



DIGITAL TRANSFORMATION AND EASE OF MIGRATION PROCESS (A CASE STUDY OF LITHUANIA)

**Joshua Olusegun Fayomi¹, Dmytro Mamaiev²,
Adebayo Ahmed Olanrewaju³**

Kaunas University of Technology, Kaunas, Lithuania¹
joshua.fayomi@ktu.edu

Lithuanian Centre for Social Sciences, Lithuania²
dmytro.mamaiev@studio.unibo.it

University of Ilorin, Kwara State, Nigeria³
adexolanrewaju11@gmail.com;

Abstract: *International migration has been a significant trend in recent years. Digital transformation is regarded as a continuous process affecting virtually every area of life in societies worldwide. It has had a major impact on international migration, resulting in the emergence of a new era of interconnected migrants and digitalized migration processes. Digital transformation enables network building among migrants, making it possible to interact in a “digital space” from different geographic locations in real time. Also, through the use of digitalization, migrants can react to unexpected events such as socio-economic developments, natural disaster, climate change etc. by deciding to change the plan to migrate in terms of time and place. In this context, digital transformation has been defined as “the use of new digital technologies (social media, online information portals for migrants, job-search portals designed for migrant workers, governmental services in digital format)” to enable major migration improvements to enhance migrant workers’ experience or streamline the migration process. Taking inspiration from the new field of ICT and migration, this paper explores the migration process in Lithuania, and the role digital technologies has played to impact the ease of migration. It established a conceptual framework of digital transformation resources used by migrants during the migration process based on a literature review. Four main elements, located along two axes are included in the framework: the “host society-source society” and the “pre-migration phase-post-migration phase” axis. We conducted a survey and empirical assessment of survey results and concluded with some avenues for future research. Future work should increase the sample size for result validity.*

Keywords: digital transformation; ICT; migration process; migrants; technology; Lithuania.

THE ARTICLE CAN BE CITED AS FOLLOWS:

Fayomi, J.O., Mamaiev, D., Olanrewaju, A.A. (2023). Digital Transformation and Ease of Migration Process (A Case Study of Lithuania). *Psychological Research (in the Balkans)*, Volume 26, Number 2, 145-160. ISSN 2815-4797 (Print), ISSN 2815-4800 (Online). DOI: <https://doi.org/10.7546/PsyRB.2023.26.02.06>

Submitted – 10 February 2023

Revised – 25 May 2023

Published – 30 September 2023

The authors have no support to report.

The authors have declared that no competing interests exist.

The authors have read and approved the final manuscript.

INTRODUCTION

The importance of technology on migration is apparent; it makes it easier for people to move around the world, build, grow and maintains diaspora groups and familial connections. Migrants utilize personal computers, cell phones, and internet access to construct, maintain, and recreate informal and formal transnational networks in both the real and digital worlds, reinforcing and molding their sense of individual and communal identity (Haythornthwaite 2007; Leurs & Prabhakar 2018). Arguably, there have been major differences in the experience of migration before and since the creation of the internet and digital communication media (Hidayati 2019), in addition to processes of social inclusion, participation and visibility (Alam & Imran 2015).

The social and psychological aspects of the digital technologies have become an important research topic (e.g. Reips & Buffardi, 2012). An increasing share of academic work has addressed the use and consumption of media including radio, video, television and the internet by migrants (e.g. Hidayati 2019). In addition, the study of how migrants utilize information technology, interact, exchange information, promote cultural and religious practices, and enhance political mobilization across borders is accumulating a significant body of theoretical and empirical research (Diminescu & Galbaud, 2017; Nedelcu & Soysüren 2020; Mezzadra 2017; Diminescu 2017; Collin, Karsenti & Calonne 2015; Smets, Leurs, Georgiou, Witteborn & Gajjala, 2019; Retis & Cepeda 2016; Román-Velázquez & Retis 2021; Retis 2019; Alencar Kondova & Ribbens 2019; Alencar 2020; Alam & Imran 2015; Nedelcu & Soysüren 2020).

Despite the increasing academic interest in the integration of digital technologies to migration phenomenon, rapid technological changes such as introduction of mobile internet and immigration online services require continuous revision. In this sense, this study reflects upon these changes by presenting theoretical and empirical studies from an interdisciplinary perspective. Despite the fact that the theoretical and empirical foundations of ICT-related migration studies are always dependent on the cultural and social characteristics of sending and receiving societies, research goals and objectives, and available human, economic, and time resources, convergence tendencies in this area of sociological knowledge can be identified (Oiarzabal & Reips, 2012).

Hence, this research aims to pinpoint these convergence points and, on that basis, examine recent

studies on the impact of digital transformation technologies on migration in Lithuania. Moreover, it is aimed to identify the digital transformation factors that contribute to ease the migration processes at the pre-migration and post-migration phases.

BRIEF HISTORICAL BACKGROUND OF LITHUANIA MIGRATION

Emigration has dominated Lithuania's migration history in the three decades since the country's nominal restoration of independence in 1991. Since 1990, the number of people residing in Lithuania has decreased by 899, 500, or about 24% of the total population, owing primarily to emigration outnumbering immigration. This trend began to change in recent years. The number of migrants declined while the number of immigrants increased. Lithuania's resident population increased marginally in 2019 for the first time in 28 years, according to preliminary figures published by Statistics Lithuania. This was primarily attributable to net foreign migration that was positive. Contemporary migratory trends emerged after Lithuania regained independence, and they became even more pronounced after Lithuania joined the European Union (Damuliene, 2013).

In 2019, the majority of international migrants (around 74%) were working (20 to 64 years old), migrants under the age of 20 have decreased slightly (from 16.4 86 percent to 14 percent) from 2000 to 2019, and a constant share (around 12 percent) of international migrants and older since 2000 (Current Trends of Migration in Lithuania, 2020).

The above chart shows the rate of emigration in the early days of Lithuania independence this was as a result of the large number of people who went back to their various countries of origin e.g. the Russians, Ukrainians, Belarusians and citizens of other countries of the former USSR left Lithuania and returned to their countries of origin. This is driven by a combination of economic hardships, social factors such as demographic changes, political uncertainties, and the increased mobility afforded by EU membership. These factors contributed to a significant outflow of people seeking better economic prospects and improved quality of life in other countries (Thaut, 2009). Fig. 1 also shows that that the expected number of migrants increased in the year 2010. One may be wondering as to what could possibly impact the increase? What aided it? ICT have certainly had a major impact on the entire process of mobility and migration (Codagnone & Kluzer, 2011). In his conceptual study,

