d·i·e

Deutsches Institut für Entwicklungspolitik

German Development Institute

Discussion Paper 15/2020

Information and Communication Technology in the Lives of Forcibly Displaced Persons in Kenya

Mirko Eppler
Stella Gaetani
Francy Köllner
Jana Kuhnt
Charles Martin-Shields
Nyat Mebrahtu
Antonia Peters
Carlotta Preiß

Information and communication technology in the lives of forcibly displaced persons in Kenya

Mirko Eppler
Stella Gaetani
Francy Köllner
Jana Kuhnt
Charles Martin-Shields
Nyat Mebrahtu
Antonia Peters
Carlotta Preiß

Bonn 2020

Discussion Paper / Deutsches Institut für Entwicklungspolitik
ISSN (Print) 1860-0441
ISSN (Online) 2512-8698

Die Deutsche Nationalbibliothek verzeichnet diese Publikation in der Deutschen Nationalbibliografie; detaillierte bibliografische Daten sind im Internet über http://dnb.d-nb.de abrufbar.
The Deutsche Nationalbibliothek lists this publication in the Deutsche Nationalbibliografie; detailed bibliographic data is available in the Internet at http://dnb.d-nb.de.

ISBN 978-3-96021-126-6 (printed edition)

DOI:10.23661/dp15.2020

Printed on eco-friendly, certified paper

Dr Charles P. Martin-Shields is a Senior Researcher with the research programme "Transformation of Political (Dis-)order: Institutions, Values & Peace" at the German Development Institute / Deutsches Institut für Entwicklungspolitik (DIE).

Email: charles.martin-shields@die-gdi.de

Dr Jana Kuhnt is a researcher with the research programme "Transformation of Political (Dis-)Order: Institutions, Values & Peace" at the German Development Institute / Deutsches Institut für Entwicklungspolitik (DIE).

Email: jana.kuhnt@die-gdi.de

Tulpenfeld 6, 53113 Bonn
☎ +49 (0)228 94927-0
🖷 +49 (0)228 94927-130
Email: die@die-gdi.de
www.die-gdi.de

MEMBER OF JRF Johannes-Rau-Forschungsgemeinschaft

Acknowledgements

Extended, multi-site fieldwork is the outcome of many people with a shared vision coming together to do research that could improve the lives of forcibly displaced people. None of this work would have been possible without our excellent Kenyan partners, who were deeply engaged in developing the research with us and from whom we learned a great deal about the Kenyan political and migration context. We specifically wish to thank Lucy Kiama and Henry Nyanaro from HIAS Kenya, Andrew Maina and Mitchel Ambasu Ayietsa from the Refugee Consortium of Kenya, Samuel Bolongo and Abel Oyuke from the University of Nairobi, John Green from the Sentinel Project, and Gabriele Vihuto-Schuster, Christoph Brümmel, and Caroline Mukasia Madegwa from GIZ. At each site, we worked with professional, empathetic interpreters, many of whom were themselves refugees and were actively engaged in supporting and providing for the needs of their communities. They were incredibly helpful and provided insights and ideas on how to improve our work during our time in Kenya. Benson Mutahi and his team at the iHub provided us with a great community and workspace while we were in Nairobi. We also want to recognise the dozens of Uber drivers who drove us around Nairobi to meetings and interviews – it is easy to forget that, without them, the daily activities of fieldwork would not have been possible. Back in Bonn, we received advisory support from Jörn Grävingholt, Anita Breuer, and Eva Dick who comprised our expert committee. Finally, we want to thank Regine Mehl and Nuria Doméneche for all their hard work in running the Post-Graduate Programme, for their energy and support, and their willingness to get on the phone at all hours to help solve the sundry problems that come up during fieldwork. To everyone who helped make this work possible, you have our deepest gratitude.

Bonn, May 2020

Jana Kuhnt

Charles Martin-Shields

Contents

Acknowledgements

Abbreviations

Executive summary **1**

1 Introduction **3**

2 General background **4**

2.1 The “smartphone refugee” 4

2.2 Conditions for a successful implementation of ICT tools 5

3 Research sites **7**

3.1 Nairobi 8

3.2 Tana Delta 9

3.3 The Kakuma Refugee Camp 11

4 Empirical strategy and instruments **12**

5 Results **14**

5.1 ICTs and forcibly displaced persons in Nairobi 14

5.1.1 Barriers and facilitators for successful ICT uptake 14

5.1.2 ICTs for integration 15

5.1.3 Forcibly displaced persons and international organisations 17

5.2 ICTs and forcibly displaced persons in Tana Delta 18

5.2.1 Barriers and facilitators for successful ICT uptake 18

5.2.2 ICTs for integration 19

5.2.3 Forcibly displaced persons and international organisations 20

5.3 ICTs and forcibly displaced persons in the Kakuma Refugee Camp 21

5.3.1 Barriers and facilitators for successful ICT uptake 21

5.3.2 ICTs for integration 23

5.3.3 Forcibly displaced persons and international organisations 24

6 Conclusions and practical recommendations **25**

References **29**

Figures

Figure 1: Map of Kenya showing the Tana Delta between Garsen and Malindi 9

Figure 2: Houses in the Orma village Dumi B 10

Figure 3: Refugees use internet-based tools to access services such as finance, housing, health and education in support of local integration 14

Abbreviations

DRC	Danish Refugee Council
GPS	Global Positioning System
ICT/ICTs	information and communication technology/ies
ID	identification document
IFC	International Finance Cooperation
IOM	International Organization for Migration
IP	internet protocol
IRC	International Red Cross
KBC	Kenya Broadcasting Corporation
KES	Kenyan shilling
LWS	Lutheran World Service
MENA	Middle East North Africa
NCCK	National Council of Churches of Kenya
NGO	non-governmental organisation
NRC	Norwegian Refugee Council
OECD	Organisation for Economic Co-operation and Development
RAS	Refugee Affairs Secretariat (Kenya)
RCK	Refugee Consortium of Kenya
SMS	short message service
SSA	Sub-Saharan Africa
UN	United Nations
UNHCR	United Nations High Commissioner for Refugees
WFP	World Food Program

Executive summary

This report examines how forcibly displaced persons use information and communication technologies (ICTs) in Kenya. Focusing on the role and potential of ICTs with regard to mobility and inclusion, this paper studies the needs of forcibly displaced persons and seeks to understand how technology could help to meet these needs. The study identifies success factors concerning the deployment of ICT services, which potentially support the lives of forcibly displaced persons. Based on this analysis, we formulate policy recommendations for organisations which want to deploy ICT services in support of forcibly displaced persons in Kenya. Since living conditions and access to technology differ in urban, rural and camp environments, the research was conducted in Nairobi, the Tana Delta County and Kakuma Refugee Camp.

This study helps to fill a key gap in knowledge: Recent research concerning flight, migration and ICTs has been carried out as a reaction to the waves of refugees arriving in Europe in 2015 and onwards. Consequently, this literature mainly reflects the situation of forcibly displaced persons coming to Europe. However, since 85 per cent of refugees are hosted by developing countries and 31 per cent of the refugees and people in refugee-like situations worldwide are located in Sub-Saharan Africa (SSA), there is a growing imbalance between how much ICT- and refugee-research is based on the European context and how much on the situation in SSA. Starting from the assumption that the needs and usage behaviour of forcibly displaced persons could vary between Europe and SSA, this research has been undertaken in Kenya, a country hosting 473,971 refugees at the end of April 2019.

Our results are based on data collected through a mixed-method approach. Qualitative, semi-structured interviews were conducted with 90 forcibly displaced persons in Nairobi, Kakuma Refugee Camp and the Tana Delta County. Twenty-four organisations providing ICT services in Kenya were interviewed to provide a practitioners' perspective. The creation of the interview guides and the codebook for the analysis were developed on the basis of the e-governance framework developed by Verdegem and Verleye (2009), who identified important conditions for a successful uptake of ICT services, namely awareness, perception, access and usability.

With regard to mobility, our findings reveal that ICT tends to be used to organise the journey to Kenya. People call friends and relatives in order to get information on the situation in the country of destination or about possible travel routes. Moreover, mobile money transfer systems (*M-Pesa*) are used to avoid carrying cash and, thus, to avoid being a target for thieves. Yet, in comparison to statements from forcibly displaced persons who have come to Europe, ICT – and particularly internet-based tools – appear to be less relevant to mobility in Sub-Saharan Africa.[1]

In contrast, the role of ICT with regard to different aspects of inclusion should not be underestimated. Almost every respondent used ICT to maintain social connections. Moreover, half of the respondents claimed that they used ICT for educational purposes.

1 Since the reasons for leaving one's home country and for choosing Kenya as the country of destination were mainly conflict or political repression (people had to flee anyway), along with the short distance to Kenya and the presence of friends and relatives there, ICT cannot be interpreted as being a decisive push-factor.

Even if this sounds progressive at first glance, it is important to mention that only one respondent was part of an institutional e-learning project and the others tended to use ICT services in an informal manner for self-education purposes. For health care, most respondents reported going directly to a hospital in the event of emergencies, though forcibly displaced persons in Nairobi and Kakuma refugee camp increasingly used internet services like *YouTube* to get health care information. Where looking for a job was concerned, the results indicate that ICT was not important in finding a job, but was used regularly at the workplace. Since Kenyan law makes it easier for refugees to obtain a self-employment permit rather than a regular work permit, organisations like the Norwegian Refugee Council have started to organise online freelancing positions in translation or computer-based data entry as jobs that refugees can easily take up. Lastly, the findings show that, at the three research sites, ICT did not play a significant role in finding housing.

Our main policy and practice recommendations are the following:

- Organisations should avoid doing via ICTs that is already efficiently done in-person. For example, in Kakuma people simply walk to the clinics – and are happy to do so. There is not a need for a digital health information solution in this instance. This frees up organisations to focus on using ICTs to solve problems that cannot be effectively solved in-person. These findings indicate that "digital by default" strategies in refugee settings may not be appropriate.

- For matters like health information and education, organisations can take advantage of existing networks that communities have established on platforms such as *WhatsApp* and *Facebook*. The main advantage that non-governmental and refugee organisations can bring in this case is helping to make sure information is valid and helping community organisations to prevent rumours from spreading. Indeed, a major risk with health information in particular is that anyone can say anything on a social network, so helping communities validating information is critical.

- We learned through the interviews that refugees' awareness of different organisations' online tools was limited. Generating a user base starts with awareness-raising strategies, which appear to work best through personal contacts. Going directly to a village or to a certain community, and working with community-based organisations and community leaders as ambassadors, appears to be the best option for reaching out to the respective target group.

1 Introduction

Digital technologies have become an indispensable tool for many forcibly displaced persons all over the world. Gillespie, Osseiran, and Cheesman (2018, p. 1) state that in the context of migration, "smartphones are lifelines, as important as water and food." In recent years, the number of migrants owning or having access to digital devices has grown steadily (Emmer, Richter, & Kunst, 2016; Vernon, Deriche, & Eisenhauer, 2016), and so have the number of digital services developed by humanitarian and private stakeholders (Mason & Buchmann, 2016). Forcibly displaced people rely increasingly on information and communication technologies (ICTs) as well as online tools such as *Facebook* and *WhatsApp* to communicate with friends, family and official organisations, and when seeking employment, education, or health services.[2] International and national organisations, active in the humanitarian and development sectors, have begun to deploy their own electronic services (e-services). The Red Cross, for instance, has established the online platform *Trace the Face*, which enables forcibly displaced persons to find their relatives more easily (Mason & Buchmann, 2016). The Office of the United Nations High Commissioner for Refugees (UNHCR) seeks to contact displaced persons via *WhatsApp*, while smaller non-governmental organisations (NGOs) such as The Sentinel Project also offer information through SMS-systems or radio channels (Tuckwood & Mutisya, 2014).

