

**The ICT Business: Smartphones and the Integration of Refugees in
Europe**

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Resumo

A presente dissertação foca-se na questão da integração dos refugiados na Europa, tendo em vista novas formas de apoio humanitário relacionadas com a área das Tecnologias de Informação e Comunicação. Apesar do número de refugiados na Europa ser um valor irrisório em comparação com o resto da população Europeia, a sua chegada levou a que, numa sociedade cada vez mais tecnológica e em rede, se criassem diversas tecnologias para apoiar a integração de refugiados nos países de acolhimento. Destas destaca-se o aparecimento de aplicações para *smartphones* criadas com este propósito específico. Através de 12 entrevistas a refugiados residentes em oito países europeus, complementadas por três entrevistas a informantes privilegiados e recolha de informação acerca de cinco apps criadas para refugiados, esta tese pretende verificar se as novas tecnologias são importantes na integração destes e se, de facto, eles recorrem às plataformas criadas com o objetivo de os ajudar neste processo.

Palavras-chave: TIC, novas tecnologias, sociedade em rede, smartphone, app, internet, conectividade, refugiados, integração.

Abstract

This dissertation focuses on the issue of refugees' integration in Europe, taking into account new forms of humanitarian support related to Information and Communication Technologies. Although the number of refugees in Europe is negligible in comparison with the rest of the European population, their arrival has led, in a society that is increasingly technological and networked, to the creation of a great number of new technologies in order to support the integration of refugees in resettlement countries. Among these, applications for smartphones created with this specific purpose stand out. Through 12 interviews to refugees resettled in eight European countries, and complemented by three interviews with privileged informants and a survey of five apps for refugees, this thesis aims to understand if ICT is important in their integration and if, in fact, they use the platforms created to help them with this process.

Keywords: ICT, network society, smartphone, app, internet, connectivity, refugees, integration.

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Acronyms

CEO - Chief Executive Officer

CMC - Computer Mediated Communication

ECRE - European Council on Refugees and Exiles

ESF - European Social Fund

ETC - Emergency Telecommunications Cluster

EU - European Union

GSMA - Groupe Spéciale Mobile Association

ICT - Information and Communication Technologies

IET - Integration Evaluation Tool

IOM - International Organization for Migration

IOS - iPhone OS is a mobile operating system

MIPEX - Migrant Integration Policy Index

MNOs - Mobile Network Operators

NGO - Non-Governmental Organization

SIM - Subscriber Identification Module

UN - United Nations

UNHCR - United Nations High Commissioner for Refugees

1. INTRODUCTION

The present research was developed as a partial requirement for the conferral of the Master degree in International Studies at the School of Sociology and Public Policies, ISCTE-University Lisbon Institute. It was oriented by Professor Rita Espanha as Supervisor, and Professor Cristina Santinho as Co-Supervisor.

The Introduction intends to provide information about the research theme, by dividing it into two parts: a description of the subject and the state of the art. The first part includes the purpose of the investigation, the questions that guided this study, the hypothesis to be tested and, finally, the limits to the research. The second part presents distinct topics which comprise the concept of network society, the new technologies business, the situation of refugees' integration in Europe, and the relation between smartphones and refugees.

1.1. Description of subject

This research project focuses on the use of ICT, more specifically smartphones, as a way of supporting refugees integrating in European countries. This topic was chosen due to the researcher's interest on both fields of International Studies and Communication Sciences, since this is her academic background. Furthermore, it was considered interesting to do research on this topic because, at the time of choosing a topic, there were few academic studies about the use of smartphones and apps or web based platforms for refugees. Besides this, we see this research as an opportunity to contribute to the lives of refugees that are living in European countries, as we want to understand if the existing technologies are helpful in their integration or if there are some improvements to be done. This way, it is believed that it is very important to understand which apps exist in the market and if they are in fact useful for refugees and why. Therefore, this research has an object of study which includes the usage of ICT from part of refugees who have settled in Europe, more precisely the role of smartphone platforms created for this purpose, and the main question of this investigation is: *Does ICT have a positive impact on the refugees' integration in Europe?*

With the increasing number of refugees arriving in Europe since the start of the Syrian civil war in 2011, there has also been a spread of different forms of humanitarian aid. And it is not surprising that, in a network society, ICT is becoming an important way of assisting refugees.