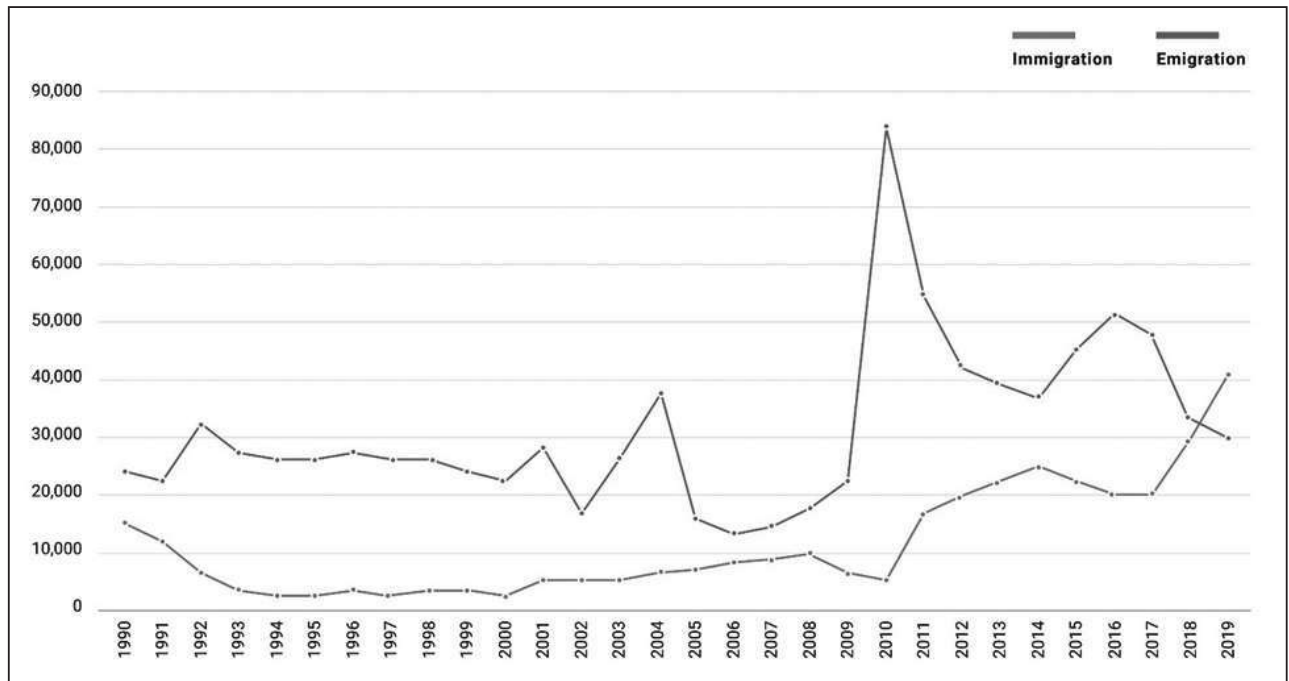


Figure 1. Migration Trends in Lithuania 1990-2019

Source: Statistics Lithuania and Migration Department under the Ministry of the Interior of the Republic of Lithuania).

Kellerman (2011) concludes that all current mobilities are based on and dependent on ICT. Whence the emerging research on ICT and migration, it is recognized that ICT have had a major impact on migration trends by considerably diversifying and increasing migration opportunities (Codagnone & Kluzer, 2011; Hamel, 2009). ICT have also helped change our conception of migrants.

The expense and risk of moving are reduced by using information from digital technologies and social media. People were more mobile as a result of social media, which blurred geographical borders. Migrants seek out a destination with a connection, which is aided by information technology in the form of the internet and social media. Migrants connect using more sophisticated internet technology in this era of globalization. The migrant will gain a better understanding of the situation in their destination by using these technology (Hidayati 2019).

Migration is intertwined with technology and innovation, and there is a large body of research that has assessed how international migration supports (and sometimes hinders) the transfer of technology and knowledge, often in tandem with investment and trade flows along historical, geographic, and geopolitical connections between countries. Throughout the migration process, technology, particularly newer forms of technology, is becoming increasingly im-

portant (Current Trends of Migration in Lithuania, 2020). The consolidation of social media platforms to connect geographically dispersed groups with common interests, as well as the use of ICT, such as apps to share the latest information, including to support clandestine border crossings, has raised valid questions about the extent to which technology has been used to support migration, as well as to enable migrants to avoid abusive and exploitative situations (World Migration Report, 2020).

Creation of mobile applications has helped migrants to facilitate better integration in receiving countries while preserving social ties and financial assistance to their families and cultures back home, as well as the growing popularity of “mobile money” apps, thanks to low-cost access to modern technologies. In migration issues, more links between migration and technology are emerging. While both migration and ICT are large and growing topics, they are inextricably linked. Regular and irregular migration are both facilitated by ICT, which provides the means to enforce borders against irregular arrivals while also improving and expediting the experience of regular immigrants (Hamel 2009). Artificial intelligence’s implications for migratory worker flows and domestic labor markets are a hot topic among policymakers and businesses in both origin and receiving nations (World Migration Report, 2020).

DIGITAL TRANSFORMATION (ICT) AND MIGRATION

Kellerman (2011) concludes in his conceptual analysis that all present mobilities are built on and dependent on ICT. According to new research on ICT and migration, ICT has substantially broadened and boosted migration opportunities, which has had a huge impact on migration trends (Codagnone & Kluzer, 2011; Hidayati 2019). ICT has also helped change our conception of migrants. According to Diminescu (2017), migrants have traditionally been perceived as uprooted individuals who must overcome a series of breaks with the past. However, the new image is that of connected individuals (the “connected migrants”) whose movements are part of a larger pattern.

It is argued (Ramakrishnan 2021) that we live in ‘the age of migration’. Previous migration studies (Tilly, 2010) show an increase in agency-oriented techniques in which other social categories are added to the traditional mix of ‘push’ and ‘pull’ factors. According to Guizardi (2019), contemporary migration is a global phenomenon. While migration is one of the most important aspects of globalization, it reinforces idealistic ideas of Western countries in underdeveloped countries.

Furthermore, digital transformation technologies facilitate the transmission of information about job openings and migration tactics, which, in combination with other circumstances, may ‘trigger’ migration processes (Hidayati 2019). With the increasing magnitude migration, contemporary sociological study cannot ignore the role of informal social networks that provide ‘self-sustainability’ to migration processes. Communication is crucial in these informal networks. As a result, the role of information and communication technology in the development and management of these transnational networks has become increasingly important (Guizardi 2019).

Migration and ICT are inextricably linked on various levels. To begin, sociological studies of migrant populations’ use of ICT are always focused on the triad of sending country host country migrant community. As a result, studies on ICT and migration either focus on one of the three elements or include all three (Kozachenko 2013). Second, on the basis of migratory experience, research of ICT and migration can be categorised (Hiller & Franz, 2004). Pre-migratory use by those who have not yet migrated and use ICT to gather information about the destination, develop relationships, find jobs, and so on; recent migrants’ use of ICT – where it may be related

to the host society’s adaptation processes; and established migrants’ use of ICT with more than five years of migratory experience. This category may include second and third generation migrants (Kozachenko 2013)

Third, ICT and migration research can be categorized according to the methodological principles used in the investigation. ICT allows migrants to create “virtual arenas” and “online public spheres” where they can form online communities. As a result, studies on ICT and migration may concentrate on the online aspect of ICT use and use just online research methodologies. While it is possible to investigate Internet-related phenomena ‘offline,’ this is not always the case (Hine, 2005). Finally, ICT and migration can be studied using a combination of online and offline research methods. However, different research have different perspectives on the actual importance of ICT in migration processes (Kozachenko 2013).