However, research in this area remains limited, and largely focuses on the European context (for instance, Abujarour & Krasnova, 2017). A recent body of literature has emerged in reaction to the crisis in Syria that led to large displacements of persons to European countries and, therefore, focuses on migration from the MENA (Middle East North Africa) region to Europe. Although the awareness of the potential of digital services for displaced people in Sub-Saharan Africa has increased significantly, few studies have been published on the use of ICTs in this world region (Abujarour & Krasnova, 2017). This represents a serious knowledge gap since 31 per cent of the refugees and people in refugee-like situations worldwide are located in SSA. It is possible that their needs in terms of ICT applications as well as their usage patterns are different to those migrating to Europe. The relatively limited analysis and research on digital tools for forcibly displaced persons in SSA in comparison to the European context also reflects a crucial difference between the Global North and South regarding the development of ICT tools. Indeed, 90 per cent of the applications (apps) developed in the context of migration and flight have been developed for people migrating to Europe (Hounsell, 2017).

Using qualitative data collected in Kenya, this study seeks to help fill this knowledge gap, focusing on the supply of and demand for ICTs, and whether they are adequately aligned in SSA. Kenya is a useful case since it is one of the most important host countries of forcibly displaced persons in the world (UNHCR [United Nations High Commissioner for Refugees], 2018a). In addition, ICTs are widespread in the country and its capital Nairobi has become a globally important IT hub over recent years (Martin-Shields & Stones, 2014; Dahir, 2017). To evaluate variation in ICT use across different settings we chose three different research sites: Nairobi; the Kakuma refugee camp; and the rural Tana Delta region.

2 In the future, digital tools could be used even more extensively. In the health sector for instance, symptom-checking apps could be created, which would enable patients to be diagnosed digitally via *Facetime* or *Skype*. Furthermore, researchers are currently working on using 3D-printers to manufacture prosthetics. This could constitute an additional way to improve access to health care for forcibly displaced persons (Mason & Buchmann, 2016).

In addition to the general differences between a rural, urban and camp setting, the three sites have distinctive characteristics concerning the types of displacement and the legal status of forcibly displaced persons living there.

For this research question it is important to consider the demand (forcibly displaced population) and supply (institutions developing and offering ICTs) side, as an alignment of both leads to a "win-win" situation. We start by approaching the topic from the perspective of forcibly displaced persons. Studies show that migrants use a variety of digital tools before, during and after their journey. For instance, *Facebook* serves as an example where specific groups give information on asylum policies and shape the decision-making during the planning phase of the migration process. Additionally, Global Positioning System (GPS) tools allow refugees to navigate in unknown territory while applications like *WhatsApp* enable them to maintain or strengthen social networks or receive news and security information (Gillespie et al., 2018). When arriving at a specific destination, e-services[3] can potentially support forcibly displaced persons in terms of socio-economic inclusion such as in finding a job or accessing health services as well as potentially supporting the strengthening of social relationships and increasing trust among people in or in-between communities. Based on this background information, which is primarily derived from the European context, we ask:

- How do forcibly displaced persons in Kenya use ICT?
- How do organisations in Kenya develop and deploy ICT services?

Using qualitative data from multiple sites, we will attempt to answer these questions and develop site-specific and general policy and practical recommendations that can be used in strengthening the benefits and opportunities of ICTs for refugees.

2 General background

2.1 The "smartphone refugee"

The use of the term "smartphone refugee" (Jungbluth, 2017 p. 76) or the statement that a smartphone is the most important tool forcibly displaced persons can carry (Kozlowska, 2015), illustrate the importance of ICTs for people on the move. In particular, better access to information through ICTs means that organisations increasingly believe forcibly displaced people are digitally connected. For instance, the Danish Refugee Council (DRC) concludes that, due to better access to information through ICTs, "new communication technologies are making it normal for people to think beyond borders" (Frouws, Phillips, Hassan, & Twigt, 2016, p. 2). This "thinking beyond borders" is driven mainly by the improved access to information and has implications for various different aspects of flight and migration. Often, forcibly displaced persons face various challenges and have to make spontaneous decisions during their journey. When it comes to tackling such decisions and challenges, information plays a crucial role. As ICTs provide access to such information, they facilitate decision-making processes and help them cope with different challenges

3 "E-services" is a catch-all term for online and digital tools provided by the government and UN agencies to help refugees navigate registration, public services, and other administrative processes.

arising before and during the journey (Frouws et al., 2016 p. 2; Dekker, Engbersen, Klaver, & Vonk, 2018, p. 1). Migrants use the internet and social media to gather information on their journey regarding costs of traveling, available means of transportation, and possible migration routes as well as on the intended destination country (IOM [International Organization for Migration], 2016; Frouws et al., 2016). In East Africa, mobile phone use during migratory movements has notably increased in the last four years (Hounsell & Owuor, 2018). To stay in touch with relatives and friends and to generally maintain social networks is crucial for people and can help reduce negative feelings such as fear, anxiety or loneliness. ICTs can support the development and strengthening of networks between migrants offering a way to share information and to increase psychological wellbeing (Alencar, Kondova, & Ribbens, 2018, p. 10; Hounsell & Owuor, 2018a).

Additionally, ICTs can contribute to the wellbeing of forcibly displaced persons by giving them the possibility to express their cultural identity thereby creating a sense of belonging (Andrade & Doolin, 2016; Marlowe, Bartley & Collins, 2016, p. 99). Likewise, ICTs can lead to a better understanding of the new society (Andrade & Doolin, 2016). Through multimedia platforms such as *YouTube*, forcibly displaced persons cannot only acquire linguistic competences but can also learn about their host countries culture in general. Furthermore, digital tools can enhance access to governmental and institutional services and promote political participation (see, for instance, Andrade & Doolin, 2016; Marlowe et al., 2016; Abujarour & Krasnova, 2017). New mobile and digitally-based work opportunities enable refugees to work remotely (Hatayama, 2018). Job-matching platforms such as *workeer.de* have been developed with the aim of fostering forcibly displaced persons' economic inclusion. ICTs can also be an important pathway to higher education for forcibly displaced persons (see Dahya & Dryden-Peterson, 2017; Lewis & Thacker, 2016; Mason & Buchmann, 2016). Also, several financial services can be accessed via mobile tools (such as *M-Pesa*). We investigated the potential and use of ICTs for refugees' inclusion into the host society on the dimensions of housing, employment, education and health following Ager and Strand (2008). As access to finance is one pre-condition for all these categories, we also included this as well as more generally the use of ICT for maintaining and building social contacts.

2.2 Conditions for a successful implementation of ICT tools

Several institutions have started to analyse the patterns and preferences of forcibly displaced persons in order to develop tools that can contribute to improving their situation, such as their access to health service providers or housing platforms (Eurocities, 2016). There are certain aspects that need to be considered to increase the uptake of digital tools by the target population (based on Verdegem and Verleye, 2009). Verdegem and Verleye focus on four factors: awareness, decision to use, access, and satisfaction.

Awareness

Potential users need to be aware of the respective tool, which is often not the case and a likely reason for people not to access them (Dekker et al., 2018). A study on e-governance in Slovenia indicates, for instance, that most citizens did not know about the e-services their administration offered (Kunstelj, Jukic, & Vintar, 2007). One way forcibly displaced persons can learn about new digital services is through social interaction. According to

Rogers (1962), implementation of new technologies is slow at the beginning and accelerates once it has reached a critical mass of clients. He explains this through the crucial role of early adopters in motivating their peers to use the new technology. Through the influence of early adopters, usage multiplies and this leads to more people wanting to adopt an innovation (Karnowski & Kümpel, 2015).

Decision on ICT use

Even if forcibly displaced persons know about a certain technology, they still have to decide whether to use it or not. According to Verdegem and Verleye (2009), in this phase users generally evaluate whether the uptake would have positive effects on their lives. This process is heavily influenced by users' perceptions, attitudes and preconceptions. Security and privacy concerns may play a central role in the decision to utilise an ICT tool (Latonero, Poole & Berens, 2018, p. 30) One-third of refugees interviewed in Greece stated that they were worried about the personal information they had to provide when accessing platforms on their mobile phones (Latonero et al., 2018, p. 30). This is in line with Frouws et al. (2016), who show that privacy concerns are the main reason why *WhatsApp* – which is end-to-end encrypted, unlike, for example, basic SMS texts – is one of the most popular apps amongst forcibly displaced persons. Networks and volume of users is another factor that could play a role in the decision to use a technology – if all of someone's friends and family use an app, then it makes sense to use it also. Here, well-designed outreach and advertising campaigns can play a role in peoples' decisions to use a particular technology, too.

Access

However, even if individuals are interested in a certain ICT product, they may not have access to it for various reasons. Recent studies suggest that mobile connectivity can likewise constitute a reason that restricts forcibly displaced persons from using digital services (Vernon et al., 2016; Hounsell & Owour, 2018). While low connectivity is less of an issue in urban settings, it is extremely relevant in refugee camps that are often located in rural spots that lack the respective infrastructure. Furthermore, on the main migration routes from Somalia and Ethiopia to Northeastern Kenya, there is only limited 2G connectivity as well,[4] preventing migrants from making and receiving phone calls throughout their journey for example (Hounsell & Owour, 2018, p. 30). Apart from low mobile connectivity, forcibly displaced persons likewise only have limited access to internet-enabled phones. According to UNHCR, 68 per cent of refugee households in urban locations own such devices, versus just 22 per cent in rural locations (Vernon et al., 2016). There is evidence on the global scale and also in East African refugee camps in particular, that forcibly displaced persons have to spend what they perceive as a large percentage of their disposable income to purchase a smartphone or to afford mobile data credit on a regular basis (Vernon et al., 2016; Hounsell & Owour, 2018a, p. 18). According to Mason and Buchmann (2016, pp. 23, 29) another

4 The terms 2G, 3G, 4G, and 5G are references to the different mobile phone transmission generations. 2G is the oldest of these designations and is purely analogue. 3G-5G mobile phone connectivity is digital and they have increasing download and upload speeds. Essentially, 2G is enough to make voice calls and send SMS text messages but is insufficient to properly access the internet. 3G speeds enable people to use smartphone apps like *WhatsApp* but would be limited for streaming video and music. 4G and 5G are the most modern mobile phone transmission generations: 4G allows for streaming of videos and music, while 5G makes larger cloud computing and data transfer possible over mobile phone networks.

barrier to the access of ICT is the fact that most forcibly displaced persons do not possess e-mail accounts, which prevents them from downloading apps from the *Google App Store* for instance. The same study suggests that language barriers may hinder forcibly displaced persons from profiting from e-learning platforms, which offer courses in English rather than classes in their mother tongue.

Satisfaction

Finally, the satisfaction with the respective tool plays a central role in determining continued usage. If the product is too difficult or does not satisfy the user for other reasons, it will not be utilised in future.[5] Heeks (2002) finds that digital products are frequently developed in and for Organisation for Economic Co-operation and Development (OECD) countries and then exported; or they are designed by Western experts or Western-educated locals. The experience with e-governance shows that if ICTs are used in a region where they were not developed, they often do not suit the local setting and are thus not used by the general population. For the context of flight and migration, the same seems to be true, making apparent the impact of the digital divide that we described above: from their case studies, Mason and Buchmann (2016) conclude that those projects conceived and developed with little on-the-ground experience run the risk of misjudging the needs profile of their target group and, hence, prevent a longer-term use of the tool. Caidi and Allard (2005, pp. 305, 315) also stress that the use of ICTs has to be embedded in the social, cultural and work environment of forcibly displaced persons since their needs vary according to levels of education, age or cultural backgrounds.

