't know, I still do know"* (05)

Expectation about Usefulness

Similarly, all potential interviewees pointed out certain limitations about the platform, but interviewee 11 was more comprehensive in his presentation of the issues. He said the platform might have been set up to target digitally literate entrepreneurs, which might not reflect the reality of Africa. He pointed out that to attract Africans, it should be more visual, he wanted to see a contextualized video, and a platform having African faces with information. For him, "the why", "what benefit", and "how to use" the platform are all missing.

> *"…I guess this is targeted at entrepreneurs who are …, literate, …can quickly grasp, but you know people are lot more visual today they just wanna see a quick video… For me … if you want to attract African entrepreneurs, as they come unto the page, time the video is playing, why eResidency, what it does for you, how you use it then in the end click on this button to apply. … I didn't see African faces there* (11).

As can be seen, the compared analysis about the platform tools and services tend to demonstrate a correlation between the experiences and the expectations of both groups. The shared experiences by actual eResidents about the missing affordances, seemingly reflect the clarity sought by aspiring virtual migrants about the scheme, as pointed out by interviewee 11. Therefore the outcome is inconsistent with what was earlier stated in this paper, about the platform being internationalized for global fit (eEstonia 2017). Moreover, Masso et al (2019) proposed the need for a clear definition of strategy to develop matching digital services with target group. Furthermore, the result provides some support to the inequality extended by platform algorithms as they underrepresent marginalized voices from the Global South (Robinson et al. 2020) as expressed by interviewee 05. It could be concluded thus, that for now, the eResidency platform does not quite reflect the region as expressed by interviewee 11.

Digital Tools and Skills

Being virtual migrants, participants stated the digital tools they leverage to support their activities remotely. Most of the participants mentioned using collaborative workspaces to

communicate and share documents. The mobile phone and internet were identified as the core tools that support their work. Meanwhile, irrespective of the regional differences, between the NA and SSA, similar benefits and challenges with the tools were expressed by both participants. Over and above all, this theme focuses on the digital skills and required resources to be a part of the digital world. For example, Interviewee 08 said no special skill is required for what he does, apart from ability to communicate in English and French and use mobile phone and social media.

> *" My phone is the most important, and …very good internet connection…doesn't require special skill…read and understand English and French, basic… like edit pictures, not so much into photos, ... know how to use Instagram and Facebook,…WhatsApp, that's all, and answer calls,* (08)

In contrast, among all the participants, interviewee 05 talked about specially designed tools, specially curated for Africa and highlighted some issues relating to skills, including literacy, English competency, being tech-savvy, internet, cost and the ownership, and ability to use laptop or PC.

> *"…,stakeholders that you can actually use to either connect or create a community… and they target specifically Africans, …been curating that type of community for a long time… you have to pay …be technologically savvy … be at least literate,...tools are in English.., either a laptop or a PC not a phone, which you know in Africa is a big a big problem …"* (05)

By this comparison, a similar pattern emerged with the result of the previous subsection under this theme, about the skills required for specially curated tools as mentioned by interviewee 05. It also corroborates what was stated in literature (Ekman 2018; Kumar 2018), but in the case of forced migrants with special Apps, seemingly depicting digital challenges in the wider social milieu which includes forced migrants and those in the cyber space, hence drawing a global line of digital inequality as stated in literature (Robinson et al. 2020). However, specifically, the need for resources was emphasized by interviewee 5 as the major challenge. If a tool designed to include Africa becomes problematic based on the required skills and resources to use them, then the outcome is in accordance with the limitations pointed out by Taylor and Meissner (2019) that such tools do not capture context. Hence, as stated earlier, with the eResidency SSA risks facing challenges (Gelb and Metz 2017).

Participants‘ Data Traces

Virtual migration like the eResidency is data-driven which means participants data traces are left behind on the platform in the course of leveraging the digital infrastructures to enable them take part in the digital economy. Data plays a key role in the contemporary world where subjects, objects and practices are transformed into digital data (Southerton 2020) and at a value (Zuboff 2019). It is therefore especially crucial to the topic under investigation and in the context of the Global South as the access to, use and outcome of these tools are not in parity globally. More so the UN recently reported that most countries in Africa are on the disadvantaged side of the divide (UNDESA 2020b). This theme therefore covers the opinions of the participants about institutions' use of data traces on the eResidency platform. According to participants, the region has an issue of limited online presence, specific to Sub-Sahara. Interviewee 05 said the limited digital footprint is practically excluding majority of Africans from digital programs and services where data tools are used for selection and decision-making.

> *"I think in Africa in general … people who are in the digital world is quite low …very honest, there might be Internet penetration in most African countries that is growing but the larger population they're not online so you can't also give someone a digital ID if they don't have any digital footprint it's impossible … it's like you don't exist, so it's excluding a lot of people"* (05)

Interviewee 11 equally highlighted that using online data to assess or judge SSA could be problematic, and possibly exclude them from programs such as the eResidency. He suggested supplementing with a manual process. This again reflects the appeal of interviewee 06 in NA.

> *"doing your background check … sources where you could actually validate and verify "such information … becomes issue … and that's where … Sub-Saharan Africa may have a challenge, …structured information on people is still like I say a far cry from where it's meant to be"* (11)

The result of the comparison revealed that limited online data potentially creates an avenue for excluding SSA aspiring eResidents. Interviewee 05 also pointed out a situation consequential to this, where government's inability to structure citizens' data has exposed personal data for exploitation, due to missing democratic checks. Even when the laws exist, she said they are barely enforced. While this corroborates literature (Gelb and Metz 2017), however the exclusion in this case is as a result of the program's strict digital selection processes and

assessment (Masso et al 2019). Interviewee 05 said SSA who are offline would be excluded. Considering the risk of being excluded, interviewee 11 similarly solicited supplementing the process manually, to include such people. It is an interesting outcome that while NA expressed concern about data misuse, SSA sought to address issues about limited data.

Barriers Towards Adoption

Moreover, based on the analysis, several challenges were highlighted by participants, resulting in the low participation of Africans in the program. Current participants presented some factors that discourage them affecting their level of participation, while others who are yet to join equally identified some issues, during the interview that they consider to be potential barriers to the eResidency adoption. They have been categorized under internal and external factors.

Internal Factors

Several financial issues were raised by participants, including inability to create bank account with traditional banking institutions. However, significantly questions were raised about funds repatriation to home bank, especially with Fintech services. Interviewee 02 shared his challenge doing business in America because he could not access standard financial institutions. With the eResidency he wanted clarification about the modalities of fund transfer.

> *"I have to go through a third company like a fintech to be able to operate a bank account… what I faced in the United State.. about funds, how much will it cost me... using the fintech, and how much will it cost me if I'm trying to transfer money back into my local bank in Africa"* (02)

From another view point, interviewee 04 wanted clarification on the assurance of his fund with Fintech, in the event that something went wrong: "*for example I mean shut down your bank account and your money inside it will be very hard for you to get this money back"* (04)

The outcome of the comparison depicted the need for further clarity about finance for SSA. Meanwhile, the concern raised by interviewee 04 is in consonance with interviewee 07 in NA as they both expressed anxiety about the security of their funds with Fintech, but also the conditions surrounding their transfer as interviewee 02 inquired. As stated earlier the eResidency does not currently provide financial inclusion for all (Global Govt Forum 2019),

moreover most applicants are high-income regions while Africa is a region with predominantly low-income countries (Tammpuu and Masso 2019).

Akin to subsection one, other issues including missing information about the program in SSA, inaccessibility to the eID and platform language being English, were highlighted simultaneously. For example, in this region all the potential eResidents got to know about the program during the interview call, as a result, they also expressed feelings of being systematically excluded from the Estonian eResidency as interviewee 05 captured it.

> *"…They don't know about this, and there's also no clear value proposition about the eResidency to Africans, and… I don't feel like they've also been deliberate about that. So there are just a lot of barriers to entry or adoption of the eResidency in Africa, …I would say those three main reasons that's why it's low, lack of awareness, creation clear value propositions to Africans and you know the expenses that come with ...being an eResident and if you're from Africa"* (05)

Interviewee 11 stated that Sub-Saharans are not aware of the program and with their meager income they would not go online to find the unknown, especially when they have no information. Moreover, anything involving movement with cost implication would be too much for them to bear: *"it is the lack of information because people don't know… a lot of people are struggling to feed let alone … get data package* (11)

> *How? people in sub-Saharan Africa having to go to Egypt, just to pick up a device? that's a disincentive already… the migration...they must plan towards…someone who is…, struggling …especially start-ups, … struggling with finances … But we have a digital world"* (11)

In a similar fashion the issue of language was addressed by most of the participants. Interviewee 08 said he searched the site but could not change the language to French, he said it would be challenging for many Africans. Interviewee 01 also emphasized that the West African region is francophone and that it is disenabling for him not to be able to participate in French.

> *"… seeing everything dotted about Europe, America and Africa is not seen,…ok, this thing was not meant for Africa (sarcastic face)… in Africa we have different colonial masters, …some countries do speak English, some French, some Portuguese, some Spanish and even Arab, so if we could have those options where you can change the language"* (08)

> *"me I have a good English but I am in Africa in West Africa, West Africa is a francophone zone, it means that eResidency needs to have content in French. This is very important, because we talk about 300 million people, who use French like languages"* (01)

The outcome of the comparison produced similar pattern with the previous subsection, where three factors concurrently challenge the uptake of eResidency. This is incongruent with the project's goal of universal global accessibility (eEstonia 2017), and these deficiencies are potential deterrents of inclusion into the digital economy (Patra 2019). It can therefore be concluded that the program is yet to be known by potential eResidents from SSA according to interviewee 11.

External Factors

The other issue which as stated earlier is related to political and economic factors is restricted mobility. This is typically suffered by the two regions and the experience is similar. Interviewee 08 expressed a feeling of frustration especially as there is even no means of seeking redress.

> "*…have huge funds…it's mainly political … It's frustrating it impacts so much on our businesses… application was rejected. So that it can offer an opportunity for either appeal…the appeal will also help … amend you know the tools that they are using to analyze some of these data"* (08)

Similarly, interviewee 01, affirmed that financial strength determines mobility, which potentially inhibits the growth of eEntrepreneurship in Africa, because start-ups do not have accumulated huge fund to face it. He added that, the eResidency does not also support physical mobility even in relation to the eID pick-up, as he had to apply twice for the same reason

> *"Do you think that young enterprise or start-up who has just began will have every time 1/2 million in the account every month? It's not possible, …they can refuse you the visa,…you are killing entrepreneurs .. (he laughs)"* (01)

Ultimately, the compared analysis revealed that both potential and actual eResidents from SSA could face hindrances getting involved in the digital economy, since the program does not assist with traditional migration (eResidence.gov.ee 2020), mainly for entrants who need to access the eID. The outcome is also consistent with the fact that the median age of Africa is 19.5 and

they make up approximately 75% of the population (UN-Population 2020; UNDESA 2015) who do not have such accumulated huge fund as interviewee 11 stated.