ICT USE BY MIGRANTS IN LITHUANIA (PRE-MIGRATORY AND POST-MIGRATORY)

Information and communication technology (ICT) is widely acknowledged as playing a vital role in all stages of migration. News, films, and advertising, according to Kozachenko (2013), are among the most relevant sources of knowledge for people contemplating migration. Hamel (2009) builds on this point, suggesting that new ICT will help developing countries project the picture of wealth and prosperity that developed countries have. This knowledge may be the key in deciding whether or not to move. Hamel (2009) expands on this issue, claiming that digital technology can give industrialized countries the appearance of wealth and success while giving underdeveloped countries the appearance of poverty, instability, and a less-desired paradise. This information could be helpful in deciding whether or not to migrate. Simultaneously, digital technologies enable the construction of a bad image of migrants in Lithuania by dissuading potential migrants with images. As a result, digital technologies have a huge impact on people’s imaginations, both at the sending and receiving ends of the migration process (Kozachenko 2013). The results of these studies (Collin & Karsenti, 2012) back up claim that modern ICT has a profound effect on how different social groups “imagine” social reality. Based on the literature review, a conceptual structure (Collin & Karsenti, 2012) is used with four key components arranged along two axes: 1) The first axis depicts migrants’ use of ICT in relation to either the host or source

culture; 2) The second axis depicts ICT use prior to migration (pre-migratory phase) and after migration (post-migratory phase).

In terms of the source society, the pre-migratory stage (Fig. 2, top left) refers to the initial relations that potential migrants create using ICT in the source society. Several factors influence the consistency of these connections: 1) the source society's socioeconomic development level (Iqbal, Peng, Hafeez & Khurshaid, 2019) which defines the technical and infrastructural development level; 2) local culture, which can either promote or hinder ICT usage (Hunter, 2015); individual skills and characteristics, such as reading and writing (especially in English) and ICT skills (Rodríguez-crespo & Martínez-zarzoso, 2019). ICT adoption systems have discussed these factors in different ways (e.g., theory of reasoned action, Fishbein & Ajzen, 1975; the theory of planned behavior, Ajzen, 1985; the user acceptance of information technology, Davis, 1989; see also Venkatesh & Bala, 2008).

In terms of the host society, in the pre-migratory phase (Fig. 2, bottom left), ICT have two options for potential migrants. First, since international migration is increasing, potential migrants will increasingly rely on ICT to communicate with other migrants in their families and social networks (Hunter, 2015). Non-migrants, potential migrants, and migrants from the same ethnic group are connected "through the ties of kinship, friendship, and common community origin," according to Collin and Karsenti (2012). This reduces the costs and risks of migration. Similarly, "when a prospective migrant has a personal tie to someone with previous experience in a specific destination area," the desire to migrate increases (Iqbal, Peng, Hafeez & Khurshaid, 2019). Interconnections across migrant networks are greatly strengthened by social networking websites, emails, and foreign calling cards (Walani, 2015). This means that potential migrants have correct and informative preconceptions about migration, based on the interactions they have with other migrants. In other words, ICT raises potential migrants' understanding of migration opportunities by allowing them to learn from their peers' experiences, which de Haas (2010) refers to as the "aspiration-increasing impact." Second, ICT may play a bigger part in the migration process by encouraging it; once someone decides to migrate, ICT can help them organize it. Migrants, for example, will use ICT to search for a job and an apartment, purchase plane tickets, and learn about the culture and government of the host society (Pan, 2015). The majority of this informa-

tion is available online, either through migrant networks or official websites.

In terms of host society, in the post-migration phase (Fig. 2, bottom right), ICT includes a means of inclusion. If migrants want to fully integrate and engage in the host community, they must be able to use ICT (Codagnone & Kluzer, 2011). To put it another way, since technology is ubiquitous in Western societies, technological integration is just as critical as the social, political, and economic integration that has long been recorded in science literature. For instance, ICT provides immigrants access to information, services, and opportunities (Collin & Karsenti, 2012) in order to obtain the following: official information, informal information, empowerment using ICT to gain voice and visibility, and to dialogue with the host society, and other employment and education services. Besides ICT access and use, digital literacy is vital. Digital literacy is defined as having the basic technical, cognitive, social and cultural skills to use ICT in a given society. Depending on their initial ICT skills (see below the pre-migration phase with respect to the source society), some newly arrived immigrants must improve their ICT skills in order to receive full benefit in terms of social inclusion. They risk being expelled from the host society if they do not comply (Warschauer, 2003). In contrast, others (e.g., qualified migrant workers coming from a developed country) often have digital skills that are better or equal to those of the local population. They would not need to improve their ICT abilities in order to be included.

Finally, in terms of the source society, the post-migration stage (Fig. 2, top right) is concerned with the use of ICT to maintain communication with people from the source society or local diasporas for different purposes. When ICT is used to establish relationships with family and friends through social network websites, emails, foreign calling cards, Internet phone services (e.g., Skype), and other means, the communication may be social (Walani, 2015). In the case of e-banking (Nitsure, 2004) and transnational businesses run by and for migrants between diasporas and source societies, the contact can be economic (Collin & Karsenti, 2012). Finally, since social media networks have a growing effect on governments, the interaction may be political.

This conceptual framework illustrates some of the ways that ICT are used during the migration process, as reported in the literature on ICT and migration. It illustrates how ICT and migration analysis can be carried out and structured. It can also be used to situate analytical research on experiences with ICT and migration.