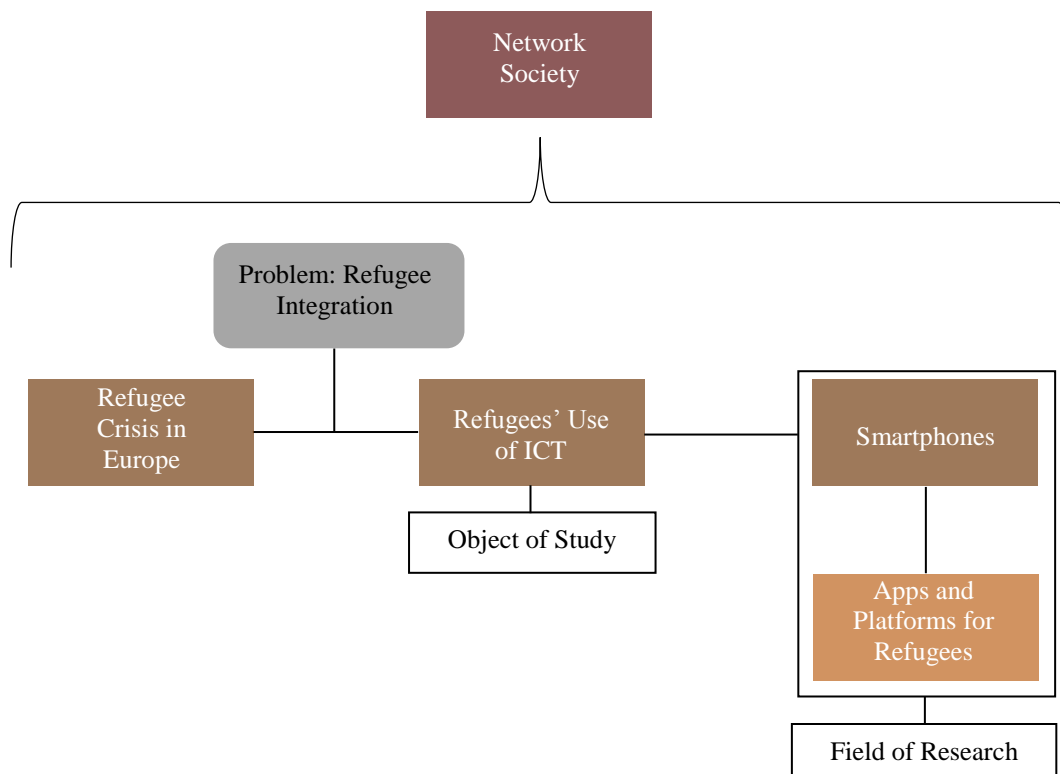
For instance, more and more smartphone applications appear every day in order to facilitate the integration of refugees in European countries. These have several different purposes and may or may not, in fact, help refugees' integration in Europe.

1.2. Purpose of investigation

This investigation intends to understand the role of ICT in the integration of refugees in Europe. As it is possible to see in the analysis model below (Figure 1), we want to understand how the evolution of societies into technological networks have become a possible solution to ease the integration of refugees in Europe, which has been a major concern since the start of the refugee crisis of 2011. Therefore, we look at new technologies as a way to help with the integration of refugees in Europe, and we focus on the role of smartphones and the platforms created for refugees.

The purpose of this investigation is divided into three specific purposes (SP), in order to facilitate the framework of the general purpose (GP). *This consists of understanding if ICT has had an impact in the integration of refugees in Europe.* The SP1 is to determine which smartphone applications exist in the market, with the purpose of helping refugees. The SP2 aims to understand the main goal of each platform. Finally, the SP3 is to conclude if the existing applications created for refugees have been used by those settled in Europe.

Figure 1: Analysis Model.



Source: Self-developed on 12-04-2018.

In order to help achieve these purposes there is a main question (MQ) and derived questions (DQ) to guide the work developed along this study:

MQ: Does ICT have a positive impact on the refugees' integration in Europe?

DQ1: Which smartphone applications and platforms are currently in the market targeted to refugees?

DQ2: What are their purposes?

DQ3: Do refugees use them?

For each DQ there is a hypothesis (H). According to Verma and Beard, a hypothesis is a hypothetical proposition, which will be subjected to verification during the subsequent investigation. Hypothesis, therefore, offer the researcher a line of guidance regarding the way in which the original guess may be tested (Bell, 1993). In the case of this investigation, the hypothesis include:

H1: There are several applications and platforms in the market in order to support refugees.

H2: To help find work, accommodation, learning a new language, etc.

H3: Yes, they use them.

The structure of the following investigation consists of three main sections. In the first section we present the state of the art regarding four main topics, which include the emergence of network societies, the ICT business, the integration of refugees in Europe and, finally, the role of smartphones in this process. In the second section we present the methodology and techniques of this research. In the third section we analyze the collected data through tables and charts. As a final point, we present the conclusions, and respond to the proposed questions and purposes of this study.

1.3. Limits of investigation

This research faced some limits to its investigation and these included issues regarding accessibility, resorting to computer mediated communication (CMC) to develop interviews, for example e-mail, instant text messaging, online forums and social networks (Elmir, Jackson, & Wilkes, 2011), the willingness to participate and language issues.

Getting in touch with refugees in other European countries was a challenge for this research. This is because there was no possibility of travelling specifically for the purpose of conducting interviews, so there was the need to resort to the internet. Although the internet eases the access to refugees and avoids travelling, there are many limitations on using this type of technology. For example, although it was easy to find refugees to be interviewed, some part of the communication was lost due to the fact that some refugees preferred to have the questions written instead of doing a web call. This made their answers very generic and substantial.

Furthermore, another limitation to the present study was the reluctance of some organizations to grant access to refugees' contacts, since not everyone had the willingness to cooperate and ask refugees if they would be available to be interviewed. It was also somewhat difficult to make privileged informants in the field to provide us with an interview.

Finally, the limitation that was considered to be the main challenge in this research was the language. Most refugees spoke English, however, their proficiency was very limited and the majority of the interviewees kept their answers very short and simple, without developing the subject further.

2. STATE OF THE ART

2.1. Information and Communication Technologies

2.1.1. *The Network Society*

Over the years, societies have developed from industrial into networked societies. This means that societies are characterized by “major social, technological, economic, and cultural transformations” (Castells, 1996:17). Information and Communication Technologies (ICT)¹ has become a major foundation of these societies. ICT products have been difficult to define due to their rapid changing character, nevertheless, ICT products are said to “(...) fulfil or enable the function of information processing and communication by electronic means, including transmission and display” (OECD, 2011:22).