Enablers - Towards Inclusion of SSA in the eResidency

The key suggestions made by SSA participants towards the inclusion of the region have been encapsulated under this theme. Majority of the interviewees suggested that Estonia should create awareness of the program in Africa, by physically visiting the continent, and having direct contact with entrepreneurs in business incubators and accelerators. They also proposed facilitating access to the eID by increasing diplomatic representations. Specifically, what interviewee 11 added to all of these is the use of trusted agencies in the different African countries including courier services for convenient delivery. On the other hand, interviewee 01 from a practical perspective, recommended collaboration with African political seat in Ethiopia. Additionally, he suggested eResidency SMS (French) service for Sub-Sahara Africa.

> *"I don't know …, the digital whatever is, but I am sure that* ***there's DHL*** *to a centre or a point that has been verified, you verify it digitally or …, reputable institutions in those local countries, contacts established and …they can easy and they're everywhere to work collaboratively you … can have the centres in 20 countries in Africa if you really want to promote this"* (11)

> *"now eResidency has mobile app so it will be more useful for people in West Africa to access… service via mobile app French… is very important to have services... SMS dealing...* ***in Africa,*** *the SMS is again a big tool of communication … If you receive it in SMS it means that you don't need to be connected to the internet... Because the server is connected to the telecom operator"* (01)

To sum it up, the comparison under this theme presented participants' perspectives on relevant solutions towards increasing SSA's uptake and participation in virtual migration. The outcome reinforces what was earlier posited about a clear articulation of the schemes strategy and digital services, in order to define intended eResidents (Masso et al. 2019). The enablers presented by interviewees 01 and 11 are contextual as they represent SSA as against the tendency of homogenizing the whole region (Taylor and Meissner 2019). Therefore, eResidency SMS services (also in French), and convenient delivery of eID have been specifically proposed by interviewees 01 and 11 respectively to improve SSA adoption. However, before these, interviewee 11 reiterated making eResidency information available to that region.

In concluding this sub-section, the comparison done across potential and actual eResidents of SSA based on the analysis of interview data which focused on the three research questions revealed certain similarities and differences in pattern. Interviewees attempted to describe how they perceive the program, but none of them linked it to Africa. They also shared their experiences and expectations of the platform, where the key issue highlighted was mainly about missing African context. Moreover, resources and missing digital literacy were pointed out as additional inhibitors. While they did accept the use of their data traces as eResidents, they expressed concern about SSA's limited digital footprint. Furthermore, they raised some issues internal to the eResidency and others emerging from their home countries that hinder their uptake and participation in the scheme. However, they have proposed some solutions that could change the status quo. The comparison of analysis between NA and SSA which follows subsequently projects the similar and differentiating patterns as well.

6.3 Comparison Across North Africa & Sub-Sahara Africa

In this subsection, the focus is on comparing between North Africa and Sub-Sahara Africa based on the two previous sub-sections. The compared analysis from the two contrasting cases in the previous subsections are juxtaposed broadly across the two regions. To identify similar and differentiating patterns, that might provide meaningful insight about the problem of digital inequalities in Global South from the perspectives of potential and actual eResidents as virtual migrants, thereby attempt to provide answers to the three research questions of the study.

6.3.1 Conceptualization of eResidency in Africa

From the perspectives of North Africans, there is a missing knowledge as to what constitutes the eResidency, neither of the participants could provide a description by placing NA within context vis a vis the UNCTAD "eTrade For All" program and the role of Estonia as a partner. Interview 10 said it has nothing to do with digital migration. He said it is not related to migration, rather it is a way of online signing: "*it's just a way to sign document in another country that's all"* (10). Conversely, interviewee 12 never knew about the eResidency until the interview call therefore she was rather concerned about the viability for adoption by her country: *"I don't have too much information when you see names like that…maybe it's only Estonians who are concerned… about the feasibility, what are the consequences…*" (12).

From a different angle, SSA interviewee 01 presented it as eNationality where the eID has the capacity to track digital personality that can impact physical being: *"... digital identity but the both are linked…If you make a fault in the digital space... is repatriated to your physical body... it can be tricky or difficult to understand"* (01). Meanwhile interviewee 11 was able to provide a description similar to what some actual eResidents, in terms of the possibility of transnational scalability of his work: *"I mean it basically facilitates your access to the European market um establishing virtual firm that is a European status but based in Estonia"* (11).

In conclusion, the result of the comparison across the two cases showed similar patterns of lack of relevant information about the eResidency for the African region. This outcome negates the UNCTAD-eResident agenda as target participants are not aware, and those involved do not quite understand the concept. According to interviewees 11 and 12 from the two regions they never knew about it and they would not know unless they are told. Based on the outcome it remains unclear how people will adopt what they do not know about. As stated earlier the ambiguity of systems in including and excluding sustains the divide (Robinson et al. 2020).

6.3.2 Platform Tools and Services

This theme seeks to compare the hands-on experience of current virtual migrants and what might motivate prospective eResidents about the instruments offered by the platform, from the NA and SSA. As found in literature applicants from weak infrastructural regions, are mainly purpose inclined (Tammpuu and Masso 2019), however those who fail to acquire digital literacy early in life equally encounter challenges with advancement in digital technologies (Robinson et al. 2020)

Experience with Use

In the first part, Interviewee 06 pointed out the complexity in navigating the platform tools and services, to identify the right tools for specific tasks: *"… a lot of polishing because…like the interface it's not user friendly…if you want people to be able to use eResidency"*(06).

Similarly, interviewee 05 from SSA expressed disappointment with the tools because she could not find what she anticipated would be relevant for her business, including investors and start-ups to network with: *"…so, my understanding initially and what it became I think are very different..., there are no investors in the platform, I didn't know, I still do know"* (05)

The result of the comparison from the two regions demonstrates lack of ease of use as in the case of NA, but also missing context among tools provided such that interviewee 05 said she does not use the tools because they do not serve her purpose in Africa. This outcome reiterates what was stated earlier about clear strategy definition to cater for target participants with appropriate digital solution (Masso et al. 2019).

Expectation about Usefulness

Similarly, in expressing their expectations, participants from the NA region raised questions about the "dividends" the digital platform holds for them. Interviewee 09 emphasized his expectations about the solutions the platform should provide to surmount challenges specific to Sudan and drive digital inclusion and enablement: *"Estonian government needs to give us 100% support... If they can provide 24/7 that…means they truly make a service* (09),

On the part of SSA, they pointed out specific observations to be checked if the program should attract Africans to participate. Interviewee 11 stressed on the clear definition of the what? why? And how? of the program, in order to visibly unbundle the platform to Africans: *"…I guess this is targeted at entrepreneurs who are …, literate, …can quickly grasp, …people are lot more visual today they just wanna see a quick video…"* (11)

Based on the comparison across the two regions, the result leads to the conclusion that the eResidency platform might have been designed targeting digitally literate entrepreneurs like interviewee 11 asserted. This corroborates what was earlier stated in literature that most of the applicants are from digitally developed countries (Tammpuu and Masso 2019). Participants from both NA and SSA do not currently understand what the platform holds for Africans based on the questions raised by interviewees 09 and 11.

Table 6.1 Summary table for Platform tools and Services

Experience with use	**SSA**	**NA**	**SSA/NA**
Not user-friendly	X	X	X
Missing automatic guide	X	X	X
Automated reminders		X	
Missing tools	X		
Expectation about usefulness			

Missing African context and content (why? What? How?)	X	X	X
Automatic guide	X		
Insufficient visuals	X		

Digital Tools and Skills

The important finding compared across the two regions under this theme are about digital literacy and resources. From SSA, interviewees pointed out that beyond the basic mobile phone, Africans might face challenges with specially designed tools, because of resources and required digital skills. For example, according to interviewee 05, the specially designed tools she uses require being literate, tech-savvy, English competency, ownership and ability to use laptop or PC. According to her it would be a big challenge for Africans, first about the cost then the literacy: *"…technologically savvy … be at least literate...tools are in English …, either a laptop or a PC not a phone, which you know in Africa is a big a big problem …"*(05).

Interestingly, from NA a similar response was received still about specially designed tools in terms of the skills required to use special software. Interviewee 03 said for the software they develop users require digital literacy, ability to communicate in English and have a basic knowledge of the law: *"... computer literacy … access to internet connection, … basic understanding of the law, of English… those are the skills"* (03)

The result of the compared findings about digital skills is unsurprising as it ties well with what was stated earlier in this study about specially designed tools such as the eResidency, being that participants need to be highly digitally literate (Gelb and Metz 2017). Moreover, about the cost implication, most countries in Africa are low-income based on their EGDI level as stated earlier, and as interviewee11 earlier pointed out, that people in those regions struggle to feed. Which means anything that requires financial commitment, would create an obstacle. The outcome further tallies with what Robinson et al. (2020) highlighted that while three-quarters of the population has a SIM connection only one-third of phone users can afford smartphones. A conclusion can therefore be drawn in line with what was solicited by interviewee 06, that the scheme might have to offer manual support for Africans in certain areas.

Table 6.2 Summary table for digital tools and skills

Digital tools/literacy	**SSA**	**NA**	**SSA/NA**

Techsavvy	X	X	
Literacy	X	X	
English competency	X	X	
Knowledge of the law		X	
Ownership of laptop/PC	X	X	
Cost -internet, software etc	X	X	
Manual process		X	

6.3.3 Participants' Data Traces

As participants leverage digital tools which essentially drive the nomadic life, data traces are inevitably generated on the digital platforms. This is essential to address where disparities in the use of digital tools influence what happens with participants' data. Also, as the subject under investigation is about digital inequalities in Global South, the perception of the participants from NA and SSA about data traces is essential for the study. Therefore, the analysis is compared across the two regions.

Data Limitation

Regarding the use of participants' data, some NA participants expressed high-level of trust in the honesty of Estonian institutions as well as the European Union. However, they expressed concern about the level of exposure of their data which might inadvertently enter into wrong hands and become harmful resources against them. Some however do not trust any government in the use of data as they recalled the Snowden revelation. Specifically, interviewees 10 and 09 explicitly expressed worry about their data getting into the hands of their government. Interviewee 10 said he does not want to be tracked by the Egyptian authorities, he reiterated that he is an Egyptian, therefore eResidency should hide some of his data. He said he would prefer to be the one to authorize who should have access to what data about his company:" *... keep some data hidden, ... I am an Egyptian, I don't mind…European government… too afraid to be tracked from Egyptian government (he laughs)"* (10)

Limited Data

The opinion of NA about data use varied compared to SSA. Some of them expressed trust for the Estonian government but not all. Contrary to NA, the SSA affirmed that the authorities can use their data where their consent has been sought and approval received. Nevertheless, the issue that they found problematic was that they are being excluded due to the use of

computerized selection process, and decision making of the eResidency, similar to what they face with Schengen visa for physical mobility processes. They said the online data for SSA is limited and exploited. Interviewee 05 said: *"...can't also give someone a digital ID if they don't have any digital footprint it's impossible ... it's like you don't exist, so it's excluding a lot of people"* (05).