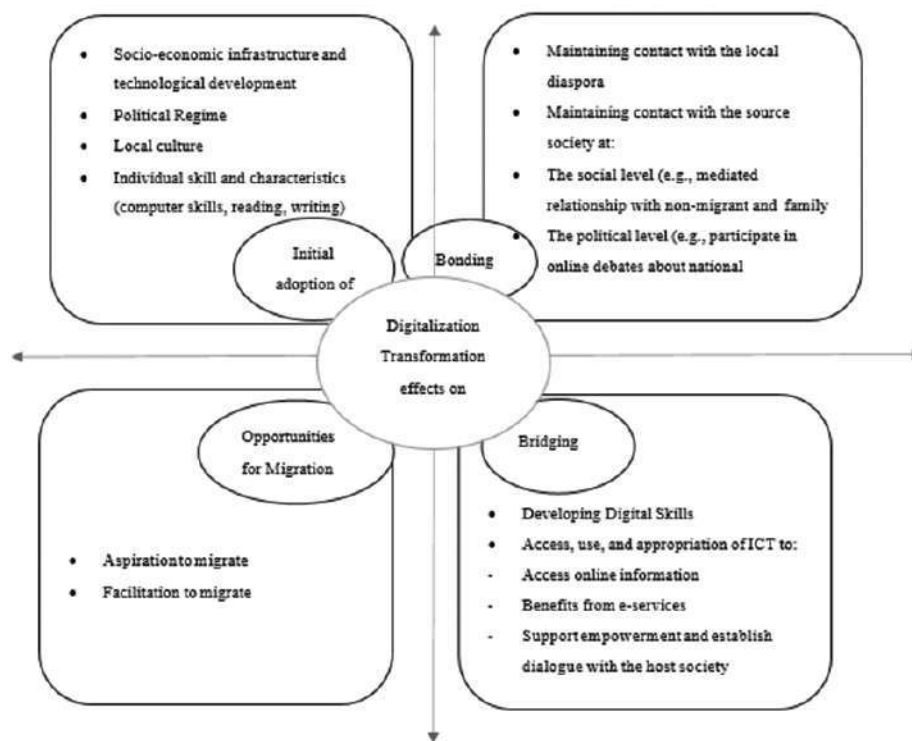


Figure 2. Conceptual framework of ICT used by migrants throughout the migration process. (Collin & Karsenti, 2012)

MIGRANT EXPERIENCE WITH ICT IN LITHUANIA

The migrant experience has been conceptualized in a variety of ways, although the content varies considerably. The focus is on persons who have had an experience that is related to migration in some way. Some recent examples explore migrant women experiencing gender-based violence (Freedman, 2016), forced migrant women's experience of transnational parenting (Madziva & Zontini, 2012), and migrant youth's experience of belonging (Michail & Christou, 2016). The migrant experience is a topic of discussion in these accounts (Allen & Cloyes, 2005) and they do not consider the experience of all women, or young people; rather it is the act of migration that makes these 'experiences' stand out. In this study, the nature of the experience that underlies migration is the use of ICT.

Migrants in Lithuania are of two main types similar to those in Europe: economic and political-military. The first type migrates from poorer economy regions or regions with high income inequalities. They are people from impoverished regions (especially from rural area), who go to more urban and prosperous regions in search of work. The second type are those who escape from war prone regions. This group known as refugees, includes persons who

have a well-founded fear of persecution for reasons of race, religion, nationality, membership in particular social group or for political opinion (Geneva Convention refugees) as well as people who have been directly affected by civil war or military conflict, or who have been victims of a major infringement of human rights.

The first category are those who move to Lithuania to work, they are the main force for urbanization in Lithuania. According to the Lithuanian government statistics, the migrant population of 1077 in 2015 (Lithuanian Immigration Statistics, 2015), approximately 4.7% of the total population. Most migrant workers come from third-country nationals (non-EU citizens). Most of them come from Belarus, the Russian Federation and Ukraine. In 2019, citizens of the mentioned countries constituted almost half (45 per cent) of the total number of foreign citizens who immigrated to Lithuania that year (Statistics Lithuania). According to the Migration department under the Ministry of the Interior, Migration Yearbooks 2005 – 2018, the majority of immigrants are single male migrants who are between 20 and 39 years old.

Some provinces and cities have started providing migrant workers with social security, including pensions and other insurances. In order to meet the demands of development and modernization, vari-

ous types of information communication technology (ICT) have been offered to aid migrant workers to find work, express willingness, communicate with home, improve literacy, entertainment, ICT such as mobile phones, e-mails, tablet computers, and so on. A number of studies have been conducted on the use of ICT by migrant workers, as well as the social communication aspect. Several studies have looked at the effects of demographic factors such as gender, finances, age, working place, and use time on migrant workers' ICT use (Huang, 2011; Zhou & Lv, 2011). Moreover, other studies investigate the effects of behavioral influences on migrant workers' ICT usage (Zhang, 2012; Zhou, 2013).

Findings from these studies show that the ICT used is dependent on the various stages of migration. As stated in the previous section, use of ICT to commence migration is referred to as the pre-migratory phase. Several categories of elements influence the key aspects of ICT adoption. First, it is influenced by the sending country's social and economic characteristics. This group of elements more explicitly refers to the level of infrastructure development and acceptance of new technology. Second, the sending country's political system relates to the major aspects of political organization. Authoritarian regimes, for example, may have control over the internet. Third, the sending society's culture may influence the degree of adoption of a particular civilization in either a favorable or negative way. Fourth, the fourth group of factors is represented by personal skills and abilities.

With respect to the host country, the pre-migratory phase offers two options to those who are planning to migrate. To begin, future migrants can make contact with representatives from their home nation and/or ethnic group. These connections are known as 'weak bonds' (Granovetter, 1973). ICT can also be used to strengthen and utilize 'strong' bonds such as friendships and family. These transnational migration networks are characterized as "systems of interpersonal links that link migrants, former migrants, and non-migrants in origin and destination countries through kinship, friendship, and common community origin" (Hidayati 2019). These social network connections allow for the reduction of migration-related dangers. Transnational social networks can be developed and strengthened through social networking sites, international calls (Vertovec, 2004), email, and other methods.

In summary, this study aims to answer to what extent migration process is influenced by the use of digital technology in the host and source country. This research used primary data to explore the re-

search questions. As such six hypotheses were formulated:

H1: In terms of the pre-migration phase, ICT provides information on opportunities to migrate through news, advertisement, film and entertainment to people who are considering migration.

H2: ICT has a positive impact on ease of migration.

H3: In terms of the post-migration phase, the introduction of immigration online services has a positive impact on people who are considering migration.

H4: In the pre-migration phase, ICT provides access to information concerning destinations, conditions of migration, and the maintenance of contact with family and friends especially for international migrants.

H5: In terms of the post-migration phase, the information systems for remittances (such as Money Gram and Western Union) make remittances in times of extreme need such as illness, birth, or death much more timely and likely than in the past.

H6: In terms of the post-migration phase, ICT allow migrants to hybridize cultural identities through the distribution and consumption of content that originates from major cultural producers.

H7: Socio-demographic factors (gender, age, education level, occupation and years since migration) had significant effects on migration making it easier or more difficult.

H8: Type of migration (economic, political/military and environmental) had a positive impact on ease of migration

H9: In terms of the post-migration phase, phone services and social media platforms have a positive impact on migrants and families of migrants by allowing them to effectively control the amount of money they spend on telecommunications.

METHODOLOGY

This research investigates the impact of digital transformation on migration process in Lithuania. Questions about migration experience can be answered reliably only by the migrants which have comprehensively experienced migration process. To clarify the potential of digital technologies in solving the problem of migration process in responses of 108 migrants in total was received and analyzed. The research followed an explanatory approach using quantitative data collection and descriptive analysis methods to explain how the use of digital technology by migrants has help to ease the migration process

in Lithuania. When establishing fundamental links between different variables, such as in this study, an explanatory research technique is best. Data collected were analyzed with the aid of tables of frequency and percentage distribution. Binary logistic regression was employed to determine the association between digital transformation technologies and ease of migration. Binary logistic regression models are used to model a relationship between a dependent variable Y, and one or more independent variables X. The dependent variable Y, is a discrete variable that represent a category, from a set of mutually exclusive or categories or classification (Oluwadmu & Kayode, 2008). As the aim of this study was to objectively determine the technological factors that ease the migration process. Previous relevant studies were reviewed to collect this factors and attain the research objectives for this study. The data was analyzed using the statistical software SPSS.