In addition to the use of ICT, these societies have their information and processes organized into communication networks. “Communication networks are the patterns of contact that are created by flows of messages among communicators through time and space” (Monge & Contractor, 2003: 3). In contemporary societies, new technologies ease the process of globalization² and a consequent decentralization of operations, originating these communication networks.

There is no precise date for the beginning of the Globalization process, even though it is believed to have started around the 1980s/1990s with the end of the Cold War, the establishment of closer connections between people around the world and with the global rise of the internet. This process has broken down borders and introduced a greater interaction among societies. According to Erikson (2010:2), globalization “generally refers to processes of increased density, speed and reach of transnational connections associated with the global spread of

¹ ICT product categories may include computers, communication equipment, consumer electronic equipment, telecommunications services, and others included in Appendix I (OECD, 2011).

² Process of “global economic, political and cultural integration” (Hamdi, 2013:142).

capitalism and new information and communication technologies”. A major factor that has contributed to this progression in current societies is broadband adoption³.

The widespread use of the internet allows for communities and societies across the globe to potentially reap many benefits, as it eases social inclusion⁴ by giving access to resources that may include government services, online news, and health care information (Mossberger, Tolbert, & Hamilton, 2012). Nevertheless, it is only possible to achieve these benefits with a working internet connection and the knowledge to use technology. Consequently, not everyone meets these criteria, leading to a group of individuals considered to be less connected.

These are “individuals who depend on public access or other connections outside the home, such as wireless hot spots, coffee houses, or the homes of friends and relatives”, (Mossberger et al., 2012:2494)⁵ making it more difficult to achieve the ability to participate in a society online.

Regardless of that, as it is possible to confer in the next part of this thesis, the Information and Communication Technologies business has the tendency to evolve in a global sphere, which is why we have chosen to address new technologies such as mobile devices and the internet.

2.1.2. The ICT Business

The technological business is constantly evolving and new innovations emerge every day. The tendency of the ICT is to become increasingly digital and the society is getting more and more dependent on these. However, one particular gadget stands out from the others.

The smartphone was first introduced by Steve Jobs in 2007 and, ever since, it has become one of the most used technologies around the world. For instance, smartphones have been

³ According to Mossberger, Tolbert, and McNeal, broadband adoption is a policy issue that facilitates the acquisition of a digital citizenship, which refers to the ability of participating in society online (Mossberger et al., 2012).

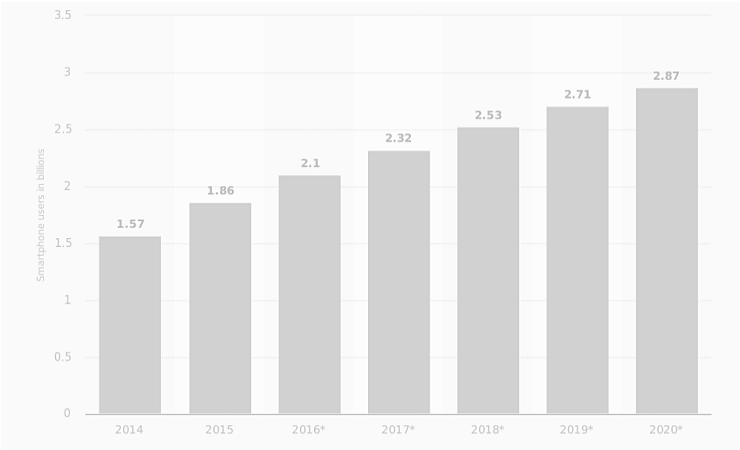
⁴ The concept of social inclusion it is “intended to create a ‘society for all’. The achievement of social inclusion requires that both poverty and social exclusion be addressed in a balanced way” (Atkinson & Marlier, 2010:1).

⁵ Additionally, the less connected are also “those who cannot access the full content of the Web owing to slow dial-up connections at home, and individuals who use the Internet on their mobile phones but do not have broadband at home” (Mossberger et al., 2012:2494).

considered the fastest selling gadget technology in history, surpassing the growth of regular mobile phones and outselling personal computers by four times (The Economist, 2015). Google Android and Apple iOS are the two most popular smartphone operating systems in the industry. In 2016 alone, nearly 1.5 billion smartphones with either Android or iOS operating systems were sold to users worldwide (Statista, 2017b).

The number of smartphone users worldwide has been around 2.32 billion in 2017 and it is estimated to increase up to 2.87 billion users by 2020. Currently, about half the adult population owns a smartphone and by 2020 this number will represent 80%.

Chart 1: Number of smartphone users worldwide from 2014 to 2020 (in billions).



Source: Statista (2017).

Smartphones are already considered to be a disruptive technology because of their size and connectivity. Although tablet usage is also increasing, these are not as monetarily accessible as smartphones. The size turns smartphones into personal, portable computers which can be used to connect to and around the globe. “Because of their portability, smartphones provide personal Internet access that in some ways affords even greater convenience and more continuous use than home access. Mobile phones with applications that provide real-time or locational information have advantages over home broadband” (Mossberger et al., 2012:2497). While regular mobile phones only allow us to send messages or make phone calls, smartphones let us do much more than that through its mobile apps and internet access.

Mobile internet usage has become more and more common in the daily life of smartphone and tablet users, allowing consumers to access and share information anytime they want.

In fact, global mobile data traffic is expected to increase nearly seven times between 2016 and 2021, and since February 2017, mobile devices were responsible for around 50 percent of web page views worldwide (Statista, 2017a).