3 Research sites

In order to investigate our research questions, we used a "most dissimilar cases" design. The methodological approach allowed us to: i) identify whether and how ICT affects forcibly displaced persons during their migration process; ii) its role on inclusion; and iii) how stakeholders offering ICT services for forcibly displaced persons can develop and deploy these services in accordance to the needs. This design enabled us to explore whether different contexts influenced the relevance of ICT and how ICT is used in those different settings. In addition to the variation with regard to type of forcibly displaced persons and regions, we looked at a wide span of services in support of forcibly displaced persons. Accordingly, we equally looked at services designed to help forcibly displaced persons on the move and services envisioned to support forcibly displaced persons to settle and integrate into the new society. This included radio programmes as well as applications for smartphones and informative websites.

Below, we present the characteristics of the three different research sites, which we chose in order to analyse the intersection between ICTs and displacement. All sites host forcibly

5 Contrarily, Rogers (1962) argues that even if the implementation does not yet correspond to users' needs, the tool or services can be adapted at this point. He perceives the innovation process as a repetitive cycle in which users continuously shape the technology that they are utilising. In his view, it is also common that a technology that was popular for a while is replaced after some time because a more efficient or attractive alternative has been developed (Karnowski & Kümpel, 2015).

displaced persons who use ICT in their everyday life, and the variation in local conditions may have an interesting effect on the mobility and inclusion of forcibly displaced persons.

3.1 Nairobi

Nairobi's population is growing in size, giving a home to a diverse population of Kenyans, migrants and refugees. Currently, the migration flows to Kenya, and more specifically to Nairobi, consist of a mixture of different groups, ranging from highly skilled workforces or economic migrants in search of better opportunities to refugees and displaced people with unregistered status. UNHCR estimates that there are around 71,000 registered refugees and asylum seekers in Nairobi (UNHCR, 2018b). The majority of this urban refugee population are from the Democratic Republic of the Congo, Somalia and Ethiopia, and other countries (UNHCR, 2018b). Additionally, Nairobi hosts an unknown number of many thousands of unregistered displaced people. Most forcibly displaced persons residing in Nairobi tend to settle in specific neighbourhoods such as Eastleigh, which is traditionally dominated by Kenyans of Somalian descent and Somalis.

Legal and social living conditions put challenges on forcibly displaced people in the various areas of inclusion. Due to lack of information, changing laws or policies, and arbitrary enforcement, displaced persons are often unclear about their own rights and status or which procedure they are supposed to follow. Moreover, without a refugee identity card, they face the constant risk of being sent to one of the refugee camps. Additionally, administrative procedures to obtain documentation and complete status determination often suffer under repeated delays and require multi-year waiting time.

In a policy environment which requires all refugees to reside in camps, conditions for inclusion are challenging, even for urban refugees with official documentation. Without a refugee identity card, forcibly displaced persons struggle with restricted access to services and activities that require official identity documents such as health care, work permits, banking service or even entrance to a public building. Lack of documentation can also exacerbate refugees' encounters with the police, including harassment and demands for bribes. Accordingly, free movement in the city and open participation in society is largely restricted. Children of parents who are unable to present documentation or a birth certificate are often not able to enrol in school education (Njeri, 2015). Furthermore, qualitative research conducted by the Norwegian Refugee Council in 2017 revealed that refugees face the challenge of being unable to predict whether their documents might be accepted.

High barriers for obtaining a work permit exclude most forcibly displaced persons from the formal sector regardless of their level of education and limit possibilities to improve their income situation. Although documented refugees in Nairobi should be eligible for public health service by law, they often face numerous complications in health care compared with low-income city dwellers. Disadvantages – such as a lack of social security systems or health insurance plans as well as insufficient disposable income or discrimination – reduce access to the already overstretched government health system (Kamau, 2015). Nairobi's growing population and its high density in lower income areas put pressure on the city's housing market, making both host and refugee communities struggle with overcrowded rooms, limited or a lack of access to water and electricity, or excessive rents. Although in theory there is no difference between rents, refugees are often charged more and Kenyan's

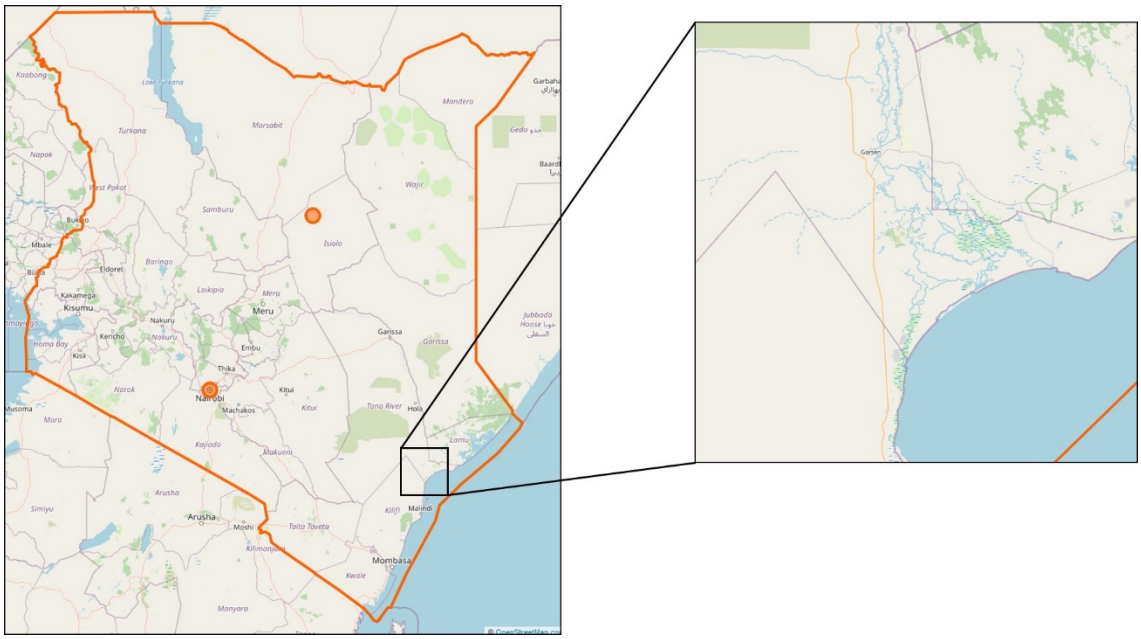
complain about rising prices in areas with high refugee populations (Pavanello, Elhawary, & Pantuliano, 2010).

There are no official survey numbers for Nairobi about ICT access. However, official numbers on Kenya give some orientation for the capital, where access to technology is expected to be especially high. According to an integrated household budget survey conducted by the Kenyan National Bureau of Statistics in 2015/2016, 85.8 per cent of the population aged three years and above use mobile phones, whereas only 29.0 per cent use a computer and 43.8 per cent use the internet (KNBS [Kenya National Bureau of Statistics], 2016).

3.2 Tana Delta

Tana River County is a region in East Kenya. Even though the county's climate is dry and hot, the Tana Delta in particular has extreme weather conditions ranging from drought to flooding, often leading to localised internal displacement. South of the town of Garsen, the Tana River divides to form a deltaic floodplain (Duvail, Medard, Hamerlynck, & Nyingi, 2012, p. 324). Among many ethnic groups there are two predominant ones living in the Tana Delta: the Pokomo and the Orma. The Pokomo people are predominantly Bantu-speaking Christian farmers, whereas the Orma are Kushitic-speaking Muslims earning their livings as semi-nomadic shepherds (Tuckwood & Mutisya, 2014, p. 17). Regular droughts and floods of the Tana River lead to internal displacements of both groups. In 2012 and 2013, there were conflicts between those two groups resulting in deaths and displacement. Distribution of land and access to the river are major factors for ethnic tensions (Duvail et al., 2012, p. 326).

Figure 1: Map of Kenya showing the Tana Delta between Garsen and Malindi



Source: OpenStreetMap with modifications by the authors.

Our research was conducted in three different villages belonging to either the Pokomo or Orma. Dumi A, a village of Pokomo farmers, and Dumi B, a village of Orma pastoralists,

were neighbouring villages. Both villages include about 68 households. The third village is named Garden and consists of approximately 30 Orma households. All villages share the proximity to the Tana River and are affected during flooding. At those times people move for several months to the nearest camps on higher grounds until the flooding subsides. Harsh sanitary conditions and the disruption of education and income-generating activities accompanies the displacement experience. Some villagers stay with relatives who live outside the flooding area. Orma houses are built in a way that allows enough air circulation to cool the insides during the heat of the Tana Delta. However, on the downside, the flood can sweep those houses away: "After the flooding the whole village is just flat and we have to build everything again" (Orma, interview 4).

Figure 2: Houses in the Orma village Dumi B

Notes: On the left: houses constructed the usual way; on the right: houses built for newlyweds only.
Source: Authors

The large majority of the population lives in rural areas and works in agriculture, such as farming or cattle herding. 17 per cent of households in Tana River County can use electricity for lighting. Tana River County's residents are young with 70 per cent under the age of 30. 78 per cent of residents in Tana River County attended school, which is below Kenya's average of school attendants per county. At the same time, 29 per cent are illiterate (KNBS, 2016). A large, young population combined with high rates of unemployment challenges the county's peace and stability (Boyd, Green, Mutisya, & Tuckwood, 2015, p. 6).

No specific information on the phone ownership of internally displaced persons in Tana Delta is available. In general, mobile phone coverage in the region is relatively high, with a share of 84.6 per cent of which 60.4 per cent of the phones were able to connect to the internet in 2015; people in Tana River County access the internet far less via computers in cybercafés, at home, at school or at their workplaces. Conventional media, such as radio and television, are not only popular but also the most trusted source of information. Along

with *Amani FM*, radio and TV reports on national issues only tend to refer to Tana Delta when violence breaks out (Boyd et al. 2015, pp. 29, 30).

3.3 The Kakuma Refugee Camp

With a population of around 185,000, Kakuma is currently the second largest refugee camp in Kenya and the fourth largest in the world. In 2017, people from South Sudan represented the majority of the camp population (57.9 per cent). Somalians, who are the second largest group, follow with a share of 18 per cent (UNHCR, 2018c). All forcibly displaced persons living in Kakuma are either asylum seekers or are already in possession of official refugee status issued by UNHCR.

The camp was founded in 1992 as a result of Kenya's encampment policy which was manifested inter alia by the Kenyan Refugee Act of 2006. Kakuma camp is located in the climatically challenging Turkana region. High temperatures, aridity and dust storms have historically been posing restrictions to farming (Alix-Garcia, Walker, Bartlett, Onder, & Sanghi, 2018, p. 67). This could change with the vast water aquifers that were discovered recently (Turkana County Government, 2019a). Nonetheless, the region suffers from poor road connections and the lack of a commercial airport, which also hampers economic activity (IFC [International Finance Cooperation], 2018, p. 17). Recently, oil deposits have been discovered in Turkana which, according to the local government, are expected to boost the economy (Turkana County Government, 2019b). Residents of Turkana county are more sceptical about the positive effects on their respective lives and have been protesting against extraction ("Kenya: Oil-rich yet on edge in Turkana", 2017; "Kenya: Tullow resumes oil exploration, trucking", 2018).