RESULT & DISCUSSION

A total of 134 questionnaires were collected. After deleting inappropriate responses/cases (e.g., not a migrant or Lithuanian citizen), 108 valid questionnaires with no missing values were analyzed. According to Altunışık, Coşkun, Bayraktaroğlu and Yıldırım (2004), sample size of 100 at 5% confi-

dence level is generally sufficient for many researchers. The characteristics of respondents are presented in Table 1. Table 1 revealed that majority of respondents are male (84.3%), this is due to the common motivation of male migrant to leave their source country to find work. The modal age of respondents in Lithuania is 20 – 30 years, this clearly shows that the younger migrants of Lithuania are more digitally active, willing to response to the survey and none of the respondents are citizens of Lithuania which increases the validity of our findings. Also, this study confirms the idea of previous studies (Kozachenko, 2013; Warin & Svaton, 2008) that social migration which is the moving from one place for a better quality of life serves as the most common reason for migration, followed by political migration (moving to escape political persecution or war) and environmental migration (natural disasters such as flooding).

Table 2. Displays the results of statements regarding ICT effect on ease of migration. The mean score for each item was used to describe the strength of each item using 5 Likert scale. The item “I use ICT as a means of accessing information, services, and opportunities” recorded the highest mean score (M = 2.73). Migrants use of digital technologies has been linked to social inclusion and increased access to pertinent information that can help them in their everyday life. Migrants learn about the

Table 1. Characteristics of respondents

Characteristics responses	Values	Number	Percentage
Gender	Female	17	15.7
	Male	91	84.3
Age	20 - 30	69	63.9
	31 - 40	28	25.9
	41 - 60	11	10.2
Lithuania Citizen	No	93	84.3
	Yes	15	
Type of Migration	Social	66	61.1
	Political	26	24.1
	Environmental	16	14.8
Years Since Migration	0 – 5	27	25
	6 – 15	36	42.5
	16 – 30	35	32.4
Level of Education	Comprehensive	15	13.9
	Vocational	35	46.3
	School of Further Education	58	53.7
Occupation	Operational	42	38.9
	and Technical Professionals	34	31.5
	Supervisors and Managers	32	29.6

Table 2. Percentage distribution of ICT influence statements

Statements	Strongly disagree (%)	Disagree (%)	Neutral (%)	Agree (%)	Strongly Agree (%)	Mean
ICT increase future migrants' awareness of migration opportunities through peers' experiences.	10.2%	9.3%	33.3%	33.3%	13.9%	2.31
The use of social media networks and phone services has lower migration costs risks.	10.2%	9.3%	45.4%	27.8%	7.4%	2.13
ICTs help potential migrants acquire a more balanced understanding of the migration experience.	10.2%	10.2%	25.9%	42.6%	11.1%	2.34
ICTs help potential migrants in facilitating the migration process (such as buying airplane tickets, access official information, etc.).	16.7%	8.3%	10.2%	44.4%	20.4%	2.44
ICT plat a major role in terms of Remittance such as Money Gram and Currency exchange.	13.9%	2.8%	37.0%	26.9%	19.4%	2.35
I use ICT as a means of accessing information, services, and opportunities.	13.0%	0.0%	18.5%	38.0%	30.6%	2.73
ICT provides platforms to participate in national	6.7%	13.3%	38.1%	35.2%	6.7%	2.22

function of social networks from family, friends, and online media from the start of the migration process. Migrants will collect many types of information, including the information they provide and the decisions they make. Forms of information obtained include family and friends about job opportunities and information on living costs from online media (Hidayati 2019). Scholars suggest, however, that poor levels of digital literacy among migrants, as well as socioeconomic, language, and cultural challenges, can impede their ability to effectively use ICTs for information management (O'Mara, 2012). The lowest mean score is item "The use of social media networks and phone services has lower migration costs and risks" ($M = 2.05$). Migrants perceive international money transfers are expensive: on average, currency exchanges and fees account for 7% of total sums moved globally. On the contrary, according to a prior study (Hidayati

2019), relationships between migrants can be more accessible, reducing migration risks and expenses. In this table, each questionnaire statement is given a 5-point scale with 1 = strongly disagree, 2 = disagree, 3 = slightly agree, 4 = agree, and 5 = strongly agree

Table 3 - 9 describes non-Likert scales questions in the survey to determine ways in which ICT has been beneficial in terms of migration. In Table 4, 48.1% of the respondents find technology as a means of getting informed about the culture of the host country at the pre-migration phase. This implies that digital transformation technologies facilitate creation of communities of choice that can take the place of communities based on location. The new modes of communication compress time and space, resulting in the emergence of global cultures that bring people together with a common feeling of belonging and identity across continents.

Table 3. Percentage distribution for item "Has technology really helped in informing you about Lithuania' culture?"

		Frequency	Percent	Valid Percent	Cumulative Percent
Has technology really helped in informing you about Lithuania' culture?	Yes	52	48.1	48.1	48.1
	No	32	29.6	29.6	77.8
	Maybe	24	22.2	22.2	100.0
	Total	108	100.0	100.0	

Table 4. Percentage distribution for item “How did you know about Lithuania?”

		Frequency	Percent	Valid Percent	Cumulative Percent
How did you know about Lithuania?	Entertainment	25	23.1	23.1	23.1
	Friends	36	33.3	33.3	56.5
	Others	47	43.5	43.5	100.0
	Total	108	100.0	100.0	

Table 5. Percentage distribution for item “How did you access migration services?”

		Frequency	Percent	Valid Percent	Cumulative Percent
How did you access migration services?	Online	64	59.3	59.3	59.3
	Offline	44	40.7	40.7	100.0
	Total	108	100.0	100.0	

Table 6. Percentage distribution for item “How did you communicate with your family and friends in home country?”

		Frequency	Percent	Valid Percent	Cumulative Percent
How did you communicate with your family and friends in home country?	Internet and Phone services	108	100.0	100.0	100.0
	Letter	0	0	0	0
	Post office	0	0	0	0
	Total	108	100.0	100.0	100.0

Table 7. Percentage distribution for item “How did you get your job?”

		Frequency	Percent	Valid Percent	Cumulative Percent
How did you get your job?	Internet	53	49.1	50.5	50.5
	Friends	21	19.4	20.0	70.5
	Others	31	28.7	29.5	100.0
	Total	105	97.2	100.0	
	Missing	3	2.8		
	Total	108	100.0		

Table 8. Percentage distribution for item “How did you locate shopping malls, recreational centers, place of worship?”