Likewise, interviewee 11 equally pointed out the challenge of using data infrastructures to make decision about SSA without supplementing with manual process: *"doing your background check ... I think Sub-Saharan Africa may have a challenge, ...structured information on people is still like I say a far cry from where it's meant to be"* (11)

Summarizing, while participants from NA raised concerns about how to limit the excessive exposure of their data, the challenge expressed by SSA is about their limited digital footprint. Unlike NA, SSA asked for a supplementary approach to data-based decision processes, in order to include and empower the region in the digital economy as interviewee 11 expressed. These issues raised about data across the two regions are consistent with what was stated earlier in literature (Gelb and Metz 2017). Also they tally well with the need for seeing regional/national diversities within the continent, based on the concerns stated (Vertovec 2007). Especially, as interviewee 11 solicited for supplementing the digital process manually, to include the SSAs at the risk of being excluded.

Table 6.3 Summary table for participants's data traces

Region-specific challenges	**SSA**	**NA**	**SSA/NA**
Data exposure		X	
Limited data	X		

6.3.4 Barriers Towards Adoption

Here, the comparison across the groups borders around the key obstacles identified by participants as mentioned in the preceding sections. They are factors that are either internal to the eResidency or external to the program in which case they are linked to participants' home country/region. However, in both cases they tend to enhance inequalities.

Internal Factors

The key issues internal to the eResidency raised by participants were in the areas of finance, missing information, inaccessibility to the toolkit and English as the only language. Interviewee 03 captured what most of the participants stated in his comment as displayed in subsection one, significantly he suggested context-driven approach to marketing eResidency to NA: *"marketing approaches …should be different in North Africa and Africa in general… survival mode"* (03).

In a similar fashion, interviewee 05 highlighted most of the key issues identified as regards SSA in her statement and equally said eResidency should approach Africa with a clear value proposition: *"… and there's also no clear value proposition about the eResidency to Africans, and… I don't feel like they've also been deliberate"* (05)

Evidently, the "threefold challenge" with financial issues is common across the two regions, and the result of the comparison corroborates what was earlier cited in previous literature (Patra 2019). However, fund repatriation, and missing Africa-focused eResidency marketing add novel angles of the aforementioned challenges. In their study, Kimmo et al. (2018), suggest context-driven promotion of eResidency to regions characterized by political and economic instability.

Table 6.4 Summary table for barriers towards adoption - internal

Internal barriers	**SSA**	**NA**	**SSA/NA**
Missing information	X	X	African-context
Language	X	X	
Accessibility to eID	X	X	
Finance	X	X	fund repatriation

External Factors

Furthermore, as identified from the two subsections, political, technological and legal issues make up key external factors. While all Africans are affected by mobility restriction as stated previously, which participants attributed to political and economic factors, in relation to the eResidency, they said it creates a barrier to reach the eID, even within the continent. It also affects eResidents dealing in physical goods online by delaying their movement, in the case of interviewee 10.

On the other hand, what remains a bigger challenge according to interviewee 08 is the means of getting feedback, to contest such restriction. He indicated that the data infrastructures are

shaped subjectively to retract the mobile population, specifically, from SSA whose digital data is inferior: "*Mostly, people who have huge funds…it's mainly political… it's based on the digital footprint or application was rejected. So that it can offer an opportunity for either appeal"* (08)

However, technological and legal factors in the context of NA tend to equally create barriers. According to interviewee 12, they have missing infrastructure that inhibit eCommerce, in addition, the law prohibits foreign currency transfer.

On the part of SSA, apart from the movement restriction, it was quite a surprise that technological issues were not mentioned explicitly as deterrents. It might have been implicit in their request for the eResidency SMS service, where they wish to push the cost of internet to telecommunications service provider, as it is the prevailing pattern with all digital services in the region, as explained by interviewee 01 in subsection two.

Based on the findings compared under this theme, It is intriguing that beyond the effects of the limited physical migration, which interviewees affirmed affect both regions, it is NA rather than SSA that raise issues connected with technological and legal constraints. Notwithstanding, these issues are seemingly related to home country's eGovernment and economic development which corroborates previous finding by Tammpuu and Masso (2019).

Table 6.5 Summary table for barriers towards adoption - external

External barriers	**SSA**	**NA**	**SSA/NA**
Political	X	X	
Redress process	X		
Technological/legal/economic		X	

6.3.5 Enablers - Towards Inclusion of Africa in the eResidency

Regarding how to improve application and active participation of eEntrepreneurs from the region in the transnational scheme, a convergence of opinions was identified across the two regions about resolving the "threefold" challenge pointed out in the previous sections. In a similar fashion, interviewee 03 from NA presented a significant proposition, which is the creation of a special project for Africa, to enable them pay reduce entry cost and in local currency. Likewise, interviewee 01 from SSA suggested eResidency SMS services. Moreover,

it is important to highlight that the introduction of manual process is a similar pattern identified across the two regions by interviewees 11 from SSA and 06 from NA in subsections two and one. Additionally, NA proposed the need for tax treaty with African countries to ease the double tax procedure, as interviewee 07 emphasized that taxation is not analogous to the African society.

Recapitulating, the comparison has focused on significant outcomes of the two preceding parts on how to improve Africa's representation in the eResidency. While increase pick up locations and additional languages, have been proposed in other studies stated (Patra 2019). The key highlights here include providing information about the eResidency through context driven promotion, involving physical visit at institutional and target-participant level. Also, for Africa, the languages identified by interviewees are mainly French and Arabic. conversely, the request for tax-treaty was also raised. Though it had been discussed by previous study (Patra 2019), notwithstanding, the case of Africa as presented by interviewee 07 is solution-driven in the sense that, the continent does not have tax culture. From another viewpoint, NA participants raised issues about low minimum wage which supports what was stated earlier about Africa (UNDESA 2020), thus interviewee 03 explicitly asked for a lesser fee project for Africa.

Table 6.6 Summary table for enablers towards inclusion

Enablers	SSA	NA	SSA/NA
Contextualized promotion	X	X	Sitúate Africa in eResidency
Increase pick-up locations	X	X	Increase diplomatic relations/ neighbouring embassies/trusted agents/courier service
Include French and Arabic	X	X	
Tax-treaty		X	
Special project for Africa		X	Reduce entry fee and Pay in local currency
eResidency SMS service	X		
Manual process	X	X	Limited data and low tech-savvy aide

6.4 Conceptual Framework for Virtual Migration

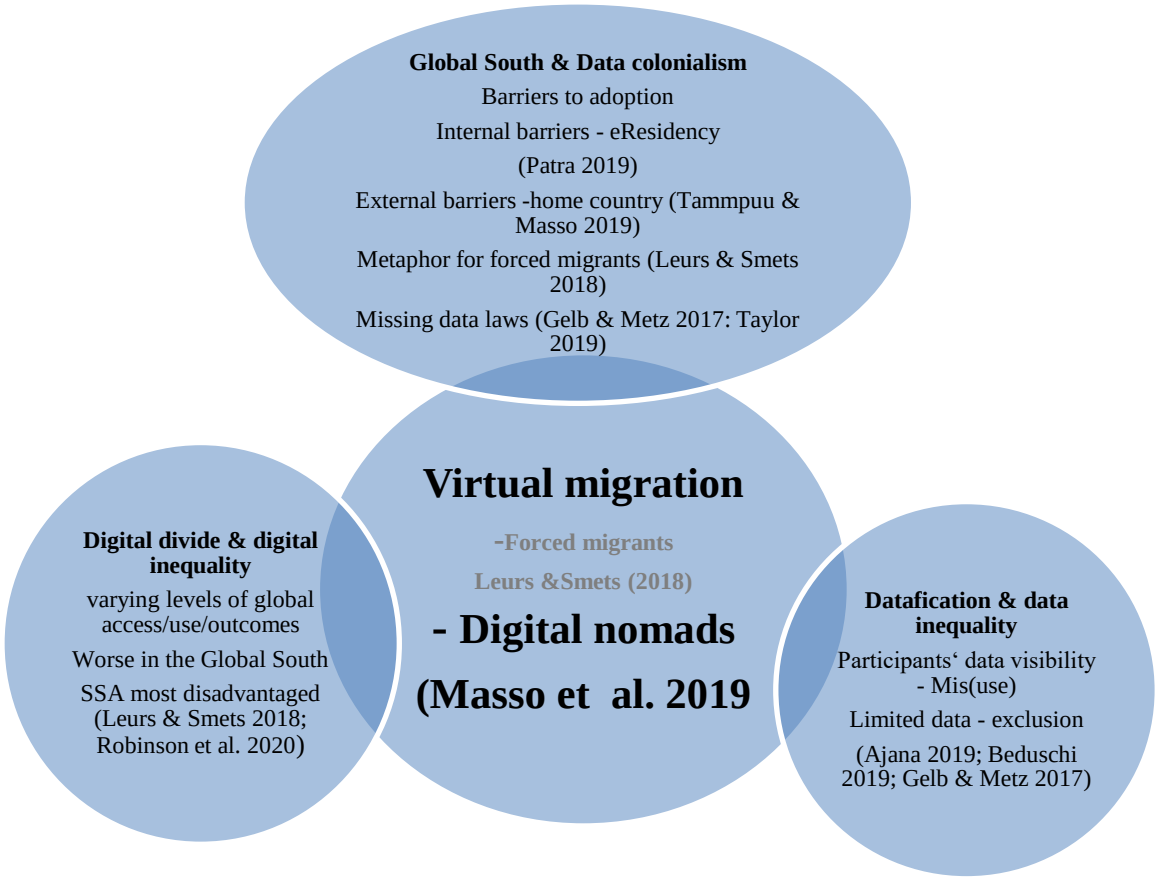
As earlier stated, virtual migration is an interdisciplinary study that is difficult to comprehend through the lens of a single specialized discipline (Leurs & Smets 2018). The concept of virtual migration manifests in the form of digitally mediated migrants -forced migrants, and as digital

identification program -Estonia eResidency in this case. In both cases digital tools fundamentally drive the processes and activities. Therefore, issues of digital divide and inequalities are experienced between parties. In the case of forced migrants the access to and use of digital tools between the authorities and migrants is uneven (Leurs & Smets 2018). Similarly, participants in the Estonian digital ID system come from countries that vary in eGovernment development (Tammpuu and Masso 2019), in addition resources and digital literacy levels also produce disparities in the levels of participation. Another concept common to both categories is datafication and data inequality. Forced migrants whose devices are tightly coupled with their everyday lives practically render the migrants body as the platform for datafication (Leurs & Smets 2018). Whereas the SMET migrants as earlier discussed, do not confront similar experiences as they operate in the cyber space which means they have the privileged access to the digital infrastructures that enable them work strictly online and they are not bound by physical location. Rather they have the opportunities of unrestricted mobility physically and digitally. These are the virtual migration enabled by the eResidency. eResidents' data traces though equally generated on the government platform; they are however equally assured of democratic processes in relation to data use. This credibility about the eResidency creates trust for the SMET digital migrants compared to the forced digital migrant (Masso et al. 2019). The aim of this study which is to investigate digital inequalities in Global South based on the perceptions of virtual migrants from NA and SSA including their experiences, their expectations and opinion about institutions' use of data traces, as data become increasingly visible, interviewees whose online presence is high express fear of data misuse while those with limited digital footprint raise concern about the increase datafication practices that could exclude them from the digital economy. The discussions of Global South and data colonialism are also around contemporary migration phenomenon. The use of digital tools to manage migration statistics and other issues related to forced migration (Taylors 2017) has been identified as a way of sustaining the North-South divide (Leurs & Smets 2018), where data about the region are extracted using specially designed data infrastructures. On the contrary though, the eResidency aims to include and empower the Global South to participate in the digital world, however, some issues internal to the eResidency such as the lack of languages of communication, access to the eID that can facilitate the process or even the missing infrastructure at the home country of participants (Patra 2019), hinder the process. Participants seek special project for Africa. Several scholars also argue that there is a need for justice with the unfair use of data from the South, referring to the EU use of corporations to develop solution for "risk migrants" about forced migrants. Moreover, Masso et al (2019)