The evolution of mobile phones on the market allowed for the possibility of introducing “only a small amount of money and connect to the internet, thus opening new possibilities to connect privately to social networks, for example (...). Of course for this it is necessary to have mobile phones with 2G connection capacity or 3G (...) and have money to enter on the phone, or someone who do it” (Falcão, 2016:134). According to Mossberger et al. (2012:2494), “(...) young adults, minorities, those with no college experience, and those with lower household income levels are more likely than other groups to say that their phone is their main source of Internet access”. This way, the internet provides these groups with the opportunity to access online platforms, and download and use various apps.

App is a short form for application and it is a specialized program that can be downloaded onto a mobile device, such as a smartphone (Gray, 2014). On the other hand, a web-based application is a program that can be accessed through a network connection using a web browser instead of being downloaded onto the device.

There are many apps available in the market and it is possible to download them in online app shops run by the producers of the phone or tablet operating system. Most apps range in price from free to around 50 euros.

An app can make a smartphone do almost anything that the programmers want, within the technical limitations of the device (BBC, 2012). This means that a smartphone can be turned into a digital photography album, a remote control, a search engine, a translator, and many more.

2.2. Refugees in Europe

2.2.1. Refugees' integration

Based on the Universal Declaration of Human Rights of 1948⁶ and adopted after the World War II, the Geneva Convention of 1951, also called the Convention Relating to the Status of

⁶See Article 14 of the Universal Declaration of Human Rights.

Refugees⁷, has been persisting as a key guidance on the definition of refugees and their rights and obligations.

According to this Convention, the United Nations declares a refugee as someone who is “unable or unwilling to return to their country of origin owing to a well-founded fear of being persecuted for reasons of race, religion, nationality, membership of a particular social group, or political opinion” (United Nations High Commissioner for Refugees, 1967: 5)⁸.

Additionally, “when people flee their own country and seek sanctuary in another country, they apply for asylum – the right to be recognized as a refugee and receive legal protection and material assistance. An asylum seeker must demonstrate that his or her fear of persecution in his or her home country is well-founded” (UNHCR, n.d., para. 1)⁹.

Europe has been receiving refugees from around the world for many years. However, more recently, the number of refugees arriving in Europe looking for asylum has increased greatly since the start of the Syrian civil war in 2011 (Bajekal, 2015). Refugees are fleeing persecution, poverty, and conflicts, and they have started coming to Europe because countries like Lebanon, Jordan and Turkey, which host the majority of refugees from the Middle East, are overcrowded and have little international humanitarian funding. For these reasons, many refugees have to make dangerous journeys to reach Europe instead of living in impoverished and overcrowded refugee camps (Bajekal, 2015).

Europe has received the highest number of refugees between 2015 and 2016, when there were around 1.3 million asylum applications. According to the UN Refugee Agency (2016), the latest wars and persecution have driven more people from their homes than at any time. The Agency states that one in every 113 people globally is an asylum-seeker, an internally displaced person or a refugee. The number of refugees who drowned in the Mediterranean in 2016 were the highest ever recorded. More than 5.000 people lost their lives at sea when fleeing their homes to escape war, poverty, and persecution (Safdar & Strickland, 2016).

More recently, the number of asylum applicants in the European Union (EU) decreased 55% in the third quarter of 2017 (164 300 applicants) compared with the same quarter of 2016 (298

⁷ “The 1951 Convention consolidates previous international instruments relating to refugees and provides the most comprehensive codification of the rights of refugees at international level. In contrast to earlier international refugee instruments, which applied to specific groups of refugees, the 1951 endorses a single definition of the term 'refugee' in Art. 1” (European Commission, 2018a).

⁸ Article I, Convention Relating to the Status of Refugees.

⁹ Available at <http://www.unrefugees.org/what-is-a-refugee/>

727 applicants), (Appendix II), while it increased by 10% compared with the second quarter of 2017 (Eurostat, 2017). Nevertheless, the number of refugees in Europe is very low, as its percentage represents less than 3% of the people living in Europe¹⁰. In fact, according to the Centre for International Governance Innovation & World Refugee Council (2018:2), “in spite of the increasing levels of displacement, the world’s refugee crisis is not truly a crisis attributable to too many refugees”.

Refugees that arrive in Europe come from 146 countries but Syrian, Iraqi and Afghan were the top 3 nationalities of asylum seekers in 2017, with around 26 600, 12 500 and 9 900 applications respectively. These are followed by Nigerian, Pakistani and Eritrean (Eurostat, 2017).

When refugees arrive, the European Union has a legal and moral obligation to help them¹¹. Member States should examine asylum applications and decide who will receive protection. Nevertheless, the number of asylum applications is not evenly spread among the European countries since the arrival of migrants affects some Member States more than others. This is because refugees tend to look for countries where they believe there are more opportunities to find jobs, because they have family living in a certain place or just due to historical references. Additionally, “no government in the world wants refugees turning up, unannounced, on its borders. Even for countries with significant resettlement programs or that are major donors to refugee programs, the spontaneous arrival of asylum seekers — particularly in large numbers — raises questions of bureaucratic capacity and budgets”¹². (Centre for International Governance Innovation; & World Refugee Council, 2018:9). This way, the flow of illegal refugees has caused some Member States to reestablish checkpoints at their borders with other EU countries. (European Commission, 2016).

¹⁰ According to the United Nations High Commissioner for Refugees (2016), the total number of refugees in Europe is around 10 million. By doing a calculation we reached the value of 3% taking into account the present population of Europe.