Turkana is one of the poorest counties in Kenya (Alix-Garcia et al., 2018, p. 67). Around 90 per cent of the county's 1.3 million inhabitants live below the poverty line ("Kenya: Oil-rich yet on edge in Turkana", 2017). To some extent, Turkana county is profiting from the developing economic activity in Kakuma camp. For instance, markets are much better developed within the camp than in Kakuma town which is why town residents frequent the camp markets regularly as well (Grindheim, 2013 in Alix-Garcia et al., 2018, pp. 67-68). Furthermore, the camp has triggered increased agricultural production in its surroundings. Livestock prices have equally increased (Alix-Garcia et al., 2018, pp. 74-75). Kakuma camp has a vast informal economy consisting of over 2,000 businesses, mostly small general stores, and ten local markets (IFC, 2018, p. 14). Nevertheless, the economy of Kakuma camp is almost entirely dependent on food aid, external transfers, and jobs within the camp (Alix-Garcia et al., 2018, p. 68). Salaried jobs in the camp are mostly offered by NGOs operating in Kakuma. 58 per cent of respondents of an International Finance Corporation (IFC) survey in the camp stated they were employed by non-profit organisations. Since, according to Kenyan law, forcibly displaced persons are usually not allowed to work, they are mostly hired as volunteers who only receive low payments (IFC, 2018, p. 15). Only about 2.9 per cent of Kakuma households earn more than the minimum wage of KES 10,000.12 (IFC, 2018, p. 16). Many forcibly displaced persons do not own sufficient funds to set up a business. Women in Kakuma camp generally do not pursue any income-generating activities (IFC, 2018, p. 24). Donor support for Kakuma camp has been drastically reduced lately which also impacts access to food for its inhabitants ("Flüchtlingslager Kakuma", 2018).

Illiteracy is widespread in Turkana county with 59.1 per cent of inhabitants not being able to write or read (KNBS, 2016). More than 50 per cent of Kakuma camp residents have not received schooling (IFC, 2018, p. 17). Access to education in the camp is available but limited. Schools are run by UNHCR and its implementing partners. In total, they are responsible for 22 primary schools, 5 secondary schools, and 2 post-secondary institutions. That these are not sufficient to cover the entire demand might explain the high number of children not attending school (pre-primary 55 per cent; primary 17 per cent; and secondary 96 per cent). To address the growing need for education, communities have started their own private primary and secondary schools (IFC, 2018, p. 60). Additionally, a variety of organisations provide vocational and business training programmes in Kakuma camp (IFC, 2018, p. 70). To improve access to education for forcibly displaced persons and the host community in Turkana equally, UNHCR is currently building a university campus in Kakuma (UNHCR, 2018d). Furthermore, the integrated settlement of Kalobeyei is designed to improve host communities' access to humanitarian aid in general (UNHCR, 2018d).

About 69 per cent of camp residents have a mobile phone (IFC, 2018, p. 52). 99 per cent of forcibly displaced persons in Kakuma camp have access to a phone (Hounsell & Owour 2018, p. 20). The rate of ownership varies greatly by nationality. Out of the respondents, 100 per cent of Eritreans, 92 per cent of Ugandans, 90 per cent of Ethiopians, 81 per cent of Somalians, 67 per cent of Sudanese, 64 per cent of Rwandans and 54 per cent of South-Sudanese owned phones (IFC, 2018, p. 52). Only 19 per cent of these phones connect to the internet though (IFC, 2018, p. 53). 44.4 per cent of phones in Kakuma camp are smartphones while 54.9 per cent are basic- or feature-phones (Hounsell & Owour, 2018, p. 13). Forcibly displaced persons having arrived between 2000 and 2010 are more likely to own smartphones than those who arrived after 2010 (33 per cent and 22 per cent respectively) (IFC, 2018, p. 53). Only 40 per cent of the signal coverage provides 3G and almost 60 per cent only 2G.[6] Moreover, internet connectivity remains low and unpredictable, and there is almost no Wifi-coverage in Kakuma (Hounsell & Owour, 2018, p. 20).

4 Empirical strategy and instruments

During our research, we conducted in-depth semi-structured interviews with displaced persons and organisations providing ICT services to forcibly displaced persons. These organisations included humanitarian organisations, implementing organisations, tech start-ups as well as multilateral and regional organisations. In total, we conducted 24 interviews with organisations, whereof 8 organisations worked in Nairobi, 13 in the Kakuma refugee camp or a camp setting, and 3 in the rural Tana Delta region. Furthermore, 4 of those organisations worked in the field of education, 6 in work-related fields such as the creation of livelihood assets, 3 in the field of conflict prevention and 10 regarding other migration related topics (for example, health, housing, family reunification). Secondly, we interviewed 30 forcibly displaced persons per research site, totalling 90 respondents. Although the sample is not representative from a statistical perspective, we chose our sample of forcibly displaced persons to represent a cross-section of the respective population group with respect to age, gender and nationality at each research site.

6 See Footnote 4 for an explanation of 2G, 3G and 4G mobile phone internet speeds.

In the Nairobi as well as in the Kakuma context, we chose a distribution of interviewees which reflected the majority of refugee populations by nationality, namely Somalians (54.7 per cent), South Sudanese (24.5 per cent) and Congolese (8.6 per cent) (UNHCR, 2019a). In the Tana Delta region, we chose a sample that presented the two major ethnic communities affected by flooding, the Orma and the Pokomo community. Moreover, all samples reflected the same number of males and females, representing an average mix of people aged between 18 and 70 who had been displaced in various different years. If several displacements had occurred, we focused on the most recent one. The latter sampling filter allowed us to monitor whether the use of ICT had changed between people over the time window of 10 years; the other sampling filters allowed us to evaluate if there were major differences in ICT use at the different research sites and among the most important communities.

Where organisations were concerned, we used a snowballing approach starting out with organisations we had researched online and then relying on information we gathered during the interviews with respect to additional relevant interview partners. We made sure to include a variety of different types of organisations (international, national, private sector-based, humanitarian) as well as a range of topics that their ICT services focused on (work, education, health, and so on). We were supported throughout the qualitative research process by local partners, namely The Sentinel Project, a Canadian/Kenyan NGO in the Tana Delta Region; the Refugee Consortium of Kenya (RCK) in Kakuma; as well as HIAS in Nairobi.

Two different questionnaires were employed: One questionnaire served as a guideline for the interviews with forcibly displaced persons, while the other was used for policymakers and practitioners. The first included sections on the needs and the use of ICTs in the social inclusion process as well as on the needs and use of ICTs in the mobility process. We explored what ICT services were mostly used by forcibly displaced persons and why forcibly displaced persons used these services. The second questionnaire guided the interviews with representatives of organisations providing ICT services that were used by forcibly displaced persons. In particular, we explored how forcibly displaced persons' needs were considered and what challenges the organisations faced, using fairly open key questions instead of strictly formulated ones.

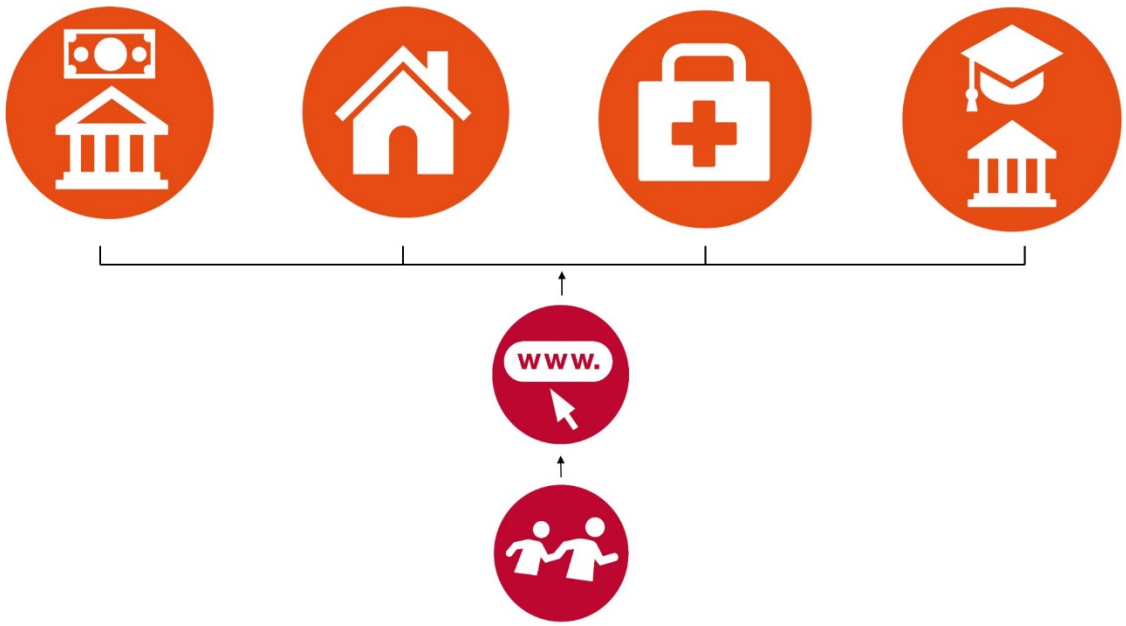
Both questionnaires were partly theory-driven. They were designed on the basis of previous knowledge on ICT use behaviour of forcibly displaced persons and the framework of Verdegem and Verleye respectively. We worked both deductively (theory-driven) and inductively (empirical-driven) at the same time. To adapt the questionnaires to the local context as well as possible and to discuss the manner in which to ask sensitive questions, we elaborated and tested them in collaboration with our Kenyan partners.

When conducting the interviews with forcibly displaced persons and with experts from international institutions, we furthermore noticed that by testing the four categories of ICT uptake developed by Verdegem and Verleye, the category "decision on ICT use" could in practice not be clearly distinguished from the other three categories ("awareness", "access" and "satisfaction"). Furthermore, we recognised a recurring pattern that the category tended to be intertwined with one or more of the other categories. For instance, when asked why people started using a service, interviewees responded with cost-related arguments ("access") or told us what they liked about the service ("satisfaction"). Due to this overlap, we decided to suspend the category "decision on ICT use" and to include results associated

with it within the other three categories. Most of the results we generated with questions aimed at identifying which values and perceptions led people to start using a service overlapped with reasons people continued to use a service, which is why we mainly included them in the former "satisfaction" category, renaming it "uptake and satisfaction".

When all these conditions were met, we assumed that refugees would access the internet and use the available tools to access education, financial, health and housing services when they arrived in a camp, rural or urban setting.

Figure 3: Refugees use internet-based tools to access services such as finance, housing, health and education in support of local integration



Source: Authors

To analyse a cross-section of the data and to be able to compare the data in a second step, we ensured that all four Atlas.ti project bundles (three sites and one expert data bundle) included equal categories to compare the data and individually adjusted categories to grasp site-specific results.

5 Results

5.1 ICTs and forcibly displaced persons in Nairobi

5.1.1 Barriers and facilitators for successful ICT uptake

Interviewees in Nairobi have comparatively good access to hardware but sometimes struggle with the cost of using their services. All 30 interviewees had access to a phone, out of which 23 were smartphones. Only about half of the respondents had access to a TV (16)

and/or a radio (13), suggesting that the high distribution of smartphones reduced the importance of these devices. The large majority of people used their personal phones; only one person went to the cybercafé to call home.

For some interviewees, the costs of using their phones were still high. Eleven respondents complained about high costs for data bundle and airtime or even the costs of electricity to charge the radio, which notably limited the way and the frequency they used their devices. On the other hand, some refugees had access to Wifi in their houses, often provided by neighbours or persons subletting accommodation. Several respondents told us that they only used their phones at home to avoid data bundle costs.