highlighted the increase use of datafied process with eResidents such as automatized biometric checks. Furthermore, the discipline of data justice equally cut across both fields as an approach to solution. For forced migrants, Taylor (2019) pointed out that transnational data tools are usually accompanied by transnational data rights and redress strategies, which is currently not the case for the South. Milan & Treré, (2019) therefore suggest using decolonial lens in finding solution to liberate the data capitalism and data injustices prevailing against the "global south". Similarly, Gelb and Metz (2017) suggest that in low-income countries with inadequate legal control measures, identification system could serve as first point of defense in data privacy. Having said all, for this study the focus is on the identification systems, meaning the SMET digital nomads with the selected case of the Estonian eResidency. Therefore the theories from different corpus of specialized knowledge which have been integrated in the attempt to provide understanding of virtual migration, are captured in the interdisciplinary theoretical framework inspired by Cohenmiller and Pate (2019) with an extension model with the empirical evidence of digital implications on migration that result in problems of inequalities that the three research questions aim to answer, with proposed policy solutions from the perspectives of African eEntrepreneurs.

As early as the 19th century interdisciplinary studies gained recognition and it was with the social sciences at the University of Chicago with the objective of tackling contemporary social problems and public policy (Worcester 2001). Over the years it has gained traction and is increasingly getting popular based on the advantage of providing solutions to complex societal problems by pushing beyond the frontiers of specialized disciplinary faculty (Worcester 2001). According to Cohenmiller and Pate (2019) interdisciplinary studies purposefully focus on integrating knowledge from different fields rather that borrowing components of such fields and the reason for such integration and synthesis of ideas and methods is to provide fundamental insight or solution to a problem whose complexity is beyond the disciplinary borders of a single field or area of research practice. In the used case of their doctoral research, the authors applied five steps to the construction of an interdisciplinary model including the identification of : 1) a research topic to tackle a complex problem that purposively intersects disciplines; 2) concepts and constructs surrounding the topic; 3) concepts and constructs to guide where disciplines are identified, considered distinctly; 4) theories relevant to the topic towards addressing the research questions within disciplines and 5) major terminology within theories and across the fields for clarification and definition of same as common language, while gradually eliminating their distinctiveness. Similar to the current study, they applied the

framework to investigate the experiences of a social group but in the field of education and across nursing mothers in PhD research. Cohenmiller and Pate (2019) introduced the model throughout their study from the introductory chapter, through literature as analytical frame via three disciplinary lenses, as well as in presenting their findings up to discussing their report. This is similar to this paper. However, in addition this study paid attention to empirical data gathered from participants to identify comments during the analysis that seemingly provided answers to the research questions guiding the study. Also, the discussions here are heavily representative of empirical findings while highlighting theoretical underpinnings that confirm social contexts. However, the key challenge in conducting interdisciplinary research as the authors experienced is mainly in working as a team, which other study also point out could be uncooperative (Jones 2009) unless well organized. This does not apply here as this study is done alone, even though it is time consuming as the authors also stated. The difference between the study of Cohenmiller and Pate (2016) and the current debate is that the former‘s final product is the developed framework which they recommend to advance complex studies. However, based on the problem that spur the current research which is to examine digital inequalities in Global South by investigating the perspectives of virtual migrants from the region about their challenges resulting in weak participation in the digital economy, the current study seeks to propose a means of digital inclusion of the region. This corroborates the public policy objective at the origin of applying interdisciplinary studies (Worcester 2001). As stated earlier the empirical data extends the theoretical framework, based on the identified challenges, and participants‘ subjective proposals towards the inclusion of the Global South in the eResidency as presented in the next section.



Source: (Cohenmiller and Pate 2019)

Figure 6.1 Conceptual framework

6.4.1 Towards Inclusion of Africa

Having unmasked the concept of virtual migration, the virtual migrant in the context of this study relates to the digital identity being the highly techsavvy individuals introduced earlier, who are often SMET professionals or people in related field that work autonomously and location-independently by leveraging digital technologies. However, compared analysis across NA and SSA informants revealed digital divide and digital inequalities that has been experienced by the cyber space participants from the two regions. Moreover, these disparities have been encountered from the eResidency; in the form of missing information and platform tools and services that lack context for participants from the Global South. But also, mainly in the areas of the skills relevant to participate in the current digital economy and the resource to sustain the digital lifestyle. Also, in the form of home country techno-economic and legal deficiencies. Furthermore, as these tools are leveraged to include and enable digital nomads, as

stated in literature the uneven use results in empowering some people more than others in terms of data and outcome. Datafication has become a regular practice even with the eResidency (Masso et al. 2019) such that as the analysis showed participants expressed fear of being persecuted as they become visible; as expressed by NA or excluded as expressed by SSA whose digital footprint might not be found by data tools. As the literature findings indicates that the same systems that include have the capability of excluding. However, participants were able to propose some steps that the eResidency can take to include the region. They recommended contextualized promotion, increase pick-up location, developing multilingual platform, developing a special eResidency for Africa and more. These have been captured and visualized below. The extension model is aimed at supporting policy process of the eResidency bearing in mind that the eResidency is developed in the spirit of a start-up, it will hopefully contribute to the continuous improvement towards meeting user-specific needs (Kotka 2016).

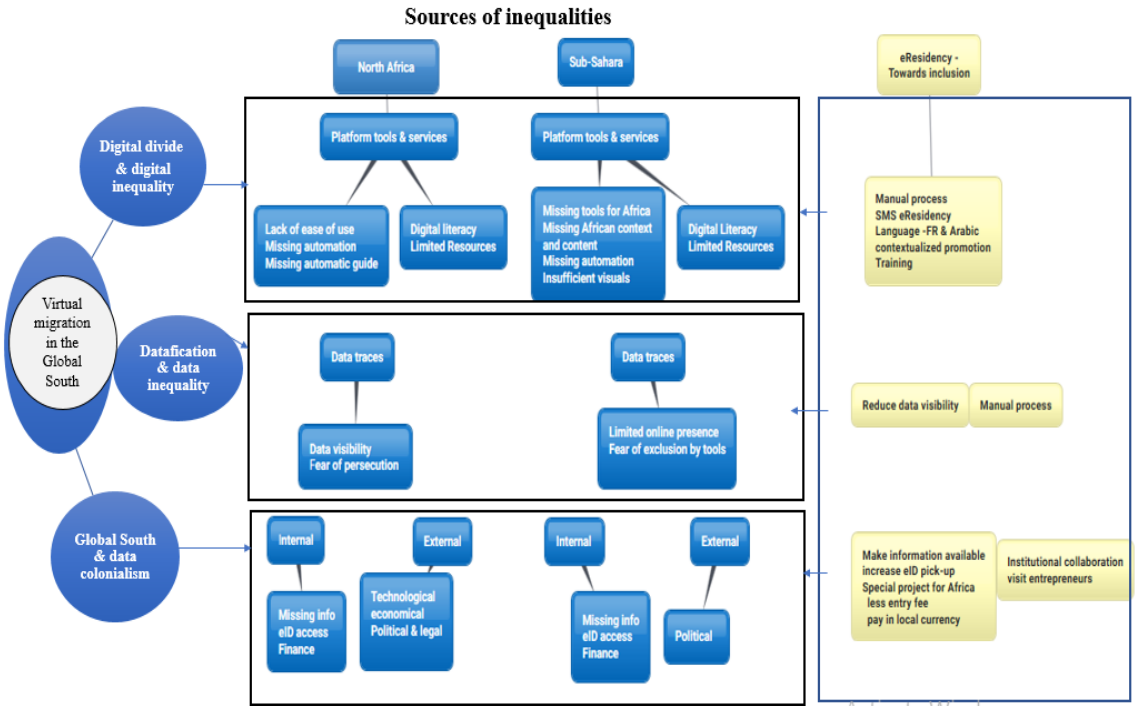


Figure 6.2 Sources of inequalities and proposal for inclusion

7 Discussion

As the world experiences the burgeoning development of digital identification systems, the Estonian eResidency system has been uniquely identified by previous study as having the capacity of resolving the digital nomad paradox earlier stated, where government border restriction policy conflicts with tech-savvy individuals‘ determination for location-independent fluid working pattern with the possibility of unrestricted movement physically and digitally across borders (Masso et al. 2019). Although the nomadic life-style has been consistent with SMET or related field professionals mainly from Europe, based on their personal highly digital skills and regional EGDI (Masso et al. 2019), since the eResidency went borderless with a special target to include those from less developed regions like Africa (eEstonia 2017), individuals from the tech industry with online business from the South are increasingly joining the data-driven program that concurrently compensates their home countries‘ missing digital infrastructural (Patra 2019) environment conducive for the virtual nomadic life. The aim of this study was to investigate the perceptions of the virtual migrants from NA and SSA about digital inequalities in the Global South and compare the outcomes based on empirical data gathered from potential and actual eResidents from those regions. Data has been collected from eEntrepreneurs through one-on-one in-depth interview across the two cases after which, the findings from the analysis were compared based on the experiences of those on board, the expectations of prospective virtual migrants as well as the perceptions of the two groups about the datafication practices of the eResidency with their data traces.