		Frequency	Percent	Valid Percent	Cumulative Percent
How did you locate shopping malls, recreational centers, place of worship?	Family and friends	20	18.5	18.5	18.5
	Internet	80	74.1	74.1	92.6
	Others	8	7.4	7.4	100.0
	Total	108	100.0	100.0	

Table 9. Empirical result of the binary logistic regression analysis

Variable	β	Wald	df	Sig	Exp(β)	95% LCI	95% UPI
Gender of participant(1)	18.556	.000	1	.998	114439159.948	.000	.
Age of participant		16.307	3	.001	.444		
Age of participant(1)	-18.206	.000	1	.999	.000	.000	.
Age of participant(2)	-21.097	.000	1	.999	.000	.000	.
Age of participant(3)	-21.679	.000	1	.999	.000	.000	.
ICT Effectiveness(1)	-1.573	.472	1	.492	.207	.002	18.415
Education Level		.712	2	.700			
Education Level(1)	-.911	.430	1	.512	.402	.026	6.124
Education Level(2)	.788	.219	1	.640	2.200	.081	59.909
Occupation		.964	2	.618			
Occupation(1)	-.869	.881	1	.348	.419	.068	2.576
Occupation(2)	-.279	.096	1	.757	.757	.130	4.406
Type of migration		.937	2	.626			
Type of migration(1)	-.847	.474	1	.491	.429	.038	4.787
Type of migration(2)	-1.230	.935	1	.334	.292	.024	3.537
Years Since Migration		1.749	5	.883			
Years Since Migration(1)	.273	.047	1	.828	1.314	.112	15.443
Years Since Migration(2)	-.385	.118	1	.731	.680	.076	6.121
Years Since Migration(3)	-.031	.001	1	.977	.969	.111	8.466
Years Since Migration(4)	18.252	.000	1	.999	84490859.394	.000	.
Years Since Migration(5)	.991	.677	1	.411	2.693	.254	28.540
Constant	22.234	.000	1	.999	4528721252.43		
					8		

Table 4 displays the result of how migrants get to know about Lithuania in the pre- migration phase. The lowest percentage is “Entertainment” (23.1%), which implies that 476 potential migrants get to know about Lithuania from friends with the use of some 477 technological device (apps like WhatsApp, social media, etc.) and other means more often than the entertainment. Table 5 shows the result of how migrants access migration services, 59.3% of the respondents use the internet to access the migration services. Schaub (2012) states that social ties and networks through mobile phones can provide migrants with a scope of services, such as work opportunities, routes, transportation arrangements, and

accommodations, as well as insurance mechanisms for those in need of protection and financial assistance (Zijlstra & Van Liempt 2017) Table 6 shows highest percentage score (100%) of how migrants communicate with their family and friends in their source country. All respondents utilize the internet and phone services as the only means of communication but didn’t consider it as a cost effective means of communication. Table 7 displays the result of how migrants get a job in the host country, 53% of the respondents got their job through the internet. Social networking facilitates the process of deciding where to work and migrate. All of the respondents rely on communication technologies to learn about

the job opening and general information about the destination's everyday life. Table 8 shows the result of how migrants locate places in the post-migration phase with the internet, 80% of the respondents use digital technologies (such as Google Maps, Waze, MapQuest, Apple Maps, etc.) for direction in the host country. The tables below show the data for the analysis.

Binary logistic regression was used to examine whether ICT, gender, age, education level, occupation, type of migration and years since migration were associated with facilitating migration processes. An inspection of standardized residual values revealed that there was one outlier (Std. residual = -2.913). The model was statistically significant, $\chi^2(16, N=108) = 11.79, p = .001$, suggesting it could determine if ICT influence ease of migration or not. The model explained between 31.5% (Cox & Snell R Square) and 50.2% (Nagelkerke R square) of the variance in the dependent variable and classified 85% of cases. As shown in Table 9, only age, but not gender, ICT effectiveness, education level, occupation, type of migration and years since migration, significantly contributed to the model. The empirical results of the binary logistic regression model presented in Table 10 revealed that age in years of migrants is a significant determinant of ease of migration. The variable is positively correlated with ease of migration. The age odds ratio of 0.444 of the first age group (20-30) suggests that for every increase in the years within the age group, participants were 0.444 more likely to experience ease of migration.

The results in Table 1 indicates that migrants who are more aged in years felt less ease during the process of migration ($p < 0.01$). Other socio-demographic variables including gender, education level, years since migration, occupation and type of migration and hypothesis were not correlated with the ease of migration.

RECOMMENDATION

There is need to improve on the interconnectivity among the people and the ICT infrastructure in Lithuania. Furthermore, critics of methodological nationalism (Wimmer & Schiller, 2003) have labeled ICT and migration studies as "methodological nationalism," in which nations are considered as the primary foundations for analyzing migration dynamics. However, some scholars (Georgiou et al., 2007) argue that a national framework should be used to analyze migration and new media. As a result, one may argue that a clear theoretical lens for understanding ICT and migration on the other hand, as

well as national belonging and identity on the other, has yet to be formed. Therefore, the primary contribution of this research lies in its endeavor to develop a clear theoretical lens for understanding the intricate relationship between ICT, migration, national belonging, and identity. Through an empirical analysis of the Lithuanian context, this study aims to shed light on the role of digital technologies in facilitating and shaping migration experiences, as well as their impact on the formation of national identity among migrants. By adopting a comprehensive approach that integrates both the national framework and the transformative potential of ICT, this research seeks to provide a nuanced understanding of the digital transformation's influence on migration dynamics in Lithuania. Furthermore, it aims to contribute to broader debates within the field, encouraging scholars to move beyond methodological nationalism and explore new avenues for studying the complex interplay between technology, migration, and identity.

CONCLUSION

An explanatory approach using quantitative data collection and descriptive analysis methods have been conducted to investigate patterns of digital tools use by Lithuania migrants, and the impact on ease of migration at both pre-migration and post-migration phase. Based on findings of this study, digital technologies are found to have contributed moderately to the ease of migration, as this study shows that potential migrants get to know about Lithuania from friends with the use of some technological device and software (apps like WhatsApp, email, social media, etc.) and migrants utilize digital tools either in the pre-migration or post-migration phase, or most often in both phases to communicate with family and friends in the source country. Thus, communication becomes much easier, migrants can reduce the time back to their home country to see their family and friends through the use of video calls, audio calls and so on, and thereby spend more time on working to earn more. In spite of that, our respondents didn't find phone and internet services as a cost effective means of communication probably due to the high charges for international calls and internet service charge in Lithuania.

The findings of this study also concludes that utilization of digital tools partially influence the ease of migration positively, this is due to some certain migration challenges digital transformation technologies has contributed to. Some migrants perceive the contribution of the internet is delineated as negative due to the fact that it allows migrants to maintain

their ethnic or national identity and, as such, increases differentiation between migrant populations and representatives of the host society. According to Kozachenko (2013), the digital divide and the creation of unfavorable views of migrant communities are concerns of the Information Age.