¹¹ The Convention Relating to the Status of Refugees affirms that the States Parties cannot send refugees back to a country where they face threats to their lives or freedom (“Refoulement”). See Article 33 of the Convention.

¹² “In this regard, it is illustrative that several individual European countries spend more on processing and receiving thousands of asylum seekers than the UNHCR spends for all the rest of the refugees in the world”. (Centre for International Governance Innovation; & World Refugee Council, 2018:9).

“The willingness of the international community to resettle refugees from other countries has varied over time and in accord with the political interests of major powers” (Centre for International Governance Innovation; & World Refugee Council, 2018:9). The highest number of asylum applicants in 2017 was registered in Germany, followed by Italy, France, Greece and Spain (Eurostat, 2017). Among others, Portugal is a country that has offered to receive refugees, however, there aren't many living in the country. Since 2015, Portugal has provided asylum to 1511 refugees, nevertheless, around half of them (720) decided to leave the country (Cordeiro, 2017). Moreover, there are countries like Poland, Hungary and the Czech Republic that are not cooperating with the relocation of asylum seekers, ignoring the EU quotas (BBC, 2016).

An asylum application procedure might take longer than six months for a decision to be reached and (Bulman, 2017), when arriving at the asylum destination country, many refugees might have to live there for some time and some may not even be able to return to their home country. This happens because their countries are engaged in long-term conflicts or because they fear persecution if they return. That so, integrating into a community can be a chance to start a new life (UNHCR, 2001) and may present an alternative to refugee camps (Jacobsen, 2003).

The UNHCR (2013) states that ‘integration’ is a difficult term to define, nevertheless, it is believed that it is used when referring to the local integration of refugees. *Local integration is a “complex and gradual process with legal, economic, social and cultural dimensions. It imposes considerable demands on both the individual and the receiving society”* (UNHCR, 2001). Additionally, Liisa Malkki says that ‘integration’ is a “goal in refugee projects, but this very process makes the keeping of statistics and the running of the projects difficult” (1995:46), since it is a challenge to achieve it. Furthermore, according to a study developed by Ager & Strang (2008), integration refers to some specific domains, which include:

Figure 2. A Conceptual Framework Defining Core Domains of Integration.



Source: Ager, A., & Strang, A. (2008). *Understanding Integration: A Conceptual Framework*, 21(2). <https://doi.org/10.1093/jrs/fen016>.

Since Europe has started receiving a great number of refugees in the past years, several policies in the areas of the domains presented in Figure 2 such as employment, education, social inclusion and active citizenship were developed in order to fulfil the needs of refugees to feel integrated.

Among these policies, some were created to ease the integration of refugees in a new country, while others, such as the ban of religious-dress in France, were considered to lead to discrimination. Some authors refer that the lack of integration measures and this refugee crisis is “about too little leadership, and a deficit of vision and imagination. (...) At the problem’s core is an almost universal lack of political accountability” (Centre for International Governance Innovation; & World Refugee Council, 2018).

Nevertheless, many organizations have been participating in the process of integrating refugees in Europe. These may include international organizations, Governments, non-governmental organizations and local entities.

The work of international organizations has been crucial for the integration of refugees in Europe. A decisive entity is the *United Nations High Commissioner for Refugees*, a United Nations programme, which is responsible for making Governments to co-operate with the development of resolutions concerning refugees under its competence. These may include, admitting refugees to their territories, promoting the voluntary repatriation of refugees, or

providing refugees with travel and necessary documents, among others (United Nations, 1950). The United Nations High Commissioner for Refugees is, therefore, entrusted to seek permanent solutions with challenges concerning refugees by encouraging Member States, such as the European Union, to include refugees in general integration plans and policies (UNHCR, 2013). For instance, in April 2016, the *European Union*, more precisely the European Parliament, adopted a resolution in order to facilitate the integration of refugees in Europe. In the same year the Action Plan on the Integration of Third Country Nationals was created. This Plan includes education measures, which consist of actions to promote language classes, teacher training and civic education, employment and vocational training, such as actions to promote integration into the labour market, access to basic services such as housing and healthcare and active participation and social inclusion, which comprise actions to support refugees' participation to cultural life and fighting discrimination (European Commission, 2018). Other programmes such as the European Social Fund (ESF) and the European Regional Development Fund offer financial support to Member States to help them integrate refugees (European Parliament, 2017).

Since the Treaty of Lisbon was signed in 2007, European institutions have been supporting and giving incentives to the Member States to promote the integration of refugees, however, migrant integration policies are a national competence (European Commission, 2017).

National Governments may spend around €10.000 per application on the first year to help refugees' integration in many different matters, ranging from the registration and processing of asylum applications, to providing long-term integration services such as basic language training or civic integration training (OECD, 2017). The Governments' integration performance can be measured by several tools that have been developed for this purpose, such as the Integration Evaluation Tool (IET). This was developed by the UNHCR in cooperation with the Migration Policy Group and aims to collect information about the integration of refugees and its success in Central Europe. It consists of a survey that studies the aspects of a refugee's life which is filled by experts involved in different areas of refugee integration (UNHCR Central Europe, 2016).