The analysis revealed certain areas of participants‘ experiences that appear to reinforce persistent digital inequalities or even create new forms of global inequalities. To begin with, the eResidency notion and objectives earlier mentioned in the context of the South do not appear to be clear to participants from the two regions of Africa. For example, on the part of SSA participants, the idea before and after joining the scheme did not synchronize in the sense that the program does not meet the needs of eEntrepreneurs from the SSA. Their expectation to leverage the program tools in bridging the Europe-Africa markets in the context of investors and start-ups was inexistent. Moreover, **SSA participants do not seem to have a voice on the platform** they expressed the feeling that Africa might not have been part of the design from the program’s inception. NA participant shared similar opinion with the SSA participant, though acknowledging the eResidency as a global model, however, the program was described as unfriendly to Africa for having only one pick-up location for a continent of 55 countries. From NA perspective, the program did not consider African countries technically mature

enough to be grafted into a global program like the eResidency. Based on their expressions Estonia might have had the assumption that despite Africa's wealth in natural resources, Africans are incompetent. Therefore, based on their experiences the program seems not to be enthusiastic about Africans setting up businesses on the eResidency. Especially referring to a personal experience of delayed feedback while setting up company with his EU partners, the **NA interviewee considered such delay as discriminatory**. Based on their lived experiences, the conclusion here is that the SSA participant was focused on the instrumentality (Tammpuu and Masso 2019) of the scheme, while the NA participant even though he pointed out elements of discrimination, highlighted the possibility of working location-independently which is one of the key tenets of digital nomadism. **However, the lack of clarity of what the eResidency holds for target beneficiaries (eEstonia 2017) even after they join the scheme potentially puts them on the disadvantaged side of the divide, especially where the program has the capacity to communicate same effectively.** As identified by several authors modern technological systems could implicitly legitimize (existing and emergent) inequalities to appear natural (Leurs and Shepherd 2018; Robinson et al. 2020; Southerton 2020). **Thus, currently the program does not seem to equip participants from the South to participate in virtual migration or as digital nomads.**

Also, one of the benefits of the eResidency is the virtual remote access to tools and services on government platform which the transnational digital identity offers to empower individuals for active participation in the contemporary digital economy. As stated in previous study it is capable of providing solution to the digital nomad paradox (Masso et al. 2019). However, participants raised issues about the eResidency platform tools and services. From the perspective of the NA, the platform tools and services were described as complex therefore difficult to navigate without automatic guidance. From the participants' experience it is not user-friendly and does not offer automated reminders for activities timeline. On the part of the SSA, participants do not use those tools, like one of them explained, from her experience the platform tools were designed for the European business environment therefore she could not use them. Both participants said they had even submitted complaints in the form of feedback; however, it is not clear to them how complaints are acted upon. **Essentially participants from both regions do not appear to be equipped by the eResidency for the virtual nomadic lifestyle.** The internet is complex to navigate, while access to a universal digital program does not automatically confer the matching skills, it rather creates a leeway for new forms of

inequalities (Robinson et al. 2020). **The conclusion drawn is in line with what was stated in previous study that there is a need to articulate strategy in order to provide solutions that reflect target users‘ needs** (Masso et al. 2019)

Moreover, as it is akin to digital nomads who are techsavvy, the eResidency creates the enabling envrionment for distant work, which entails the use of digital tools. Recent report reveals the startling digital inequalities in Global South, particularly in Africa and specifically in SSA (UNESCO 2020). The issues in the report centered significantly around internet access and affordability as well as skills. Similarly participants raised concerns about digital literacy and resources. Both NA and SSA eResidents mentioned using mobile phone for their businesses. but, from the SSA the issues pointed out were related to specially curated tools and their requirements including the need for digital literacy (such as English language and literacy) but most importantly, about resources, in some cases the need for laptop or PC, and most seriously the need to pay for internet or software. The African region is predominantly low income geographical zone (World Bank 2020), as participants stated it is a huge problem for those who are struggling to make ends meet to afford internet cost. Along similar path, the NA participants pointed out the need for manual support in some areas for Africans as everyone from the region might not have the required competence to conveniently work with the eResidency system. **Here two major issues confront the eResidents to live the lucrative STEM life, the cost of connectivity and the relevant skills to use (new) digital systems.** This reflects what was stated earlier that numerous factors such as affordability of devices and network services, inadequate infrastructure, and digital literacy and skills gaps inhibit full inclusion (Robinson et al. 2020).

In addition to the above challenges, several other issues identified during the comparison of the analysis across the two regions vis a vis their experiences with the scheme include the use of English as the only language, absence of tax treaty with African countries and inability to create account with traditional banking institutions. From the SSA perspective, as one of them said, 300 million people communicate in French language most of whom are in **SSA therefore it is a disincentive for them to struggle with English** while participating in the global eResidency scheme. The NA participants shared similar view, as one equally complained about getting outcome in Estonian language sometimes which he had to translate in google. This does not quite reflect an internationalized platform for global participation (eEstonia 2017) and it is capable of holding back African eResidents from fully participating, thereby enhancing the

preexisting divide. Furthermore, on the part of NA, they stated the need for tax treaty which the eResidency has already established with other countries. Previous study had stated this (Patra 2019), however with Africa it seems to be a peculiar situation as the continent has no tax culture, which participants mentioned as justification for tax treaty, especially as double taxation is not regularized automatically (Estonian tax and customs board 2020). Moreover, the eResidency does not currently empower eResidents as foreigners to establish bank accounts with **traditional banking** institutions in Estonia unless they meet the conditions set out by the banks. However, the program recognizes Fintech services (eResidency.gov.ee 2020). Unlike participants from SSA, home-level legislative restrictions preclude participants from NA, to **repatriate fund in foreign currency**, more so in NA (Egypt) Fintech is not fully recognized as one of the participants stated. **With these challenges current eResidents from Africa do not seem to be empowered by the program to participate in the global digital economy, hence the eResidency might in itself be a source of global digital inequality especially as its services do not appear to match the needs of the African region as opposed to participants from mainly Europe and North America.** The findings here therefore perfectly agree with conclusions drawn on earlier study on Digital nomads which points out the need of the scheme **to restrategize on what eServices to offer based on its target participants** (Masso et al. 2019). Having discussed the outcomes of the analysis across NA and SSA eResidents based on their experiences, the transnational digital scheme does not appear to equip these social groups currently, rather the program seems to foster prevailing inequalities while creating avenues for new divides in Global South. Moreover, from what the analysis disclosed in the context of prospective virtual migrants some more patterns of disparity appear to manifest as discussed subsequently.

According to previous study the diversity of the eResidency has gained momentum since 2017 especially as it is applicable via online channel, but more so based on its targeted marketing beyond the EU (Masso et al. 2019). However, as the analysis revealed among all participants from both NA and SSA only one from the NA region knew about the scheme and applied to it, but could still not join the program because he could not meet up with the logistics of going to France to pick up the eID. **The rest of the participants had no prior knowledge about the program.** This is critical as the program has the objective of including the African region being part of the Global South to participate in the digital economy. This might however explain why the universally accessible and applicable program is characterized by socio-geographic disparity as in the example of Europe (65%) to Africa (3%) participation (Tammpuu and Masso

2019). But it also raises further question as to how the target marketing is conducted, especially with data tools and their shaping role (Milan and Treré 2019), which is opaque and difficult to discern (Southerton 2020). **The conclusion is that prospective eResidents are not attracted by the program, at least not now.**

In order to enable certain category of social groups to adopt a technology for its services, Gelb and Metz (2017) stated the need for context and emphasized convenience of use. Beyond questions around language and finance, those who are yet to join the program, those from SSA observed that the "what", "why" and "how" of the scheme for an African are missing from the platform. Otherwise, they considered the program to have been created for users who belong to digitally literate category as previous authors also identified with the eResidency (Gelb and Metz 2017). They further raised concerns about missing visual attraction for entrepreneurs from that region. The need to have a clear definition of the program strategy in order to align provided eServices for target eCitizens has been suggested in previous study (Masso et al 2019). Moreover, the enthusiasm to adopt and actively use a system relies hugely on the convenience of such system for users (Gelb and Metz 2017). For example, those from NA raised concern about the possibility of having real-time support around-the-clock with the current configuration because it was not clear for them to grasp, meanwhile this remote or virtually supportive working capability is organic for Estonians, as was seen even with the COVID19 (Brown 2020). However, in the African context, some users experience ease of use of technology when human help is reachable and in order to support those regions challenged by reliable connectivity, the process may have to be supplemented by offline alternative (Gelb and Metz 2017). **As a concluding note, it is difficult to state how the platform tools attract potential eResidents from Africa.** The next section sheds more light with illustration.

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Africa is a region with 55 countries (AU-REC 2020) however, currently the continent is yet to establish a political concept for intra (or extra) mobility (Deutschmann et al. 2019). Meanwhile, pick-up location for the eID is in one country for the whole continent (Patra 2019). Participants raised concern along those lines. From SSA, participants perceived it as a way of excluding them, as they pointed out socio-cultural difference between NA and SSA, in addition to the logistics of travelling to reach the eID. The NA participant who had attempted the process earlier further interrogated the reason for the 6-month duration for pick-up. Based on the reactions from the two regions, **beyond missing attraction for prospective participants, as stated earlier the program might be enhancing global inequalities and divides.** Moreover,

it has been argued that the eResidency is not a fully digital program because physical presentation is required to pick-up the toolkit (Kimmo et al. 2018). **The outcome reiterates what had been stated in previous literature that having only one pick-up center for the whole of Africa creates a barrier to eResidency adoption** (Patra 2019)**.** Therefore, **Africa's inaccessibility to the eID tends to replicate the physical migration control towards the sustenance of the North-South divide** (Leurs & Smets 2018) essentially excluding and disempowering eligible virtual migrants from the digital economy (Beduschi 2019).

Beyond administrative and political issues, the technological and economic development of a country are determinants of the overall adoption of the eResidency (Tammpuu and Masso 2019). As participants expressed their opinions about the program from NA region (particularly Algeria and Sudan), they said they do not have the right ecosystem for eCommerce as the infrastructures are not there. Besides participants from these two countries expressed zero trust in their government, beyond lack of trust they also expressed fear. Moreover, these countries have home-level legislations, (and international sanctions on the part of Sudan) that create a huge barrier to the uptake of a global digital program that would involve fund transfer. Interestingly though, those from SSA did not present any of these issues. While **these obstacles tend to reinforce the global digital inequalities, as the participants did not even promise to think about joining the scheme**, the most significant issue was about the visibility of their data that might get into the hands of their government. This is discussed below.

The world is witnessing a transformation emerging from progress in big data and AI that enhance the digital world exponentially, providing great opportunities and facilitating services (Robinson et al. 2020). As evident in the current boom with digital identity systems (Beduschi 2019) such as the Estonian eResidency that includes and enables digital nomads, inclusive of those from the South (eEstonia 2017), so that they are able to fulfil their fluid working penchant, location-independently and transnationally as digital citizens, but also as data subjects (Masso et al. 2019). While these leverage the infrastructural services of the Estonian Government platform which equip, but also compensate for digitally-weak South in this case, participants generate data traces. Moreover, the eResidency has changed overtime from its open policy to a more restrictive method where stringent background checks are conducted for selection of applicants and control of eResidents' activities for risk mitigation (Masso et al. 2019). Alongside the benefits of these technologies are challenges as studies reveal (Beduschi 2019; Robinson et al. 2020; Southerton 2020) and as pointed out by participants. From NA,

participants expressed discomfort with the datafication of the eResidency that makes their data visible. While SSA, participants did not consider it uncommon as far as their consent was sought and approval given, one even said it would help her identify those from Africa. On the contrary NA participants expressed fear of data misuse based on the visibility, which some authors equally consider as huge issue (Ajana 2020). From another view the SSA expressed concern about exclusion because participants might not be online as other authors also affirm about data tools (Gelb and Metz 2017; Gillespie et al. 2018). Moreover the fear expressed by NA was mainly in relation to their home governments‘ dictatorial excesses including tracking and surveillance for potential harm as in line with other authors (Gelb and Metz 2017). Conversely though, for SSA they blamed their government for the unorganized citizens‘ data that expose the few that are online to various kinds of personal data exploitations. Moreover, from both NA and SSA one thing that is common is missing democratic laws of personal data protection, even where such laws exist they are hardly implemented as participants stated which also affirms what was stated earlier (CIPESA 2019; Gelb and Metz 2017).