Although people also reported language barriers or problems of (digital) literacy, it seemed that – regardless of the level of education – such challenges did not play a decisive role in hindering access to the most basic and most commonly used services, such as social media or radio channels. For example, even illiterate interviewees frequently used the visual and voice functions of *Facebook* or *WhatsApp*. On the other hand, services that required reading or writing were not available to illiterate persons. Furthermore, people reported that they could listen to radio programmes in their mother tongue. This indicated that radio programmes were generally available in a variety of languages. However, one respondent also explained that she was not able to use *YouTube* since she only spoke Somali, explaining, "Yes, there is online education. I know it exists. But I don't know where and how to access [it]." (Nairobi Somali, interview 1).

In general, the data indicated that interviewees across all demographic categories took the same kind of factors into their consideration when deciding about ICT use; however the importance and decisiveness of a specific factor varied greatly among individuals. This suggests that the uptake and satisfaction with specific services depended on individual needs and preferences.

5.1.2 ICTs for integration

In Nairobi, ICTs were mainly used to maintain social relationships and for access to money, and to a lesser degree for education, housing and health information.

Social contacts

The vast majority of the respondents of all communities had friends of different nationalities, including Kenyans. Calling, text messaging, and *WhatsApp* were the common ways of communication. For those who had access to a smartphone, *WhatsApp* was the cheapest way to communicate. Most people used *WhatsApp* or *Facebook Messenger* for communication because it was cheaper than normal calls and SMSs. At the same time, for relatives and friends abroad, online platforms were the preferred method of communication since regular calls were expensive. Another advantage mentioned was the possibility of video chats on *WhatsApp* and *Facebook*. Certain communities used specific services; for example, one Somalian interviewee said she preferred *IMO*, a text-over internet protocol (IP) service similar to *WhatsApp*, over *WhatsApp* and *Facebook* because it was more common in the Somalian community.

Housing

With regard to work and housing, personal contacts appeared to be more important. Interviewees mostly relied on personal contacts to find housing (25 out of 30). Friends from the same country, neighbours and other forcibly displaced persons were crucial in finding housing. Furthermore, family members also played an important role here. Religious and non-governmental organisations supported 4 of the interviewees in finding housing. Moreover, 4 interviewees called telephone numbers on posters to find housing while 2 others called friends to receive information about apartments that were available. Only 1 person looked for a place to stay online. When asked about the future potential of ICT projects with regard to housing, 1 interviewee stated that a housing platform would not make sense in Kenya since apartments were rented out through informal networks. In one interviewee's opinion, people would not post available apartments on such a website (Nairobi Somali, interview 4).

Employment

As in the domain of housing, personal contacts were crucial for finding a job. One explanation given for this during the interviews was that the lack of a Kenyan ID while related difficulties in obtaining a work permit made personal relationships all the more important. Some refugees relied on social support organisations to find a job or joined refugee support organisations as staff. About half the interviewees used ICTs in order to find a job. For example, 3 interviewees called friends to find out about job offers. Somalian interviewees especially used *WhatsApp* groups to look for work. *Facebook* was also used by 1 interviewee. One interviewee used job platforms such as *Webrelief* and *Kenyamoja*. According to 1 respondent though, they carried the risk of fraud. Two interviewees wrote emails in order to apply for a job.

Financial services

Even though the lack of a Kenyan ID made using *M-Pesa* difficult, interviewees had widely integrated it into their lives. About half of the interviewees utilised it for finance. One way of circumventing *Safaricom*'s ID rules[7] for *M-Pesa* was by using the *M-Pesa* account of Kenyan friends. Among other things, *M-Pesa* was used to pay school fees, medical bills and work-related matters. One reason to prefer *M-Pesa* over cash was that money could be less easily stolen (Nairobi South Sudan, interview 4). Other than *M-Pesa*, a few interviewees simply called friends to ask for money using the *Worldremit* money transfer service.

Health

About half of the respondents used ICTs to receive health or health information services. Sometimes the interviewees called health care professionals, while 11 interviewees received health care information from the internet (*YouTube* or *Google*) or TV channels. At least 1 interviewee received money for health care via *M-Pesa* and 1 respondent contacted his

7 In Kenya, anyone who wants to set up a mobile phone account – and thus be able to set up an *M-Pesa* mobile money transfer account – has to either have a Kenyan national ID card or a passport. Many refugees do not have either, thus face challenges in accessing mobile phone services.

doctor via *Facebook Messenger*. The level of ICT use seemed to be lowest among the Congolese interviewees (in comparison with South Sudanese and Somalian respondents).

Education

Another half of the interviewees used ICTs for education. Eight reported doing online research in order to learn about things on their own. Two followed online courses, while 4 researched educational offers (universities, schools, scholarships) online. A few interviewees used *WhatsApp* and *Facebook* learning groups. Two persons used specific apps for education, specifically *Vidmade* and *Quora*, while another 3 used *YouTube* for educational purposes.

5.1.3 Forcibly displaced persons and international organisations

Interaction with international organisations

Even though transportation costs are high, most of the interviewees interacted with refugee support organisations – both UNHCR and NGOs– in person. Many also called those organisations in order to get information. For instance, about half of our interviewees used the UNHCR hotline at least once. Some found it helpful– but we also heard a lot of criticism. Positive features mentioned were the variety of languages available, that the line was cost-free, and that it was available at all hours. The criticism can be explained partly by the high expectations callers had: For example, they expected answers relating to their resettlement cases, which UNHCR could not give them right away. Another criticism one respondent highlighted was that they were not called back by UNHCR as promised (Nairobi Burundian, interview 3). Only a few people used the internet/their smartphone to get information about programmes provided by the United Nations and NGOs. Rather, people tended to get information about the services through friends, their communities (for instance a notice board in the community), or churches. Congolese and Burundian interviewees had contacted the police the most, while 3 South-Sudanese and Congolese citizens stated that they had interacted with the Refugee Affairs Secretariat (RAS) for administrative reasons such as concerning their alien card. They did not use ICTs to communicate with the RAS but went there in person.

Solutions by international organisations

Organisations working in Nairobi see a lot of potential in the use of ICTs to reach out to refugees. Knowing that there is an increasing number of people with internet access, they implement online-based services such as mental health apps, reunification platforms, or education apps. However, they *do* face the challenge that computer access is low, which is why two organisations pointed out that they refrained from offering online trainings and saw the need for computers to be made available in community centres.

To overcome the problem of high data or airtime costs, some organisations also implemented free call-back options, offline solutions for apps, or distributed data/airtime vouchers. With regard to language barriers, organisations sometimes reduced their services to the most commonly used languages. However, there were also innovative solutions such

as electronic voice and language recognition. Radio channels, posters in public places, or references by other organisations were also strategies used to make specific ICT services known among forcibly displaced people in Nairobi.

5.2 ICTs and forcibly displaced persons in Tana Delta

5.2.1 Barriers and facilitators for successful ICT uptake

In Tana Delta nearly all interviewees owned a phone, and predominantly basic phones. All phones had a radio function, although they varied in quality and radio reception. Our respondents had access to radio either with their phones or through a radio device. Two radio stations were accessible from all phones in Tana Delta. A few owned a separate radio and had access to further radio stations such as Tana FM, a countywide channel located in Hola. Those had the chance to weigh information and select their news out of a broader range of sources. However, as a village elder put it: "We only have those two channels. If they tell the news, we can't compare it so we have to believe it" (Tana River Orma, interview 1). The scarcity of information made it difficult to criticise news as no other source of information was easily available. All villagers listened to the radio and relied on it since it was the main source of information. Deputy commissioners, health ministers and organisations with conflict prevention programmes used the radio's outreach as a platform to access all villagers.

One to two respondents per village had smartphones (in total 3 out of 30 interviewees) and access to the internet. One reported that buying a smartphone was too expensive. Another was still in high school and said that he would get a smartphone from his parents when he finished his schooling. This had educational reasons: his parents seemed to be aware of the risks of having a smartphone at a young age. They would not allow him to own a smartphone at a young age "because they say I will […] use it in a bad way. I can get a phone after I finish school" (Tana River Orma, interview 3). At the same time, he said that having one would be good to access information and news.

One major challenge lay in the electricity supply to the villages. There were a few solar panels per village that people used to charge their phones. Even though the panels belonged to an individual they were commonly used within the family and access was granted to community members. One respondent also usually went to his cousin's house to watch television. In this way, he had access to news and entertainment. Sharing hardware and sharing information was common in a close-knit setting. This meant that owning a smartphone came with the responsibilities of sharing information with the community: the owner had a role as information transmitter.

5.2.2 ICTs for integration

Social contacts

The basic phone was the most important tool to communicate with family members living outside the villages. Text messages are cheaper than calling and were used when one did not have credit on the phone. Yet, for people who are illiterate, calling is the only opportunity to contact family living far away. Other means of ICT do not play a crucial role in communication. Only one respondent reported using *WhatsApp* to communicate with her family. In general, the use of ICTs to establish contact with members outside a person's community was rare. If the interviewees got to know people outside their community, they generally met in-person and did not communicate via ICTs.

Housing

In general, in the villages of Tana Delta, ICTs play no role in finding housing. The small villages which we visited during our project only consisted of around 30-50 households. This small size rendered internet platforms or other e-services for house-hunting irrelevant. During and after displacement, ICTs were used in two ways: On the one hand, around half of the interviewees called relatives and friends to get shelter during the time of displacement (that is, those who did not go to the camps). On the other hand, in one case ICTs played an interesting role in the construction of houses after displacement: villagers reported that the Red Cross supported them after floods in constructing new houses by sending them construction plans via *WhatsApp.* Moreover, the Red Cross used *M-Pesa* to send money for the construction material.

Employment

In order to find a job, 2 respondents used ICTs: They heard job advertisements through the radio and then called potential employers. Only 1 person, working as a revenue collector of the county used *WhatsApp* for work. He used *WhatsApp* groups with his colleagues where they exchanged job-related information. Our sample contained 14 persons who were not employed in the formal sector. Apart from 2 persons, working as a revenue collector and teacher, most were pastoralists and farmers. The pastoralists used calls to talk to the persons who were taking care of their cattle, for instance when they wanted to sell cattle at the market. One farmer used text messages and calls to get support from the agricultural officer. Another person used the radio to find information on the current prices that they would get for their agriculture products and where they could sell them. In contrast to the pastoralists, the farmers usually could not continue working during displacement if their land was flooded.

Financial services

Our respondents named money transfers as a further basic phone application. The nationwide SMS money transfer system *M-Pesa* was widely used. Owning a phone enabled people to do banking in remote areas. This was important when buying food and trading. During flooding in particular, family members outside Tana Delta were able to send money to the villagers. The money was used for food, medicine, transportation costs for children going to school by boats, and for paying school fees.

Health

Where health was concerned, almost all of the interviewees just went to the hospital directly when they were ill. About half of the interviewees used their phones to call a relative, friend or taxi to organise a mean of transportation to get to the hospital. During flooding, the Kenyan Red Cross provides health care services through a free hotline, which was used by few respondents. Moreover, information on health was mostly provided through the radio. At times, the radio stations invited public health officers and doctors to speak about health issues and give advice to public health officers. The radio also seems to be crucial when disease breaks out. At that time, the radio provides information on how to access free medication and how to behave (for instance in the case of a cholera outbreak). Those who have access to television or a smartphone also used these channels to get information on health.