Nevertheless, migrants with their ability to use ICT, are arguably essential agents of advancement and development in their home countries. The online environment provides virtual space and new public spaces that are secure for the expression of thoughts opposing authoritarian and harmful political regimes, which is an important feature of international migrants' political participation. As a result, ICT allows for greater access to a wider range of informational resources while also enhancing freedom of expression in Lithuania particularly. Modern technology, on the other hand, can create digital divisions in political involvement by silencing less advanced sections within migrant communities, ICT has seen to create new gaps along geographical and economic lines. As a result, new opportunities afforded by ICT cannot be viewed solely in a positive manner, and this study partially supports the assumption that ICT provides platforms for participation in national political events.

ICT not only opens up new opportunities for Lithuania migrants, but it also provides for more effective social restrictions. Data on foreign migrants is stored in databases such as the Schengen Information System (SIS) that span all EU member states. ICT also enables the creation of advanced monitoring systems that help many governments regulate entry and exit. Nowadays, crossing the border entails the scanning of fingerprints, different barcodes, and electronic chips. Modern border controls necessitate large investments, and efficient information exchange between governments has become a must. Digital transformation technology have made this possible. Centralized databases, on the other hand, may be viewed as a danger to privacy. Though, because ICT facilitates collaboration among national authorities, migration processes may be successfully regulated not only by host country border agencies, but also by sending country border agencies. As a result, more than half of the Lithuania migrants polled agreed that digital technologies aid in the ease of migration processes.

Hence, technology plays an increasingly important part in today's world. This is related to the fact that technical means are used in an increasing number of elements of social life. The utilization of technology, particularly digital transformation tools, is required in the host country. Without ICT, it is

impossible to obtain job information, make international money transfers, or keep in touch with friends and relatives. Therefore, Lithuanian migrants and policy makers should pay particular attention to the variable, as it contributes to the ease of migration. Efforts should be made to put in place for policies and programs that will enhance digital literacy of the migrants. According to Sustainable Development Goal (SDG) number 10.7, the government is required to encourage orderly, safe, regular, and responsible movement and population mobility, particularly through the implementation of planned and well-managed migration policies. Recognizing the significance of population migration events in enhancing livelihood and contributing to a country's economic progress, the government must assist migrants by providing safe and dependable communication technology channels.

REFERENCES

1. **Ajzen, I.** (1985). From intentions to actions: A theory of planned behavior. In *Action control* (pp. 11-39). Springer, Berlin, Heidelberg.
2. **Ajzen, I. & Fishbein, M.** (1975). A Bayesian analysis of attribution processes. *Psychological bulletin*, 82(2).
3. **Alam, K. & Imran, S.** (2015). The digital divide and social inclusion among refugee migrants: A case in regional Australia. *Information Technology & People*.
4. **Alam, K. & Imran, S.** (2015). The digital divide and social inclusion among refugee migrants: A case in regional Australia. *Information Technology & People*.
5. **Alencar, A.** (2020). Mobile communication and refugees: An analytical review of academic literature. *Sociology Compass*, 14(8), e12802.
6. **Alencar, A., Kondova, K. & Ribbens, W.** (2019). The smartphone as a lifeline: an exploration of refugees' use of mobile communication technologies during their flight. *Media, Culture & Society*, 41(6), 828-844.
7. **Allen D. & Cloyes K.** (2005). The language of "experience" in nursing research. *Nursing Inquiry*, 12, 98-105.
8. **Altunışık, R., Coşkun, R., Bayraktaroğlu, S. & Yıldırım, E.** (2004). *Research methods in social sciences*. Sakarya Bookstore. Third Edition. Sakarya.
9. **Codagnone, C. & Kluzer, S.** (2011). *ICT for the Social and Economic Integration of Migrants into Europe*. Publication Office of the European Union.
10. **Collin, S. & Karsenti, T.** (2012, June). ICT and migration: a conceptual framework of ICT use by migrants. In *EdMedia+ Innovate Learning* (pp. 1492-1497). Association for the Advancement of Computing in Education (AACE).
11. **Collin, S. Karsenti, T. & Calonne, O.** (2015). *Migrants' Use of Technologies: An Overview of Re-*