Another tool that can be used to measure the level of refugees' integration in the country of resettlement is the Migrant Integration Policy Index (MIPEX). This is a tool that ranks 38 developed countries and has created 167 policy indicators (MIPEX, 2015), including the investment of developed countries in opportunities for the migrants such as labor market, health, education, political participation, permanent residence, family reunification and anti-discrimination measures. However, this tool only measures the integration policies of each

country and may not reflect the reality of integration and how these policies are implemented (American Immigration Council, 2011). Not all Governments have been able to provide effective help to integrate refugees as “(...) the level and character of the forms of assistance and provision depend on the character of welfare systems of receiving societies, which tend to influence policies of integration. The reception and integration policies of European States vary from the highly centralized state-sponsored programmes of the north European countries to the minimal social assistance provided by the countries of the southern Europe” (Korac, 2003:4)¹³. This makes the reality of integration very different from country to country and, many times, the written numbers may not match with the reality of integration.

Regardless of that, and in addition to Governments, there are other entities which are part of the process of integrating refugees. *Non-governmental organizations* (NGOs) have been essential in the process of welcoming and integrating refugees. The European Council on Refugees and Exiles (ECRE) is a European alliance which comprises 96 NGOs that protect the rights of refugees. This alliance is composed by international and local NGOs from most of the European countries which act in areas that include humanitarian relief, social service provision, legal assistance, litigation, monitoring policy and law, advocacy, and campaigning.

Finally, *local organizations* “are often faced with responding to refugees without having the political and financial support they need to do so” (Centre for International Governance Innovation; & World Refugee Council, 2018:10). Nevertheless, these local organizations of host communities have been partially responsible for the success of refugees’ inclusion. Towns “are at the frontline of refugee displacement and are often where refugees settle or spend long periods of time. When refugees move into a town they change the fabric of social, political, cultural and economic relations, which in turn influences the refugees’ own experiences” (Jacobsen, 2017:78). However, refugees don’t always create this impact in towns. For instance, in Portugal, the number of refugees is very low, there are only around 720, and they are settled in different parts of the country (Cordeiro, 2017), making it less likely to generate a great change in Portuguese towns.

Regardless of that, according to Meier (2017:252), there are “(...) at least three main different types of neighbourhood reactions to the local immigration of refugees. Besides those opposing

¹³ “Welfare states, such as Scandinavian or Dutch, provide welfare system of assistance to refugees. The south European countries, such as Italy, which have relatively underdeveloped welfare systems, tend to have underdeveloped and often *ad hoc* measures of assistance for individuals granted asylum” (Korac, 2003).

refugee settlements, (...) we can conversely observe another type of neighbourhood that is welcoming and supportive of refugee settlements. A third distinct type of neighbourhood may include those who exhibit a blasé attitude toward new refugee settlements and the refugees' themselves".

If refugees arriving to a new country are welcomed by the locals it is more likely that they feel part of the community and integrate themselves easily. However, most of the times, local communities see refugees as temporary unfortunate guests who will eventually return to their home countries. On the one hand, it eases the welcoming feeling from part of the community who is willing to accommodate them, on the other hand, it makes it harder for refugees to integrate in the community in longer terms (Jacobsen, 2003). Besides this, local integration might be a challenge since there has been an increasing of xenophobia and islamophobia towards refugees in recent years (Centre for International Governance Innovation; & World Refugee Council, 2018).

Nevertheless, some local organizations manage to support refugees' integration and these may include national enterprises, religious entities (churches, mosques, etc.), universities, schools, among others. Most of the times, initiatives taking place by these entities are set up by local volunteers and "the aim is to build ties between refugees and other inhabitants in the neighbourhoods. It is demonstrated that, in neighbourhoods where people and grassroots organizations are actively supporting refugees (...), the general preferences of the other residents are also more positive." (Meier, 2017:253).

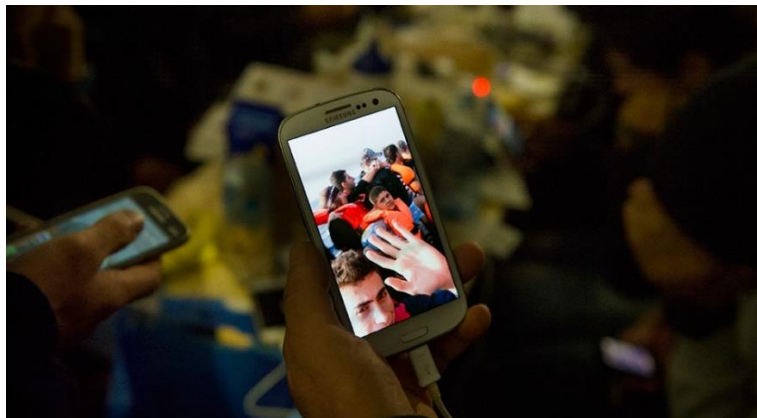
Many entities have been contributing to the integration of refugees in Europe, nevertheless, several assessments conducted in EU countries revealed some of the main integration obstacles for the refugees, and these include "difficulties due to lack of knowledge of local languages and differing cultures, discrimination and unreceptive attitudes towards foreigners, lack of understanding within host societies of the specific situation of refugees, psychological impact of extended inactivity during asylum procedures, and limited access to rights for persons with subsidiary protection" (United Nations High Commissioner for Refugees, 2005).

Nonetheless, as it was mentioned during the course of this section, many organizations are working to overcome these obstacles and, more recently, these entities have found out that, in addition to policies and donations, among other programs, ICT such as smartphones, could be a useful resource to support the integration of refugees in Europe.