Education

Among the respondents, the use of ICTs for education was relatively low but existed. At least 3 of the interviewees, all Orma, reported that they used the radio for educational purposes. Specifically, the respondents listened to the local radio stations (*Amani FM* and by the Kenya Broadcasting Corporation (KBC)), which air education programmes. An educative potential of radios is definitely there, yet awareness for this possibility is not widespread. This is particularly important because almost all of the interviewees own or/and have access to a radio. Basic phones were used by the interviewees to call teachers in their children's schools to check about the wellbeing of their children and educational issues. Two of the interviewees with a higher educational status used their smartphones for educational purposes. They were using *Google* and were aware of the existence of education-apps, though no particular app was used for education.

5.2.3 Forcibly displaced persons and international organisations

Interaction with international organisations

The majority of the respondents were not aware of the digital services offered by the humanitarian organisations in the region. Also, at an individual level, ICTs were not important for communication with these organisations. For instance, the KRC usually organised meetings in the camps (during flooding) and in the villages. Most people met the organisations directly there. Only a few would contact the organisations by phone. There was a certain communication chain that appeared to be important in all villages. Calling was important in this context. Typically, the KRC or County government would inform the chiefs about an issue (for example, a cholera outbreak). Subsequently, these chiefs who did not live in the villages, called village elders/village headmen to inform them. The elders/headmen eventually passed the information on to the communities. If the community needed information or had to deal with issues they could not handle without support, this chain also worked the other way around.

For the forcibly displaced persons in the Tana Delta, ICT was not playing a central role in terms of mobility. Since we are dealing with *internal* displacement, people only had to cover small distances when displaced and, therefore, the interviewees did not tend to use ICT

during their journeys. Yet the results show that in emergency situations (for instance, when floods are coming faster than expected) ICT played an important role in calling the Red Cross or in asking for boats or other means of rescue transportation.

Solutions by international organisations

During flooding and displacement to camps, humanitarian organisations like the Kenya Red Cross and Action against Hunger are essential. In advance, those organisations give warnings to the affected villages. Warnings are crucial for preparing the move and, thus, saving lives, cattle and goods. Due to ethnic conflicts in the past, some organisations have committed themselves to conflict prevention. The Sentinel Project, a Canada (Toronto)-based organisation and our partner in the region, had developed two ways of fighting mistrust and preventing violence in Tana Delta. The SMS text message system *Una Hakika* was introduced, gathering text messages on rumours and false information from citizens, analysing them and spreading the correct information among cell phone owners in the region (Boyd et al., 2015; Green, 2017). The Sentinel Project also implemented a community radio called *Amani FM*, which seeks to give verified news about the events in villages and small towns along the Tana River (Green, 2017).

News – including warnings about extreme weather conditions and diseases – is mainly received through two radio stations. To get information on the point in time of floods arriving, people listen to the radio where the county government and the Red Cross provides information. A few also said they got a text messages through an alert system of the Red Cross. Then the villagers use information from the radio to make a decision where to go when floods are coming. As the floods appear every few years, most people already know where to go. The usual practice is that almost the entire village migrates together to higher ground, which are only 2 to 3 km away from their actual homes. The Kenyan Red Cross (KRC) provides free text messages to spread warnings and information about disease outbreaks in Tana Delta.

The KRC offers a service (in cooperation with *Safaricom*) that sends messages and warnings in the case of emergency to random phone numbers in Kenya. Yet only a few people mentioned this service. The local community radio station *Amani FM* filled a gap when it was launched in 2017. Based in the town of Garsen, the radio station was the first to focus on local news for that area. They engaged with the residents in order to design a programme that suited the local context. Our respondents mentioned that getting information about their area and having the possibility to call and participate in radio shows was why they were satisfied with the local radio station.

5.3 ICTs and forcibly displaced persons in the Kakuma Refugee Camp

5.3.1 Barriers and facilitators for successful ICT uptake

In Kakuma, access to hardware was a major barrier to ICT use. Most interviewees did not use digital services because they did not own a smartphone or could not afford to buy one. Out of our 30 interviewees, only 11 owned a smartphone. Seventeen interviewees had access to a basic phone. At least 2 interviewees owned a radio and about 8 interviewees (mostly

Somalians) had access to televisions. For some interviewees, even buying a basic phone was expensive. If they did not own a smartphone, they did not necessarily borrow it from friends. However, 2 interviewees said they listened to their neighbours' radio. Another interviewee listened to news on his friends' phone (Kakuma Democratic Republic of Congo, interview 2). Another interviewee bought airtime and called her family from a friends' phone (Kakuma Democratic Republic of Congo, interview 8). Finally, it is also interesting to note that interviewees who had arrived very recently in Kakuma sometimes did not even own a phone.

Furthermore, airtime as well as regular calls were viewed as expensive by some interviewees. Especially calling the home country via airtime seemed to be very pricey. This was why people with access to a smartphone generally used mobile data to do that. Nevertheless, mobile data was also perceived as expensive by some interviewees. Costs for charging phone batteries also prevented some respondents from using certain apps extensively. Furthermore, digital literacy seemed to play a role in ICT use. Phone reception seemed to be generally good in Kakuma while internet reception was sometimes problematic impacting the use of *Facebook* and *WhatsApp* even though around the field posts there was free Wifi. Language was not cited as a crucial access barrier since most services were available in a variety of languages. Similarly illiteracy did not affect many interviewees.

The reasons for starting and continuing to use ICT services appeared to be very individual. Some interviewees started using ICT services or ICT in general, particularly to be able to communicate better. Discontent on the part of the user did not necessarily lead to the service not being used. We assumed, therefore, that the decision to continue using a service was dependent on whether advantages outweighed disadvantages. In one particular case in *Bamba Chakula*, interviewees were so dependent on the food aid that they could not even decide freely to stop using the service. Lack of awareness followed by access barriers were the biggest issues keeping forcibly displaced persons from using ICT services in Kakuma. Negative perceptions were rarely the crucial factor impeding ICT use. With regard to non-refugee-specific services, *Facebook*, *WhatsApp* and *YouTube* were the services best-known in the camp. As noted earlier, among the Somalian interviewees awareness of *IMO* was also high. Knowledge of *Twitter* and *Instagram* lay even lower. Respondents tended to learn about the services through personal contacts. This suggested that offline awareness-raising strategies might be a useful tool to increase knowledge about digital tools and services.

In general, our results show that only very basic ICT services such as making calls and listening to the radio played a role in most interviewees' journeys to Kenya. Two-thirds of the interviewees, 9 of them South Sudanese, reported that they did not use any ICT on their journey. Altogether, 4 people received information about Kakuma on the radio or on the phone before leaving their home country. For 6 people the phone was helpful, for either communication, navigation or receiving money. The South Sudanese interviewees explained that a bus organised by UNHCR picked them at the border and brought them straight to the Kakuma refugee camp, which – without any ICT use – made the journey much easier and safer for them.

5.3.2 ICTs for integration

Social contacts

According to our findings, in Kakuma ICTs were most important for maintaining social contacts as well as for receiving news and access to financing. For education, work, health and housing ICTs were largely irrelevant. The phone was the most important tool to communicate with friends and family especially living outside the camp. Three respondents mentioned that communications with friends and family outside the camp was the main reason for buying a phone. Smartphone owners primarily use *WhatsApp* or *Facebook* for communication. Not having a smartphone made keeping in touch with people living outside Kenya harder since the costs for non-internet calls were very high. Inside the camp, respondents also frequently communicated face-to-face. Usually smartphones were used for internet-based services.

Financial services

M-Pesa and *Bamba Chakula* were the apps most used for financing. At least 1 interviewee used *Hawala*, an informal offline banking system used by networks of Muslim communities (Kakuma Somalian, interview 1). *Bamba Chakula* appeared to have been used by the vast majority. Some interviewees did not use *Bamba Chakula* themselves, but gave their SIM card to the shop owner. A number of interviewees did not know how to operate *Bamba Chakula*. Some interviewees complained that the money *Bamba Chakula* offered was too little. Twelve interviewees in the camp stated that they used *M-Pesa*. When asked about why he did this, one interviewee said: "I like *M-Pesa*. It is my bank account. It is better to have my money on the phone than having it in my pocket so I do not spend it on things like alcohol" (Kakuma Democratic Republic of Congo, interview 9). One user complained about the high fees for the money transfers that came with using the app (Kakuma Somalian, interview 6) but nevertheless continued utilising it. Some interviewees stated they were not able to use *M-Pesa* due to their refugee status and lack of a Kenyan ID. Other reasons for not using it included not knowing how to operate it, not having enough money to put on it, and having no one to receive money from. Two interviewees did not know about *M-Pesa*.

Education

Among the respondents in Kakuma, ICTs did not play a decisive role in education. Using the phone to contact their children's school teachers was the most common use for phones, irrespective to demographic data. Only about 5 out of 30 interviewees used ICTs for educational purposes such as looking up information or learning languages via *YouTube*. One interviewee tried to enrol in online university courses but had not yet succeeded. Four interviewees suggested that the use of technology in camp schools could/should be improved. The Instant Network Schools programme, supported by UNHCR and the Vodafone Foundation to provide self-contained digital learning systems and tablets in schools, is still in its pilot phase and no interviewees had had any experience with it.

Various types of ICTs were used to get news. Nine respondents used their smartphones to get news. Two respondents called friends with their basic phone to get news. Eight respondents listened to the radio, most of whom were Congolese. Somalian interviewees

especially appeared to rely on television for news. For some, the main source of information was personal contact. Filmaid, an NGO specialising in using film to empower refugees, seemed to be very relevant for camp-related information.

Why not health, employment and housing?

The camp setting is unique in that it is a completely administered space, whereas the urban and rural settings are not. When we asked respondents about using ICTs for accessing health, employment and housing, the general responses were that ICTs were not useful for securing these services. Every respondent noted that they just walked to the clinic when they are sick; there was not a particular need for web-based information. With housing, people found the plot and materials through friends who were already in the camp; there was no central information site for where to build or how to get materials. In both of these scenarios, using any kind of ICT was superfluous – it was far more efficient to find health care or housing in-person. When employment came up, people pointed out that they were not allowed to work. While there was self-employment and casual labour, finding these opportunities would not be practical using something like an online job board.

5.3.3 Forcibly displaced persons and international organisations

Interaction with international organisations

All interviewees in Kakuma were in touch with UNHCR. Not only were they provided with documentation by the UNHCR, but also with housing, food and education. In general, interviewees rarely used ICTs to contact UNHCR. To contact UNHCR, interviewees tended to go directly to the field post. At the field post, interviewees used a computer-based system called *Kasi* to make appointments with UNHCR. One interviewee said that being there in person made the interaction more personal and that he got better service when he went there himself (Kakuma Somalian, interview 6). On the contrary, however, a phone seemed to be crucial if one wanted to be contacted by UNHCR. Several interviewees stated they only bought a phone so UNHCR and other organisations could reach them: “The day before yesterday my husband bought [a] phone because everyone told us, if you don’t have a phone, you don’t get any information by UNHCR or other organisations” (Kakuma Democratic Republic of Congo, interview 8). Other organisations that the interviewees were in touch with included International Red Cross (IRC), Norwegian Refugee Council (NRC), RCK, Filmaid, the Kenyan Red Cross, the National Council of Churches of Kenya (NCCK), World Food Program (WFP) and the Lutheran World Service (LWF). Some interviewees were also in contact with religious organisations such as churches (half the Congolese interviewees, for example). None of the interviewees used their phone or other ICT to contact these organisations. On the other hand, forcibly displaced persons were frequently contacted by organisations on the phone: “If they are looking for you, they call you. If you are looking for them, you have to go to the offices” (Kakuma South Sudan, interview 7).