- search Objects in the Field. *Journal of Technologies and Human Usability*, 10(3-4), 15-29.
12. **Current Trends of Migration in Lithuania.** (2020). Bundeszentral für politische Bildung. Retrieved from <https://m.bpb.de/gesellschaft/migration/laenderprofile/northerneurope/321582/lithuania>
 13. **Davis, F. D.** (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS quarterly*, 319-340.
 14. **De Haas, H.** (2010). The internal dynamics of migration processes: A theoretical inquiry. *Journal of ethnic and migration studies*, 36(10), 1587-1617.
 15. **Diminescu, D.** (2017). EDITORIAL NOTE: MIGRATIONS AND ICT. SHORT OVERVIEW. *Studia Universitatis Babeş-Bolyai-Philosophia*, 62(3), 9-12.
 16. **Diminescu, D. & Galbaud, D.** (2017). Des migrants hyperconnectés. *Sciences Humaines*, (3), 10-10.
 17. **Freedman, J.** (2016). Engendering security at the borders of Europe: Women migrants and the Mediterranean “crisis.” *Journal of Refugee Studies*, 29, 568-582.
 18. **Georgiou, M., Bailey, O., & Harindranath, R.** (2007). Transnational lives and the media: re-imagining diasporas.
 19. **Granovetter, M. S.** (1973). The strength of weak ties. *American journal of sociology*, 1360-1380.
 20. **Guizardi, M. L.** (2019). The Age of Migration Crisis. *Tempo*, 25, 577-598.
 21. **Haiti**, *Global Networks*, 4(2): 199-217.
 22. **Hamel, J. Y.** (2009). Information and communication technologies and migration.
 23. **Haythornthwaite, C.** (2007) ‘Social networks and online community’, in Joinson, A., McKenna, K., Reips, U.-D. and Postmes, T. (eds) *Oxford Handbook of Internet Psychology*. Oxford: Oxford University Press, 120-137.
 24. **Hidayati, I.** (2019). The Process of Migration and Communication Technology Roles among Labor Migrants in Batam- Indonesia. *Society*, 7(2), 173-184.
 25. **Hiller, H. H. & Franz, T. M.** (2004). New ties, old ties and lost ties: the use of the internet in diaspora. *New Media & Society*, 6(6), 7.
 26. **Hine, C.** (2005). Internet research and the sociology of cyber-social-scientific knowledge. *The information society*, 21(4), 239-248.
 27. **Huang, W. D.** (2011). New media and the life of new generation of migrant workers. *Journalist and Communication Review*, 10, 111-127.
 28. **Hunter, A.** (2015). Empowering or impeding return migration? ICT, mobile phones, and older migrants’ communications with home. *Global Networks*, 15(4), 485-502. *Indian Networks in New York and London*, 138.
 29. **International Organization for Migration., & United Nations.** (2020). *World migration report*. Geneva: International Organization for Migration.
 30. **Iqbal, K., Peng, H. & Hafeez, M.** (2020). Analyzing the Effect of ICT on Migration and Economic Growth in Belt and Road (BRI) Countries. *Journal of International Migration and Integration*, 21(1), 307-318.
 31. **Kellerman, A.** (2011). Mobility or mobilities: Terrestrial, virtual and aerial categories or entities? *Journal of Transport Geography*, 19(4), 729-737.
 32. **Kluzer, S. & Codagnone, C.** (2011). ICT Adoption by immigrants and ethnic minorities in Europe: Overview of quantitative evidence and discussion of drivers.
 33. **Kozachenko, I.** (2013). *Horizon Scanning Report: ICT and Migration*. Working Papers of the Communities & Culture Network+, 2.
 34. **Kozachenko, I.** (2013). *Horizon Scanning Report: ICT and Migration*. Working Papers of the Communities & Culture Network+, 2.
 35. **Leurs, K. & Prabhakar, M.** (2018). Doing digital migration studies: Methodological considerations for an emerging research focus. In *Qualitative research in European migration studies* (pp. 247-266). Springer, Cham.
 36. **Madziva, R. & Zontini, E.** (2012). Transnational mothering and forced migration: Understanding the experiences Of Zimbabwean mothers in the UK. *European Journal of Women’s Studies*, 19, 428-443.
 37. **Mezzadra, S.** (2017). Digital mobility, logistics, and the politics of migration. *Spheres: Journal for Digital Cultures*, 4, 1-4.
 38. **Michail, D. & Christou, A.** (2016). Diasporic youth identities of uncertainty and hope: Second generation Albanian experiences of transnational mobility in an era of economic crisis in Greece. *Journal of Youth Studies*, 19, 957-972.
 39. **Migration department** under the Ministry of the Interior, *Migration Yearbooks 2005 – 2018*, available at: <http://migracija.lrv.lt/lt/statistika/migracijos-metrasciai> (accessed 15-05-2020).
 40. **Nedelcu, M.** (2009). Du brain drain à l’e-diaspora: vers une nouvelle culture du lien à l’ère du numérique. *TIC et société*, 3(1-2), 152-173
 41. **Nedelcu, M., & Soysüren, I.** (2020). Precarious migrants, migration regimes and digital technologies: The empowerment-control nexus. *Journal of Ethnic and Migration Studies*, 1-17.
 42. **Nitsure, R. R.** (2004). E-banking: challenges and opportunities. *Economic and Political Weekly*, 38, 5377-5381. *North America Hindu diaspora*, *Diaspora*, 8(2): 137-172.
 43. **Oiarzabal, P. J. & Reips, U. D.** (2012). Migration and diaspora in the age of information and communication technologies. *Journal of Ethnic and Migration studies*, 38(9), 1333-1338.
 44. **Oluwadmu, S. A. & Kayode, O. J.** (2008). A binary logistic regression model for the adoption of electronic banking in Akure, Ondo State. *Ife Journal of Science*, 10(1), 217-221.
 45. **Pan, J. Y.** (2015). Predictors of post-migration growth for Chinese international students in Australia. *International journal of intercultural relations*, 47, 69-77.
 46. **Ramakrishnan, R.** (2021). The Impact of Migration on Innovation-A Note. *IUP Journal of Business Strategy*, 18(1).

47. **Reips, U. D. & Buffardi, L. E.** (2012). Studying migrants with the help of the Internet: Methods from psychology. *Journal of Ethnic and Migration Studies*, 38(9), 1405-1424.
48. **Retis, J.** (2019). Migrations and the Media between Asia and Latin America: Japanese-Brazilians in Tokyo and São Paulo. *The Sage Handbook of Media & Migration*, 297-308.
49. **Retis, J. & Cepeda, M. E.** (2016). The transnational restructuring of communication and consumption practices: Latinos in the urban settings of global cities. In *The Routledge companion to Latina/o media* (pp. 22-36). Routledge.
50. **Rodríguez-Crespo, E. & Martínez-Zarzoso, I.** (2019). The effect of ICT on trade: Does product complexity matter? *Telematics and Informatics*, 41, 182-196.
51. **Román-Velázquez, P. & Retis, J.** (2021). Migration, Transnationalism and Diasporic Identities. In *Narratives of Migration, Relocation and Belonging* (pp. 7-30). Palgrave Macmillan, Cham.
52. **Sayad, A.** (1999) *La double absence: des illusions aux souffrances de l'immigré*. Paris: Seuil.
53. **Schaub, M. L.** (2012). Lines across the desert: mobile phone use and mobility in the context of trans-Saharan migration. *Information Technology for Development*, 18(2), 126-144.
54. **Smets, K., Leurs, K., Georgiou, M., Witteborn, S., & Gajjala, R. (Eds.)**. (2019). *The Sage handbook of media and migration*. Sage, 2017, available at: <https://osp.stat.gov.lt/> (accessed 15-05-2020).
55. **Tilly, C.** (2010). Migrant Networks as Webs of Relations and Flows. *Modern Migrations: Gujarati transnational social fields*, *Global Networks*, 6(2): 143-59.
56. **Venkatesh, V. & Bala, H.** (2008). Technology acceptance model 3 and a research agenda on interventions. *Decision sciences*, 39(2), 273-315.
57. **Vertovec, S.** (2004). Cheap calls: the social glue of migrant transnationalism. *Global networks*, 4(2), 219-224.
58. **Walani, S. R.** (2015). Global migration of internationally educated nurses: Experiences of employment discrimination. *International Journal of Africa Nursing Sciences*, 3, 65-70.
59. **Warschauer, M.** (2003). *Technology and social inclusion: Rethinking the digital divide*. Cambridge: MIT Press.
60. **Wimmer, A. & Schiller, N. G.** (2003). Methodological Nationalism, the Social Sciences, and the Study of Migration: An Essay in Historical Epistemology. *International Migration Review*, 37(3), 576-610.
61. **Zhang, Q.** (2012). An empirical study on the application and evaluation of new media of the new generation of migrant workers in Zhengzhou City Henan Province. *Art Science and Technology*, 24, 15-18.
- Zhou, B. H.** (2013). New media and Expression of Chinese new generation of migrant workers. *Contemporary Communications*, 28, 41-44.
62. **Zhou, B. H. & Lv, S. N.** (2011). An empirical study on the new media usage of the new generation of migrant workers in Shanghai City. *Journalism Quarterly*, 29, 145-150.
63. **Zijlstra, J. & Liempt, I. V.** (2017). Smart (phone) travelling: Understanding the use and impact of mobile technology on irregular migration journeys. *International Journal of Migration and Border Studies*, 3(2-3), 174-191.
64. **Damuliene, A.** (2013). Migration problem in Lithuania and its impact on the economy. *Verslo Sistemos ir Ekonomika*, 3(1).
65. **Thaut, L.** (2009). EU integration & emigration consequences: The case of Lithuania. *International Migration*, 47(1), 191-233.
66. **Warin, T., & Svaton, P.** (2008). European migration: Welfare migration or economic migration? *Global Economy Journal*, 8(3), 1850140.