Therefore, as the analysis revealed datafication practices of the eResidency present huge threats to virtual migrants from NA and SSA, and this could deter participation thereby potentially reinforcing prevailing inequalities or breeding new ones in the South. While most participants expressed trust in Estonian government and even the EU, one NA interviewee said he can never trust any government after the Snowden revelation. Moreover, generally from the NA participants said all governments share data either under control or otherwise, that data is goldmine with an uncertain future. Moreover, as social media is culled as well as biometric data collected, with possible privacy breach, embedded inequalities, potential unperceived biases, leaks and hacks (Southerton 2020) that characterize modern datafication, SSA perceive it as a shortcoming of a system dealing with diverse population, for them the process should be manually supplemented otherwise they risk being excluded. But the eResidency reassures of its transparency without introducing new risks as stated by Ott Vatter while putting the datafication measures in place (Global Govt Forum 2019). Nevertheless, this study reflects the outcome of previous study in digital nomads that the eResidency is becoming highly selective like the traditional migration policy of Estonia, which admits STEM migrants mainly from highly digital regions (Masso et al. 2019). Participants however shared ideas on how to include the African region as discussed hereafter.

As previous study reveals that digital nomadism studies are predominantly conducted around countries in the Global North, they often are characterized as well by western comprehension of politics and participation (Emmer and Kunst 2018). For this reason, in order to foster inclusion of the Global South, the regional contextualized solutions proposed by participants are relayed as to better guide policy towards inclusive actions that could eliminate the dividing lines. The strategic solution proposed by SSA is to develop an SMS version of eResidency and in French mobile App, since the region's major tool of communication is SMS. In addition, to visit the continent at institutional and entrepreneurial levels. They equally proposed training for participants. On the part of NA, they proposed developing a special eResidency project for NA and Africa including rebate on entrance fee and payment to be denominated in their local currencies, with context-driven promotion that should have content in French and Arabic. Here the conclusion from the two regions is in tandem with the modus operandi of the scheme, that the eResidency program is being developed as a start-up model constantly undergoing transformation to meet users' specific need (Kotka et al 2016). Meanwhile, generally the two regions suggested spreading the information about eResidency in Africa, creating more pick-up centers for Africa, and developing a mechanism that can guarantee a corresponding value between the African currencies and the Euro.

8 Conclusion

The aim of this study was to investigate digital inequalities in the Global South from the perspectives of (potential and actual eResidents) of NA and SSA virtual migrants. More specifically the study sought to identify the challenges that the two regions might be facing, such that Africa‘s participation in the globally accessible virtual migration scheme is low. Especially, where such a transnational digital residency program has the key objective of equipping digital nomads from less developed regions like those found in Africa, to participate in the web economy. The Estonian eResidency issues government-backed eID that assigns eCitizens access to the advanced technological infrastructure of eEstonia, as a counterpoise to certain home-level digital shortcomings.

This study contributes to previous studies in transnational digital identity and digital migration, that point out the shaping role of modern digital technologies in the emerging field of virtual migration, by equipping certain digital migrants to participate in the digital world, while concurrently being seemingly instrumental to the potential exclusion of others, at individual or even regional level from life’s chances that the digital economy has to offer (Leurs & Smets 2018; Masso et al 2019; Tammpuu & Masso 2019). Moreover, it extends the work of Patra (2019) about digital and data inequalities through the Estonian eResidency program, whose work identified the asymmetrical distribution of pick-up centers for the eResidency toolkit, alongside the digital infrastructural challenge of the African region. Therefore, it contributes to the identified gap about the low participation of eEntrepreneurs as virtual migrants from the African region, which justified the need for investigating their perceptions to shed light on the underlying causes of inequalities that might be confronting the region. Also, as the result proved it further contributes to the study by Masso et al. (2019) about the eResidency that is increasingly replicating the stringency associated with the conventional Estonian migration policy based on the datafication practices of the scheme. As regards what this debate individually adds to the field, it validates the inaccessibility to the toolkit as a major barrier for potential virtual migrants to adopt the eResidency, also, the weak technological infrastructures at home country and the language limitation as factors that undermine the ability of eResidency to equip actual eResidents. Moreover, it attests to the highly selective behavior of the eResidency based on the prevailing datafication practices. All these potentially bolster inequalities in the South including legacy and emergent, of digital and data.

In addition, the results revealed missing information about the eResidency as a major potential source of inequality. While none of the prospective virtual migrants but one knew about the program before the interview call, the analysis revealed that even those currently on the program do not have essential information about the scheme's potentials towards the African region. For both NA and SSA this is crucial especially in an era of information abundance. This provides possible explanation as to why the region participates the least in the eResidency; meaning it is unlikely that the program attracts potential eResidents for uptake. Digital skills and resources were also identified in the analysis by this study as monumentally reinforcing inequalities in the South including the NA and SSA. Most of the existing eResidents do not seem to be empowered by the eResidency. Based on these two variables, it could be assumed that the eResidency is yet to integrate African context into the system as participants from the two regions commented. While the empirical findings did not quite differentiate between the NA and SSA, literature however revealed that SSA is the most disadvantaged in the Global South. Moreover, another significant finding which appears not only to exacerbate existing unevenness but that is capable of reproducing new disparities in the institutions' use of participants' data. While the issue of digital inequalities is unnerving data inequalities could produce unpleasant consequences as the results revealed between the NA who could be harmed based on visibility and the SSA who could be excluded as data poor. Meanwhile based on the results for both NA and SSA weak home country democratic laws expose them to data exploitation within and outside.

This paper concludes by arguing that, the Estonian digital identification system is a universal scheme that is globally accessible with a particular focus on virtual migrants from the South however, by being online for application, selection and participation it tends to be more adaptive to those with greater online presence vis a vis access, connection and use of internet; meaning it is yet to capture the context of the South.

9 Limitations and Further Studies

First, the initial plan was to get equal number of female participants as well as male, and from different countries across the NA and SSA regions (five regions). However, the interview period coincided with the outbreak of the COVID-19 pandemic which should have facilitated the process, but people called in to either cancel or postpone the interviews because they had been stressed.

Initially five women were reached for the interview but in the end, it was a ratio of two women to ten men that participated. Another limitation was that the eResidency platform does not facilitate getting African participants easily, the first participant was reached through the French group. Furthermore, just before the interviews, when participants got to know that it was going to be in English, some of them withdrew. Nonetheless, I got some more and had to explain in French but conducted at least one interview fully in French. Some potential eResidents could not participate because they said they did not have the means to connect to the internet, for others there were interruptions, and we had to do one interview at three different times in two days. Considering the time constraints, it was not possible to cover participants across the five regions, and language zones. Therefore, South Africa was not included because the only participant, a female eResident, postponed the meeting on more than three occasions. Despite the highlighted limitations, this study spurs the desire to further investigate through mix method, the perspectives of tech entrepreneurs about virtual migration for Africa -the feasibility, the challenges. Additionally the role of digital identification systems in traditional and tech-driven mobilities could be comparatively analyzed.

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Appendix

A Interview schedule

I Actual eResidency Participant

1. *Please can you tell me about your online business? Can you please explain how you got into this business?*

2. How would you describe the Estonian eResidency program? Please how did you get to know about the Estonian eResidency program? (How was the process of applying for the program?) What are your thoughts about applying for the program?

Ok, next, I'd like to ask you some questions about your business

II Digital Divide and Digital Inequality

3. Please describe how are the digital tools helping with your business? Can you describe how digital tools, skills and services support your business online for example on the Estonian eResidency platforms, as an online/remote entrepreneur from Africa?

Please describe the digital tools you know, that would enable the distant work? Please compare these tools? What are the similarities / differences?

Please would you describe how you use these digital tools/devices? What special skills would you say are required to access (own) these digital tools in general / eResidency platforms and services in particular? What are the advantages of using these digital tools? How about disadvantages?

Please what do you think of the eResidency platforms and online businesses from Africa, like what you do? Would you say the eResidency platforms (including the social media groups) have negative or positive support for what you do? How would you describe access to eServices on the eResidency platforms (both government and private services) from anywhere in Africa? Do you find it easy? Or Difficult to access these services?

Please how about challenges? What are the challenges you attribute to the use of the eResidency platform and services? Could you give an example?

III Datafication and Data Inequality

4. For the next question, I will like to know your opinion about institutions in Estonia or the EU use of data. *How would you describe your data traces (data you leave behind online like on the eResidency platforms) becoming resources for creating selective migration policy? (For example, when you actively contribute to answering questions posed on the social media groups by potential eResidents from Africa or actively participate in posting tips to promote eResidency for Africa)?*

What do you think about your data traces for example generated on the eResidency community platforms that are used by the government?

What do you think about different institutions, like the Estonian government or the EU merging your data from different online sources through background check to assess you for migration decision?

Next please see these three examples, how different institutions may use the digital trace data from eResidency program / or generally from digital platforms?

What is your opinion about background check of eResidency applicants, based on different register data -Example 1 (see Figure 1, Criminal background check)I.e. based on this register data including the eResidency (Figure 2, different registers from the eResidency dashboard) and mostly external checks the decision will be done, if the eResidency card will be issued (Figure 3, eResidency eID card)

Example 2. Checking the online activities of the eResidents (Figures 4, eResidents online signing and, 5 online user data that can be aggregated)

This is another example where the data pulled from different sources about an online user is aggregated to identify the user. Also here is the online signing for the eResidents. Even the eResidents's activities can be checked. What do you think about these two images?

Example 3: Controlling the physical mobility of the digital migrants (Figures 6, system check and control).
Based on the background checks earlier seen, this is the Frontex – EU border control they have the right to restrict or permit who can access the EU or not with their tools. eResidents are equally controlled either physically not just digitally.

Please compare these examples. What are the similarities? Differences? What do you think about these examples? What do you mean these data solutions are implemented in the case of eResidents in general? E-residents from Europe / Asia / America / Africa? From North-Africa? From sub-Saharan Africa?

How do you feel about using such data to control you?
What are your feelings about using such data to control eResidency applicants generally?
What is your opinion about using such data to control Africa's participation in the program?
Would you say the North and Sub-Sahara Africa are controlled equally/similarly or differently?

IV Global South and Data Colonialism

5. Please let me now ask you to think about the eResidency program; in terms of the participating regions and the distribution of the tool-kit pick-up centers. For the next questions I'll like to draw your attention to the eResidency program being an example of virtual migration not only to Estonia but to the wider EU. In order to plan for migration in general (for example to identify the people coming/applying, their arrival etc.), the EU can check social media platforms and other migration platforms, (including the eResidency platform) for information in advance

Please how can you describe the participation of African eEntrepreneurs in the eResidency program (both from the North and Sub-Sahara Africa) with other regions?