Solutions by international organisations

Various NGOs provide ICT services to forcibly displaced persons in Kakuma. For instance, UNHCR had recently established a digital system called *Kasi* to process the administrative

needs of forcibly displaced persons (Qaabata & Tolossa, 2019). Furthermore, in 2015, the World Food Programme Kenya in cooperation with *Safaricom* had launched an e-voucher programme called *Bamba Chakula* (IFC, 2018, p. 28). Additionally, organisations offer e-learning services (UNHCR, the Xavier Project, the Danish Refugee Council, Windle International) and support family reunification through ICTs (*Refunite*). ICTs are also used in designing the integrated Kalobeyei settlement (UN Habitat). Some organisations focused on providing news via ICTs (*Filmaid, Relay*) or offered livelihood projects that integrated digital technology (NRC).

Generally, respondents did not know the more specific local NGO-developed internet services such as *Relay*, a social media app developed in Kakuma, and *Refunite*, a database for reunited families who were displaced. Surprisingly, the UNHCR hotline, which interviewees in Nairobi regularly used, was equally unheard of by most interviewees in Kakuma. Only *Filmaid* was broadly known by the respondents. To cope with access problems some institutions active in Kakuma relied on basic phones and vehicles with loudspeakers rather than on smartphones. Others provided possibilities to access hardware in learning laboratories. If institutions used applications for smartphones, they also offered offline solutions and used visuals to increase accessibility for illiterate users. By offering free Wifi hotspots, some institutions tried to lower the costs for internet access. Furthermore, some institutions provided cost-free helplines and call-back options to improve access for clients who found calling/airtime expensive.

6 Conclusions and practical recommendations

Migration and digitalisation are going to have an essential impact on development in Sub-Saharan Africa and East Africa in particular. In global comparison, East Africa has been a region with especially active migration flows. In recent years, digitalisation and the creation of tech innovation hubs in Sub-Saharan Africa have also been on the rise. In both domains – migration and digitalisation – Kenya is a front-runner, hosting large numbers of forcibly displaced persons and migrants and investing in ICT infrastructure.

Idiosyncrasy is the key word to take away from what we observed. While international organisations use ICTs to meet specific needs, such as health, jobs, education, and financial inclusion, and refugees reported using ICTs for these things too, the ways that organisations imagined refugees used ICTs and that refugees used ICTs in practice were quite different. In general refugees found ways to use commercial apps like *WhatsApp*, *Facebook*, and *YouTube* in creative ways but they were often unaware of the NGOs' efforts to create new tools for them. The challenge for organisations that want to introduce new digital tools into refugee communities is understanding how the members of these communities already use commercial apps to meet their own needs, and then assessing whether a new tool is useful. In many cases coordinating with community leaders to share health, jobs, and educational information over existing networks could yield greater digital engagement than developing an entirely new app. This means that, instead of a developing a "digital" strategy, organisations should invest in building relationships with community gatekeepers – from there, access to already existing digital networks can be negotiated.

For some forcibly displaced persons, ICTs played a significant role during their *inclusion* process in Kenya. For our interviewees, the mobile phone was the most important device for

staying in touch with family and friends. Many organisations reported that they were overstrained by the personal demands of their clients. Offering hotlines for counselling, using websites which provide clear information and the possibility to arrange appointments online, spreading information through social media, and introducing *chatbots* could be helpful tools to support their services.[8]

ICTs can also play an important role in the distribution of health information. Even though basic health care is free in Kenya, any further treatment is very expensive and not affordable for many forcibly displaced persons. That is why some people with access to ICTs seek information on health through the radio, TV or online. Beyond information on health, ICTs provide useful channels to distribute information on how to access affordable health care programmes. One thing organisations should be aware of is the risk of false information getting into digital networks. Many people believe what they see on *WhatsApp* and *Facebook*, and this can lead to confusion and distrust in official health information.

With regard to education, the results show that blended learning has great promise. Combining online education programmes and online learning materials with classroom lessons is most effective according to the forcibly displaced persons and organisations we interviewed. Nevertheless, the online tools should take into account the level of access to hardware and the internet of forcibly displaced persons. For instance, forcibly displaced persons should be able to download online sections and materials and use those offline on their phones.

Since forcibly displaced persons in Kenya rarely receive work permits, we can only give recommendations for using ICTs and digital networks to support freelancing. Creating an online platform with all translator jobs for the United Nations or other organisations, or work with NGOs who support refugees, could provide a simpler overview of freelancing opportunities. While opportunities for refugees to work in the digital economy are emerging, they remain limited. Organisations such as *SamaSource* provide freelancing opportunities tagging photos to help train machine-learning algorithms, but these are relatively low-skilled and the number of jobs available is limited. Jobs in computing and the digital sector generally require much higher skill levels and training, as well as access to the formal job market. At this stage, policies regarding work permits for refugees in Kenya are a stumbling block that needs to be addressed before ICTs and digitalisation can have a positive effect on refugees' work opportunities.

When it comes to finding accommodation, ICTs are fairly unimportant. Housing space is scarce in urban areas and personal contacts seem to be the way to find a place to stay. Although there is a need to access affordable housing, given the informality of the housing market further research is needed in order to develop ICT tools that can help refugees navigate housing options. Fundamentally, the fact that refugees in Nairobi are often there illegally puts them in a very vulnerable position when trying to find housing – they cannot rent formally, nor can fight back if landlords abuse their rights. In the rural setting, housing is organised in villages, while in Kakuma housing is organised ad hoc with the help of people already in the camp. ICTs do not bring much advantage in either case.

8 *Chatbots* are automated features on a website that can answer questions – for example, when a website opens and a sub-window opens asking if the visitor has a question about different parts of the website, that is a *chatbot*. It cannot "chat" like a human being, but recognises standard questions and can reply with standardised responses.

Below are a set of recommendations that reflect the data we have collected, as well as observations we made while in the field:

- Organisations should avoid doing via ICTs what is already efficiently done in-person. For example, in Kakuma people just walk to the clinics, and are happy to do so. There is no need for a digital health information solution in this instance – this frees up organisations to focus on using ICTs to solve problems that cannot be effectively solved in-person. These findings indicate that "digital by default" strategies may not be the best approach in refugee contexts.

- For matters like health information and education, organisations can take advantage of existing networks that communities have established on platforms such as *WhatsApp* and *Facebook*. The main advantage that NGOs and refugee organisations can bring in this case is helping make sure information is valid and helping community organisations prevent rumours from spreading. Indeed, a major risk with health information in particular is that anyone can say anything on a social network, so helping communities validate information is critical.

- We learned through the interviews that refugees' awareness of different organisations' online tools was limited. Generating a user base must start with awareness-raising strategies, which appear to be successful through personal contacts. Going directly to a village or to a certain community, and working with community-based organisations and community leaders as ambassadors, appears to be the best option to reach out to the respective target group.

- When developing an ICT service, organisations should try to rely on existent tools and consider the respective digital environment. Using existent tools lowers transaction costs for users and for developers (for example, *chatbots* that are integrated in *WhatsApp* or a radio show aired via an established radio station). When thinking about smartphones, it is important to avoid the development of data hungry apps that cannot be used on older smartphones that have little processing power and memory capacity. It is also critical that organisations bear in mind the relative costs refugees have to deal with when using data on smartphones. For many refugees, the costs of data are relatively high and can prevent them from making the most of apps and digital services.

- Even though forcibly displaced persons tend to be aware of the issue of data protection, this does not lead to non-use of a service. However, especially for internet-driven tools that potentially collect a lot of data, informed consent is very important. Moreover, especially in countries with weak or non-existent data protection laws (such as Kenya) the question of data security has to be considered. Saving sensitive data on servers which are located in countries with strict data protection laws is one possibility of protecting the data.

References

Abujarour, S., & Krasnova, H. (2017). *Understanding the role of ICTs in promoting social inclusion: The case of Syrian refugees in Germany*. Retrieved from https://www.researchgate.net/publication/316619937_Understanding_the_Role_of_ICTs_in_Promoting_Social_Inclusion_The_Case_of_Syrian_Refugees_in_Germany

Ager, A., & Strang, A. (2008). Understanding integration: A conceptual framework. *Journal of Refugee Studies, 21*(2), 166-191. doi: 10.1093/jrs/fen016

Alencar, A., Kondova, K., & Ribbens, W. (2018). The smartphone as a lifeline: An exploration of refugees' use of mobile communication technologies during their flight. *Media, Culture & Society*, *41*(6), 828-844. doi: 10.1177/0163443718813486

Alix-Garcia, J., Walker, S., Bartlett, A., Onder, H., & Sanghi, A. (2018). Do refugee camps help or hurt hosts? The case of Kakuma, Kenya. *Journal of Development Economics*, *130*(C), 66-83. doi: 10.1016/j.jdeveco.2017.09.005

Andrade, A. D., & Doolin, B. (2016). Information and communication technology and the social inclusion of refugees. *MIS Quarterly, 40*(2), 405-416. doi: 10.25300/MISQ/2016/40.2.06

Boyd, D., Green, J., Mutisya C., & Tuckwood, C. (2015). *Una Hakika: Mapping and countering the flow of misinformation in Kenya's Tana Delta*. Retrieved from https://thesentinelproject.org/wp-content/uploads/2015/12/UHPublicReport_Final.pdf

Caidi, N., & Allard, D. (2005). Social inclusion of newcomers to Canada: An information problem? *Library & Information Science Research, 27*(3), 302-324. doi: 10.1016/j.lisr.2005.04.003

Dahir, A. L. (2017). K*enya's newest tech hubs are sprouting outside its Silicon Savannah in Nairobi.* Retrieved from https://qz.com/africa/1059305/kenyas-newest-tech-hubs-are-sprouting-outsideits-silicon-savannah-in-nairobi/

Dahya, N., & Dryden-Peterson, S. (2017). Tracing pathways to higher education for refugees: The role of virtual support networks and mobile phones for women in refugee camps. *Comparative Education, 53*(2), 284-301. doi: 10.1080/03050068.2016.1259877

Dekker, R., Engbersen, G., Klaver, J., & Vonk, H. (2018). Smart refugees: How Syrian asylum migrants use social media information in migration decision-making. *Social Media + Society*. 1-11. doi: 10.1177/2056305118764439

Duvail, S., Medard, C., Hamerlynck, O., & Nyingi, D. W. (2012). Land and water grabbing in an East African coastal wetland: The case of the Tana Delta. *Water Alternatives, 5*(2), 322-343.