2.3. Smartphones and Refugees

There is some suspicion and prejudice regarding the importance of technologies for refugees' integration but, in a globalized world, it is not that strange that refugees have access to ICT. With the increasing consumption of smartphones, their prices continue to drop making this technology more accessible to many populations. This way, owning a smartphone does not mean that a refugee is rich and is not in need for help. In fact, when fleeing their home country, if given the choice to take a personal item, most of the times refugees choose to take their mobile phone in order to keep in touch with family and friends, or to provide any other assistance. Mobile phones are so important that, when arriving in Europe, many refugees ask for internet or charging services ahead of food, water, or shelter (GSMA, 2017). A smartphone may be vital for refugees when they are making their crossing journey and it can also “provide a link to an old life or help make sense of a new one” (Worley, 2016, para. 2).

Figure 3: Man showing a video he made of his family crossing from Turkey to Greece in a small boat.



Source: UNHCR, accessed on 23-12-2017, in <http://www.unhcr.org/innovation/app-best-way-help-refugees-improving-collaboration-humanitarian-actors-tech-industry/>

The idea of an information society is increasingly being associated with that of an inclusive society. Therefore, the access to and the use of new technologies are seen as the basis for integration. Since the integration of resettled refugees is a problem to take into account when confronting refugees and their host societies, “information and communication technologies are increasingly viewed as a useful resource in programs that provide settlement services or promote participation in society” (Andrade & Doolin, 2016:405). In addition to that, ICT allows

communities to rapidly and easily request for help or share important information with humanitarian aid agencies or others (Baldi, 2018).

Andrade and Doolin (2016:406) say that technology provides individuals and groups with opportunities to make choices and express opinions, “to participate in informed social and democratic dialogue, to contribute to the development and control of new media content, and to build their own socially and culturally relevant connections and networks”. ICT, such as smartphones, is also necessary because refugees need information to resolve everyday problems, to get to know laws and regulations, and to get to know a new culture and society. In contemporary societies, one of the most common uses of smartphones is also to take and share images through social media apps such as Facebook, Instagram or others (Miller & Sinanan, 2017). According to several academic studies and news from the media¹⁴, refugees commonly use new technologies to do several other tasks, for example:

Figure 4: Use of new technologies for refugees by area.

Banking	Education	Health	Consumption of goods	Transportation	Jobs	Orientation
• Doing international transfers or paying bills	• Contact a child’s teacher	• Making a doctor’s appointment	• Online shopping	• Looking for schedules	• Apply to vacancies	• Looking for a place on GPS

Source: Self-developed on 01-02-2018.

In these same academic studies, it is possible to understand that smartphones are considered one of the most useful and practical technology devices for refugees to achieve the tasks mentioned on Figure 4. This gadget has generated great interest from aid agencies (turning the business of new technologies in a humanitarian aid tool) and mobile network operators (MNOs), which see this as an opportunity to make a positive impact in the lives of refugees and gaining new costumers and a potential growing market. For instance, the UNHCR and the Emergency Telecommunications Cluster (ETC), already recognize the importance of

¹⁴ GSMA. (2017). The Importance of Mobile for Refugees: A Landscape of New Series and Approaches, (January); Ariel Barbieri-Aghib, & Martin, O. (2018). On the Ground: A Deep Look at Technology’ Effect on the Migrant Crisis in Europe; Worley, W. (2016). Syrian woman explains why refugees need smartphones. Retrieved May 23, 2017, from <http://www.independent.co.uk/news/world/europe/why-do-refugees-have-smartphones-syrian-woman-explains-perfectly-refugee-crisis-a7025356.html>

connectivity for refugees (GSMA, 2017). In addition to connectivity, mobile tools, particularly apps, have also been considered of great interest for both MNOs and aid agencies.

In the field of telecommunications, Ericsson has been prominent in working to find solutions for refugees. The Ericsson Response initiative was established in 2000 with the aim of helping to transform emergency response by replying to requests for telecommunications support in disaster situations. The team set up mobile networks and by 2015 it had already implemented more than 40 projects over 30 countries (GSMA, 2017).

Vodafone is also playing a leading role among the telecommunications industry. Vodafone Instant Network is a project that provides connectivity services at registration centers and camps in Greece. Besides this, Vodafone created a new charging tool that allows simultaneous charging of up to 60 phones (GSMA, 2017).

In addition to telecommunications, international agencies such as the UNHCR have developed several apps for assisting refugees. The UNHCR News provides updates and human interest stories about displacement, the UNHCR Refugee Site Planning was developed for field personnel in refugee emergencies, and the UNHCR Verify-MY is a mobile document verification app that operates in Malaysia and has between 50,000 - 100,000 installs.

The International Organization for Migration (IOM) has also developed a tool to help refugees. The MigApp is an app developed by IOM's that operates as a platform where migrants can access current and practical information about their migration process and other IOM services. Furthermore, Techfugees is a non-profit organization that works to bring together the international tech community in order to respond to the needs of refugees by empowering them with technology. To accomplish this, Techfugees organizes conferences, workshops and meetups¹⁵ in an effort to create tech solutions for refugees, among of which apps are given special attention (Techfugees, 2018). This leads to a great amount of new apps making it difficult to vet their release.

Nevertheless, access to mobile phones and SIM cards in European countries is still a major challenge for refugees, although Lycamobile cards are very popular among refugees since, most of the times, they are cheaper and don't require an identification and address when signing up (The Telegraph, 2016). Consequently, organizations have started to face these issues by

¹⁵ "These humanitarian hackathons have sprung up around the world in the past year in an effort to promote (...) a subset of technological innovation which caters towards peacebuilding and promoting social good. Individuals, or teams, enter the hackathons with one goal in mind: create an app which would help refugees in this current crisis" (Ariel Barbieri-Aghib & Martin, 2018:9).

providing handsets and SIM cards to arriving refugees and by fundraising campaigns. One example is Refugee Phones Sweden, an organization that collects and repairs second-hand mobile phones, distributing them with chargers and SIM cards among arriving refugees (GSMA, 2017).