If you look at this map, how would you describe the participation of Africa compared to other parts of the world? (Figure 7, map of eResident participants). What are the differences? Similarities? Please give examples

Please look at this other map, how would you describe the distribution of pick-up centers across Sub-Saharan and North African regions? compared to other parts like Europe? (Figure 8, pick-up location)

What do you feel are the major factors for the low representation of the African region in general but particularly the Sub-Sahara Africa in the eResidency program?

What key practical suggestions would you propose to increase the region's uptake and participation in the Estonian eResidency program?

How would you describe your digital identity? How do you understand institutions like the Estonian government and the EU being in control of you or a region like North or Sub-Sahara Africa based on the digital (data traces) identity?

What do you think are the advantages and disadvantages of the use of electronic systems to check your information online and control individuals or even whole regions like Africa?

What consequences can such advantages or disadvantages produce?

V Virtual Migration and the future of eEntrepreneurs from Africa

6. For the next questions I'll like to draw your attention to the eResidency program being an example of virtual migration not only to Estonia but to the wider EU. In order to plan for migration in general (for example to identify the people coming/applying, their arrival etc.), the EU can check social media platforms and other migration platforms, (including the eResidency platform) for information in advance. What do you think about the future of Africa and eEntrepreneurship? What are the strengths and weaknesses of the program for Africa?

Please what are your thoughts about the eResidency program and Africa eEntrepreneurship?

What key factors would you say can advance eEntrepreneurship in Africa based on the eResidency program?

Please what are the foreseeable major factors that can undermine the outcome of the benefits of the eResidency program for Africa eEntrepreneurship? How can these be mitigated?

Please compare physical migration and digital migration (via e-residency)? What are the differences? Similarities?
Please what is your understanding of digital migration? How are digital devices being used both in physical migration and digital migration? Would you say they are used similarly or differently?

Please what is your opinion about digital tools used in implementing migration policies that include or exclude individual migrants or even whole regions? Who should have access to migration or digital migration? Why? why not?

VI Concluding.

7. *As we round up, please* how do you find the interviews in generally?

Do you think of any aspect that should have been covered that might have been left out?
Are there some questions that you do not particularly find interesting/relevant?
Please may I ask which region/country you are from? How old are you?
Thank you once more for your participation.

Datafication and Data Inequality

Example 1. Background check

Figure 1
Source: Google

As eResidents apply for the eResidency background checks are carried out about them. Normally background checks are investigations carried out by interested party with the intention of checking someone's (or a business) past history focusing principally on criminal and credit activities. Similar to different institutions the eResidency performs background checks about applicants in order to make informed decision. Data sourced for background checks are gathered from diffferent data registers like those on the eResidency dashboard as well as social media platforms. So based on the different register data checks a decision will be made whether to issue the eID or not.

Example 1 Different registers from the eResidency dashboard

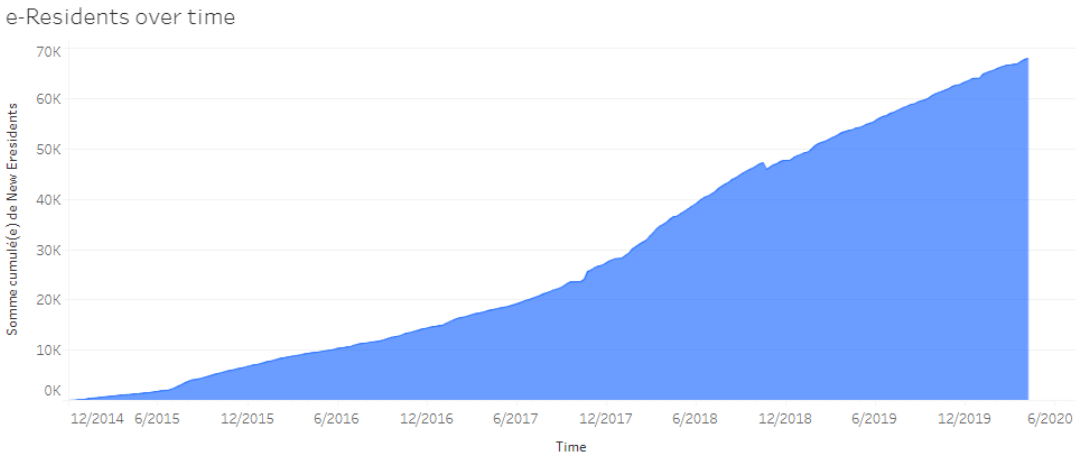


Figure 2 – eResidency applicants over time

*Source: (*eResidency 2020)

These are examples of different register Data found on the eResidency dashboard. These are not the only ones checked by the eResidency, the program also checks social media platforms. In addition to the four that follow, these are all examples of register data.

Information that can be aggregated to identify an eResident (online) user – Quarterly application outcome

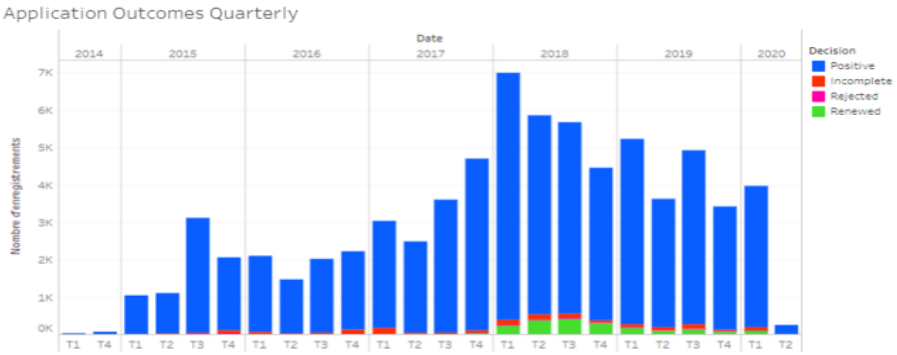


Figure 2b – eResidency quarterly application outcome

Source: (eResidency 2020)

Information that can be aggregated to identify an eResident (online) user – Top 50 countries/companies

Top 50 Application Countries

rank	Nationality	
1	Finland	5 351
2	Russia	4 606
3	Ukraine	4 221
4	Germany	4 067
5	China	3 422
6	United Kingdom	3 407
7	United States of America	3 242
8	India	3 142
9	Japan	3 118
10	France	2 916
11	Italy	2 870
12	Turkey	2 521
13	Spain	1 882
14	Latvia	1 836
15	South Korea	1 719
16	Netherlands	1 329
17	Poland	1 306
18	Sweden	1 247
19	Pakistan	1 052
20	Lithuania	901
21	Canada	874
22	Belarus	829
23	Greece	824
24	Belgium	776
25	Australia	734
26	Hungary	723

Top 50 Companies by Countries

rank	Nationality	
1	Ukraine	974
2	Germany	939
3	Russia	883
4	Turkey	687
5	France	636
6	Italy	542
7	Spain	531
8	Finland	512
9	India	498
10	United Kingdom	494
11	United States of America	318
12	Latvia	275
13	Japan	269
14	Poland	267
15	Netherlands	240
16	Greece	226
17	China	199
18	Iran	181
	Sweden	181
20	Belarus	155
21	Romania	152
22	Belgium	144
	Hungary	144
24	Canada	136
25	Lithuania	130
26	Australia	113

	Romania	713
	Egypt	680
	Iran	621
	Brazil	618
	Austria	512
	Portugal	512
	Switzerland	468
	Israel	452
	Denmark	442
	Czech Republic	412
	Norway	382
	Bangladesh	376
	Undetermined Nationality	353
	Tunisia	340
	Serbia	310
	Slovakia	300
	Croatia	294
	Bulgaria	262
	Argentina	261
	Ireland	260
	Morocco	256
	Singapore	243
	Syria	227
	South Africa	218

27	Portugal	
28	South Korea	
29	Austria	
30	Egypt	
31	Brazil	
32	Croatia	
	Denmark	
34	Israel	
	Switzerland	
36	Pakistan	
37	Serbia	
38	Czech Republic	
39	Slovakia	
40	Tunisia	
41	Norway	
42	Morocco	
43	Bulgaria	
44	Ireland	
	South Africa	
46	Argentina	
47	Mexico	
48	Venezuela	
49	Bangladesh	
50	Lebanon	

Figure 2C – eResidency top application countries

Source: (eResidency 2020)

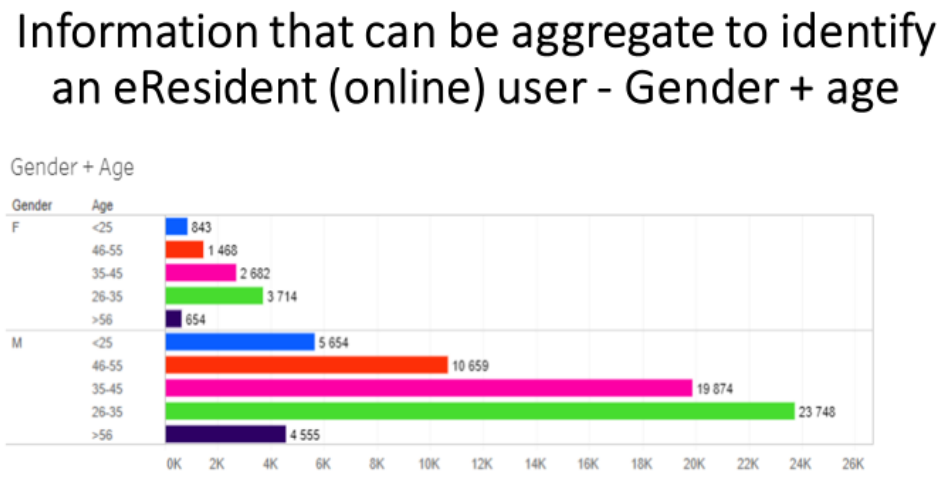


Figure 2d– eResidency applicants demographic information

*Source: (*eResidency 2020)

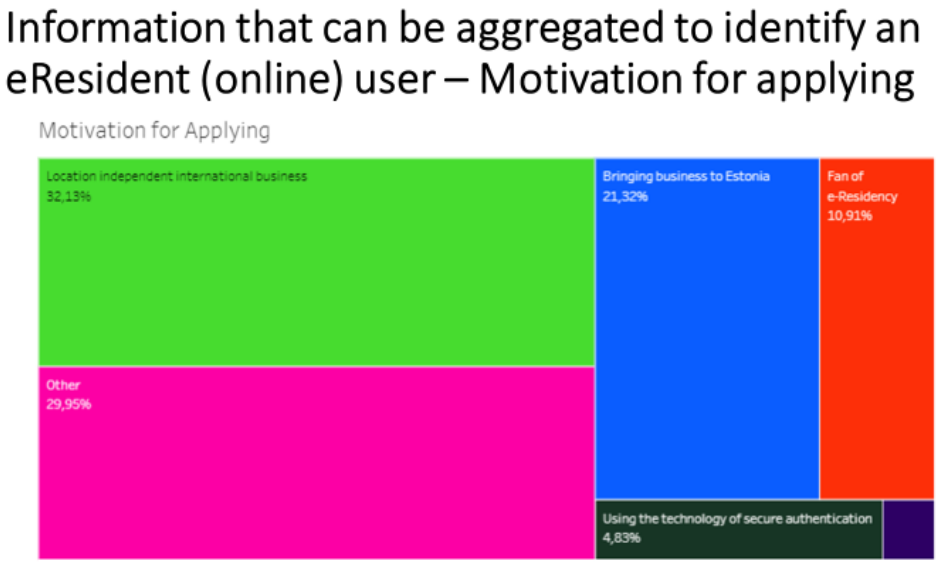


Figure 2e – eResidency motivation for applying

*Source: (*eResidency 2020)

Example 1. eID card

Figure 3.