Emmer, M., Richter, C., & Kunst, M. (2016). *Flucht 2.0. Mediennutzung durch Flüchtlinge vor, während und nach der Flucht*. Berlin: Freie Universität Berlin, Institut für Publizistik- und Kommunikationswissenschaft. Retrieved from https://www.polsoz.fu-berlin.de/kommwiss/arbeitsstellen/internationale_kommunikation/Media/Flucht-2_0.pdf

Eurocities. (2016). *Refugee reception and integration in cities.* Brussels: Author. Retrieved from https://solidaritycities.eu/images/RefugeeReport_final.pdf

Flüchtlingslager Kakuma. Hauptsache überleben. (2018). *Tagesschau*. Retrieved from https://headtopics.com/de/fluchtlingslager-kakuma-hauptsache-uberleben-3126410

Frouws, B., Phillips, M., Hassan, A., & Twigt, M. (2016). *Getting to Europe the 'WhatsApp' Way. The use of ICT in contemporary mixed migration flows to Europe* (Regional Mixed Migration Secretariat Briefing Paper 2). Regional Mixed Migration Secretariat (RMMS). doi: 10.2139/ssrn.2862592

Gillespie, M., Osseiran, S., & Cheesman, M. (2018). Syrian refugees and the digital passage to Europe: Smartphone infrastructures and affordances. *Social Media + Society, 4*(1). doi: 10.1177%2F2056305118764440

Green, J. (2017). *Chasing wind part 1: Rumor investigation in Kenya*. Retrieved from https://thesentinelproject.org/2017/08/04/chasing-wind-part-i-rumour-investigation-in-kenya/

Hatayama, M (2018). *ICTs and livelihood supports of refugees and IDPs* (K4D Helpdesk Report 504). Brighton: Institute of Development Studies. Retrieved from https://reliefweb.int/sites/reliefweb.int/files/resources/504_ICTs_and_Livehoods_of_Refugees_and_IDPs.pdf

Heeks, R. (2002). Information systems and developing countries: Failure, success, and local improvisations. *The information society*, *18*(2), 101-112. doi: 10.1080/01972240290075039

Hounsell, B. (2017). *Refugee digital divide: Innovation for Africa's displaced falls behind*. Retrieved from https://www.develop.newsdeeply.com/refugees/community/2017/02/22/refugee-digital-divide-innovation-for-africas-displaced-falls-behind

Hounsell, B., & Owuor J. (2018). *Innovating mobile solutions for refugees in East Africa* (Policy brief). London: Humanitarian innovation fund (Elrha). Retrieved from https://www.elrha.org/wp-content/uploads/2018/02/Innovating_mobile-solutions_policy_brief.pdf

IFC (International Finance Corporation). (2018). *Kakuma as a marketplace: A consumer and market study of a refugee camp and town in northwest Kenya*. Washington, DC: Author. Retrieved from https://www.ifc.org/wps/wcm/connect/0f3e93fb-35dc-4a80-a955-6a7028d0f77f/20180427_Kakuma-as-a-Marketplace_v1.pdf?MOD=AJPERES&CVID=mc8eL2K

IOM (International Organization for Migration). (2016). *Migration flows from Iraq to Europe*. Baghdad: The International Organisation for Migration (Iraq Mission). Le Grand-Saconnex, Schweiz: Author. Retrieved from http://iomiraq.net/reports/migration-flows-iraq-europe

Jungbluth, S. (2017). *"Smartphone refugees": Mobility, power regimes, and the impact of digital technolo*gies (Master's Thesis). Tampere, Finland: University of Tampere. Retrieved from https://trepo.tuni.fi/bitstream/handle/10024/100787/GRADU-1490004757.pdf

Kamau, E. N. (2015). *Cost and quality of the healthcare services provided to urban refugees through in house and outsourced health facilities in Nairobi, Kenya* (Master's Thesis). Nairobi: Kenyatta University. Retrieved from https://ir-library.ku.ac.ke/handle/123456789/13392

Karnowski, V., & Kümpel, A. S. (2015). *(Social) media use and news: News usage patterns and their effects on political participatory behavior.* Paper presented at the 16th Annual Meeting of the Association of Internet Researchers, 21-24 October 2014, Phoenix, Arizona. Retrieved from https://www.researchgate.net/publication/316877568_Social_media_use_and_news_News_usage_patterns_and_their_effects_on_political_participatory_behavior

Kenya: Oil-rich yet on edge in Turkana. (2017). *Allafrica.* Retrieved from https://allafrica.com/stories/201711060576.html

Kenya: Tullow resumes oil exploration, trucking. (2018). *Allafrica*. Retrieved from https://allafrica.com/stories/201808270003.html

KNBS (Kenya National Bureau of Statistics). (2016) *Basic Report: 2015/16 Kenya Integrated Household Budget Survey (KIHBS).* Nairobi: Author. Retrieved from https://sun-connect-news.org/fileadmin/DATEIEN/Dateien/New/KNBS_-_Basic_Report.pdf

Kozlowska, H. (2015). The most crucial item that migrants and refugees carry is a smartphone. *Quartz*. Retrieved from http://qz.com/500062/the-most-crucial-item-that-migrants-and-refugees-carry-is-a-smartphone

Kunstelj, M, Jukic, T., & Vintar, M. (2007). Analysing the demand side of e-government: What can we learn from Slovenian users? In M. A. Wimmer, J. Scholl & A. Grönlund (Eds.), *Electronic government: 6th International Conference, EGOV 2007, Regensburg, Germany, September 3-7, Proceedings* (pp. 305-317). Heidelberg: Springer-Verlag.

Latonero, M., Poole, D., & Berens, J. (2018). *Refugee connectivity: A survey of mobile phones, mental health at a Syrian refugee camp in Greece.* Cambridge, MA: Harvard Humanitarian Initiative. Retrieved from https://hhi.harvard.edu/sites/default/files/publications/refugee_connectivity_web.mb4_.8-2.pdf

Lewis, K., & Thacker, S. (2016). *ICT and the education of refugees: A stocktaking of innovative approaches in the MENA region* (SABER-ICT Technical Paper Series 17). Washington, DC: World Bank. Retrieved from https://openknowledge.worldbank.org/handle/10986/26522

Marlowe, J. M., Bartley, A., & Collins, F. (2017). Digital belongings: The intersections of social cohesion, connectivity and digital media. *Ethnicities, 17*(1), 85-102. doi: 10.1177%2F1468796816654174

Martin-Shields, C., & Stones, E. (2014). Smart phones and social bonds: Communication technology and inter-ethnic cooperation in Kenya. *Journal of Peacebuilding & Development, 9*(3), 50-64 doi: 10.1080/15423166.2014.983030

Mason, B., & Buchmann, D. (2016). *ICT4refugees: A report on the emerging landscape of digital responses to the refugee crisis.* Bonn: Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ). Retrieved from https://regasus.de/online/datastore?epk=74D5roYc&file=image_8_en

Njeri, M. S. (2015). *Institutional factors influencing inclusive education for urban refugee pupils in public primary schools within Dagoretti Sub-County Nairobi Kenya* (Master's Thesis). Nairobi, Kenya: University of Nairobi. Retrieved from http://erepository.uonbi.ac.ke/ /handle/11295/90859

Pavanello, S., Elhawary, S., & Pantuliano, S. (2010). *Hidden and exposed: Urban refugees in Nairobi, Kenya* (Humanitarian Policy Group (HPG) Working Paper, March). London: Humanitarian Policy Group Retrieved from https://www.odi.org/sites/odi.org.uk/files/odi-assets/publications-opinion-files/5858.pdf

Qaabata & Tolossa (2019). *Using tech to bring services closer to refugees and asylum seekers in the camp*. Retrieved from https://kanere.org/2018/12/31/using-tech-to-bring-services-closer-to-refugees-and-asylum-seekers-in-the-camp/

Rogers, E. M. (1962). *Diffusion of innovations.* New York, NY: Free Press.

Tuckwood, C., & Mutisya, C. (2014). Information and communications technology in peacebuilding: Lessons from Kenya's Tana Delta. *Conflict Trends, 2014*(3), 17-23. Retrieved from https://hdl.handle.net/10520/EJC159679

Turkana County Government. (2019a). *Investment opportunities in Turkana County*. Retrieved from https://www.turkana.go.ke/index.php/category/trade-industry/

Turkana County Government. (2019b). *Overview*. Retrieved from https://www.turkana.go.ke/index.php/turkana-overview/

UNHCR (United Nations High Commissioner for Refugees). (2018a). *Statistical summary as of 28-Feb-18: Refugees and asylum seekers in Kenya*. Retrieved from https://www.unhcr.org/ke/wp-content/uploads/sites/2/2018/03/KENYA-Statistics-Package-February-2018-1.pdf

UNHCR. (2018b). *Statistical summary as of 31-Jul-18: Refugees and asylum seekers in Kenya*. Retrieved from https://www.unhcr.org/ke/wp-content/uploads/sites/2/2019/09/Kenya-Statistics-Package-31-August-2019.pdf

UNHCR. (2018c): *Kakuma refugee camp and Kalobeyei integrated settlement.* Retrieved from https://www.unhcr.org/ke/kakuma-refugee-camp

UNHCR. (2018d). *Kenya – Registered refugees and asylum seekers as of 31 December 2018*. Retrieved from https://www.unhcr.org/ke/wp-content/uploads/sites/2/2019/01/Kenya-Infographics_December-2018.pdf

Verdegem, P., & Verleye, G. (2009). User-centered e-government in practice: A comprehensive model for measuring user satisfaction. *Government information quarterly, 26*(3), 487-497. doi: 10.1016/j.giq.2009.03.005

Vernon, A., Deriche, K., & Eisenhauer, S. (2016*). Connecting refugees: How internet and mobile connectivity can improve refugee well-being and transform humanitarian action.* Geneva: UNHCR. Retrieved from https://www.unhcr.org/5770d43c4.pdf

Publications of the German Development Institute /
Deutsches Institut für Entwicklungspolitik (DIE)

Discussion Papers

14/2020 Hackenesch, Christine, Julia Leininger, & Karina Mross. *What the EU should do for democracy support in Africa: Ten proposals for a new strategic initiative in times of polarisation* (pp. 45). ISBN 978-3-96021-125-9. DOI:10.23661/dp14.2020.

13/2020 Never, Babette, Jose Ramon Albert, Hanna Fuhrmann, Sebastian Gsell, Miguel Jaramillo, Sascha Kuhn, & Bernardin Senadza. *Carbon consumption patterns of emerging middle classes* (pp. 42). ISBN 978-3-96021-124-2. DOI:10.23661/dp13.2020.

12/2020 Wehrmann, Dorothea. *Transnational cooperation in times of rapid global changes: The Arctic Council as a success case?* (29 pp). ISBN 978-3-96021-123-5. DOI:10.23661/dp12.2020

11/2020 Erforth, Benedikt. *The future of European development banking: What role and place for the European Investment Bank?* (36 pp.). ISBN 978-3-96021-122-8. DOI:10.23661/dp11.2020.

10/2020 Kaplan, Lennart. *Systemic challenges and opportunities of Franco-German development cooperation* (64 pp.). ISBN 978-3-96021-121-1.DOI:10.23661/dp10.2020.

9/2020 Stoffel, Tim. *Socially responsible public procurement (SRPP) in multi-level regulatory frameworks: Assessment report on policy space for SRPP regulation and implementation in Germany and Kenya* (55 pp.). ISBN 978-3-96021-120-4. DOI:10.23661/dp9.2020

8/2020 Müngersdorff, Maximilian, & Tim Stoffel. *Strategies to strengthen socially responsible public procurement practices in German municipalities: A mapping exercise* (78 pp.). ISBN 978-3-96021-119-8. DOI:10.23661/dp8.2020.

7/2020 Stender, Frederik, Axel Berger, Clara Brandi, & Jakob Schwab. *The trade effects of the Economic Partnership Agreements between the European Union and the African, Caribbean and Pacific Group of States: Early empirical insights from panel data* (39 pp.). ISBN 978-3-96021-118-1. DOI:10.23661/dp7.2020.

6/2020 Nowack, Daniel, & Sophia Schoderer, *The role of values for social cohesion: Theoretical explication and empirical exploration* (55 pp.). ISBN 978-3-96021-117-4. DOI:10.23661/dp6.2020.

5/2020 Berger, Axel, Sören Hilbrich, & Gabriele Köhler. *The implementation of the G7 and G20 Gender Equality Goals in Germany* (49 pp.). ISBN 978-3-96021-116-7. DOI:10.23661/dp5.2020.

4/2020 Disse, Sabrina, & Christoph Sommer. *Digitalisation and its impact on SME finance in Sub-Saharan Africa: Reviewing the hype and actual developments* (54 pp.). ISBN 978-3-96021-115-0. DOI:10.23661/dp4.2020

[Price: EUR 6.00; publications may be ordered from the DIE or through bookshops.]

For a complete list of DIE publications:
www.die-gdi.de