*Source: (*eResidency 2020)

After the check of the different data registers if the applicant is safe to join the eResidency then the card is issued that entitles the individual as an eResident.

Example 2. eResidency digital signing

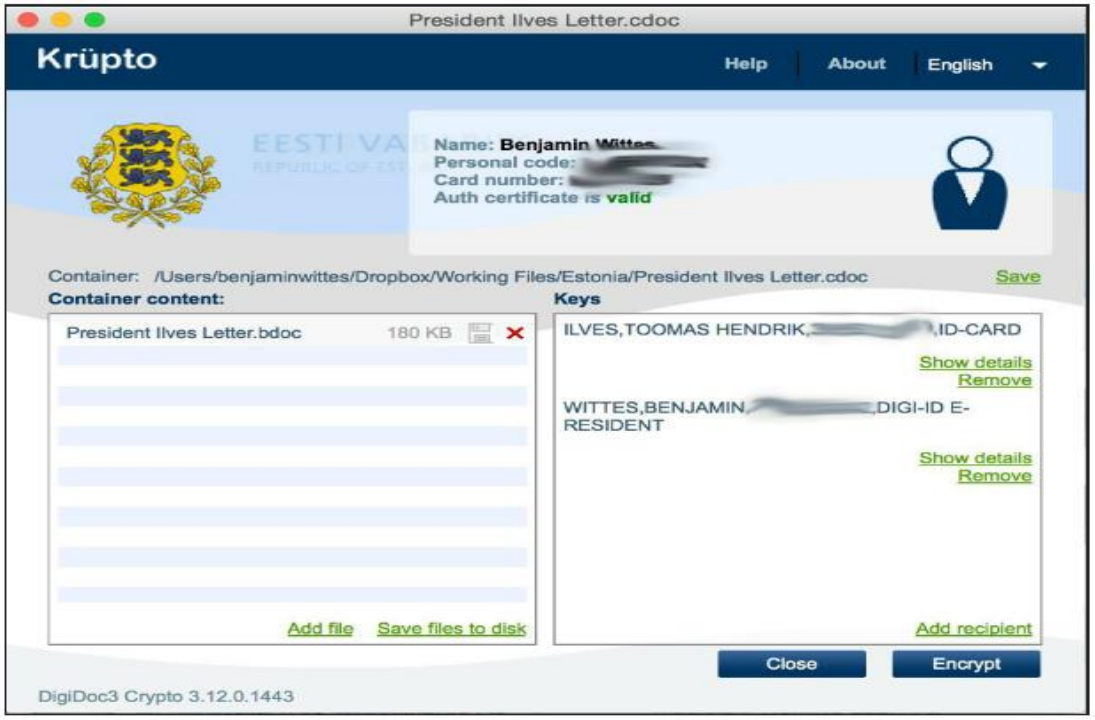


Figure 4

Source: (eResidency 2020)

The eResidency checks and controls eResidents‘ activitities as a way of mitigating against certain risks mainly, technological risks and economic hazards (money laundering and cybercrime). In the course of guiding against the aforementioned risks both virtual and physical mobilities of the eResident are controlled especially where they decide to visit Estonia physically. Example 3 shows how the physical controls are conducted to determine who can enter the country and who is not authorized.

Example 2. Aggregated personal information

Figure 5

Source: Google.com

This is an example of online user information that can be aggregated from different sources whether on the eResidency or other online platforms that enables identifying the target user.

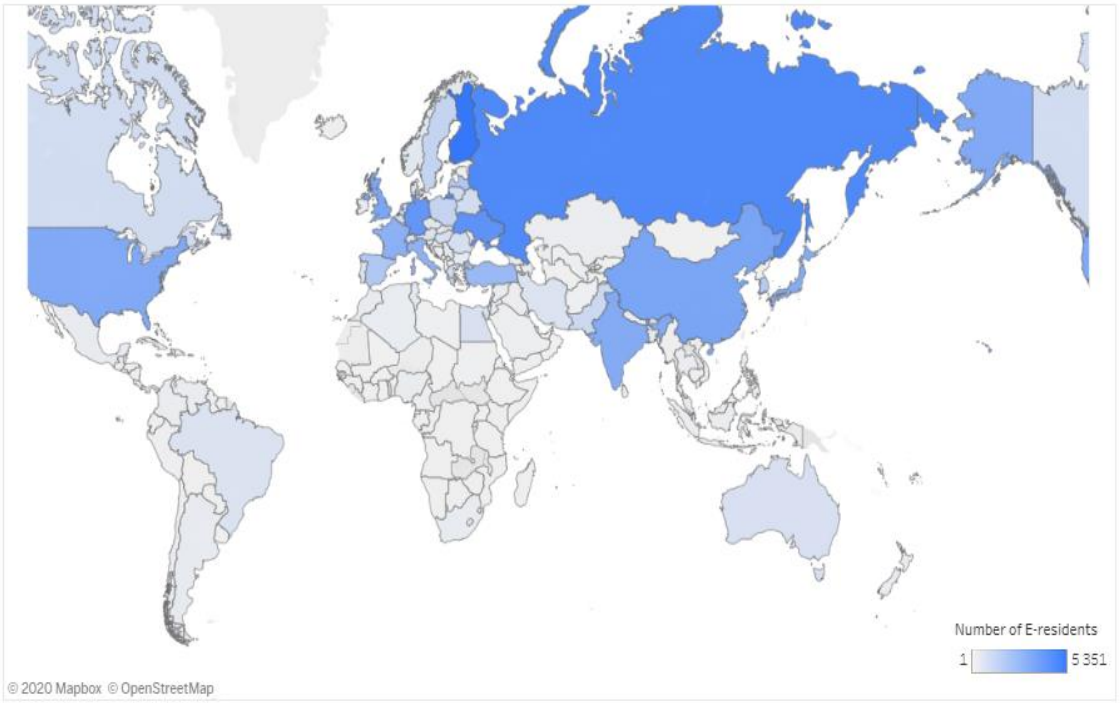
Example 3. Frontex border check/control based on background check

Figure 6
Source: Frontex (2017)

The EU border control authorities leverage big data technological tools to check and control border movements. This is based on the background check of migrants/individuals so that they control the borders restricting some while granting hassle-free passage to others. eResident applicants can be checked and controlled as well should they decide to visit the country.

Global South and Data Colonialism

Example 4. eResidents‘ regional participation

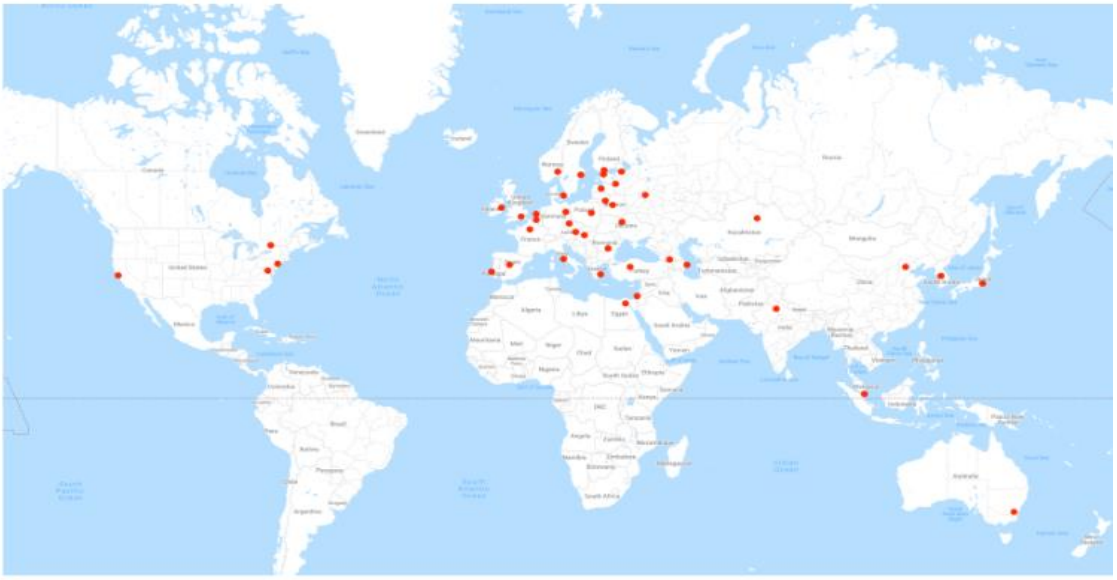


*Source: (*eResidency 2020)

Figure 7

The map shows the progress so far of eResidents globally. While the darker shades signify higher number of participants, the lighter the shade the fewer the participants. Africa appears to be the region with the leat partcipants

Example 4. eResidency tool-kit pick up locations world wide



Possible locations for picking up your e-residency card: **Australia**: Canberra, **Austria**: Vienna, **Azerbaijan**: Baku, **Belarus**: Minsk, **Belgium**: Brussels, **Canada**: Ottawa, **China**: Beijing, **Czech Republic**: Prague, **Denmark**: Copenhagen, **Egypt**: Cairo, **Estonia**: Tallinn, **Finland**: Helsinki, **France**: Paris, **Georgia**: Tbilisi, **Germany**: Berlin, **Greece**: Athens, **Hungary**: Budapest,**India**: New Delhi, **Ireland**: Dublin, **Israel**: Tel Aviv, **Italy**: Rome, **Japan**: Tokyo, **Kazakhstan**: Astana, **Latvia**: Riga, **Lithuania**: Vilnius, **Netherlands**: The Hague, **Norway**: Oslo, **Poland**: Warsaw, **Portugal**: Lisbon, **Romania**: Bucharest, **Russian Federation**: Moscow, Pskov, St Petersburg, **Singapore**: Singapore, **South-Korea**: Seoul, **Spain**: Madrid, **Sweden**: Stockholm, **Turkey**: Ankara, **UK**: London, **Ukraine**: Kiev, **USA**: New York City, San Francisco, Washington D.C.

*Source: (*eResidency 2020)
Figure 8

The map indicates the geographical distribution of eResidency toolkit pick-up locations globally. When people apply to be eResidents if they are accepted then they have to physically visit any one these locations which they would have selected during their application so that the eID is delivered for them to pick-up