The refugee crisis felt in Europe has led to the largest technological initiatives until now from both humanitarian aid organizations and the mobile industry. According to the Groupe Spéciale Mobile Association (GSMA, 2017) several apps have demonstrated success while others are said to have had low impact in helping the integration of refugees in Europe. Having said that, further research on these apps is necessary to ensure that the needs of refugees are in fact fulfilled.

In addition to this, some authors and refugees, who have settled in Europe, refer that more important than building apps for refugees is *providing them with mobile credit or other types of help, such as money or smartphone donations*. In 2016, refugees and volunteers founded the non-profit organization Phone Credit for Refugees and Displaced People. It supports asylum seekers and refugees by providing mobile phone top-ups so that they can get in “touch with their families, communicate with support agencies and stay safe” (Phone Credit for Refugees, 2016, para. 1).

This way, due to the fact that refugees keep arriving and settling in European countries, it is expected that the need for mobile services among these communities will also continue to grow. Consequently, mobile services are becoming a central resource for humanitarian aid (GSMA, 2017).

3. METHODOLOGY

3.1. Analytical methodology

In order to respond to the main question of this investigation: *Does ICT have a positive impact on the refugees' integration in Europe?*, the chosen method to collect data for this research is intrusive and qualitative since this type of investigation is characterized by the “recognition and analysis of different perspectives, reflections of the researcher on their study as part of the process of knowledge production, and variety of approaches and methods” (Flick, 2009:32).

The data of this study intends to respond to the questions and purposes of the research presented in the Introduction, and it was collected through three different techniques which include bibliographic review, interviews to refugees and privileged informants, and direct observation of apps, since we installed or accessed these platforms in order to experiment with them.

This work resorted to bibliographical analysis as a complementary method to achieve its purposes. The documents studied consisted of scientific articles, reports, academic articles and thesis, media articles, and books. Still, the main technique of this dissertation consisted of interviews.

According to Bell (1993:138) an interview is a “conversation between an interviewer and an interviewee which has the purpose of extracting specific information from the participant”. It was decided to develop interviews due to their adaptability. For instance, interviews allow the researcher to better understand the motivations and emotions from part of the interviewed subjects.

In this study, the interviews are semi-structured¹⁶ as they do not presuppose the implementation of a specific number of questions. These do not need to be done in an order and they allow the participant to respond freely, it is even expected that the interviewee goes beyond the posed questions (Berg, 2001). Due to the fact that in this type of interview it is supposed to let the participant speak with few restrictions, the interviewer has the role of making sure that the interview is conducted in order to achieve its purposes (Quivy & Campenhoudt, 1995).

We interviewed a group of people comprised of 12 refugees, over 18 years old, who had settled in Europe. The interviewed refugees were living in eight European countries, four settled in Portugal, one in Spain, one in the United Kingdom, one in the Netherlands, two in Germany, one in Denmark, one in France, and one in Belgium.

¹⁶ See the interviews' structure in Attachment II and III.

We had access to these refugees in different ways. Since we live in Portugal, it was easier to get in touch with refugees to be interviewed in the same country. We reached the participants by mutual acquaintances, most of them through Facebook, and by contacting students from ISCTE-IUL and employees at the Mezze Restaurant. Most of the contacts made with refugees outside of Portugal were also done by common acquaintances and through Facebook. Both in Portugal and in other European countries, a great number of the interviewed refugees knew other refugees in Europe and provided us with their contact.

The 12 interviews were conducted in person, by instant messaging platforms such as Messenger or WhatsApp, by e-mail, and by web calls through Messenger or Skype. Therefore, we verbally asked interviewees for consent and recorded it.

Besides these, we developed similar interviews to three privileged informants that work in organizations related to refugees, in order to have a broader frame of the studied topic. We interviewed Mariana Vareta, Co-founder and Co-coordinator of Mobile Info Team Greece, Andréa Martinez who is the Co-founder and Co-coordinator Refugees Welcome Portugal, and Shelley Taylor Co-Founder of RefAid. We also contacted Joséphine Goube, CEO of Techfugees, however, it was not possible to arrange for an interview. These three interviews were conducted through web calls on Skype and Messenger.

Finally, it was conducted a direct observation of apps and web-based platforms created with the purpose of serving refugees as a way to complement our studies. These apps included the five apps or web-based applications which have the most downloads and recognition according to literature review¹⁷ and to online research in the Google Play Store and in the Apple App Store. These are Ankommen, Refunite, InfoAid, Refugees Welcome and Love Europe. Therefore, the direct observation consisted of a survey of these applications in which we installed the apps or accessed the platforms and tested them in order to understand their purposes, functionalities, and to see if they function correctly and are intuitive.

¹⁷ GSMA. (2017). The Importance of Mobile for Refugees: A Landscape of New Series and Approaches, (January); Ariel Barbieri-Aghib, & Martin, O. (2018). On the Ground: A Deep Look at Technology ' s Effect on the Migrant Crisis in Europe.

4. ANALYSIS

In this section of the dissertation, we conduct an analysis of the collected data, which includes: Interviews to 12 refugees, 10 male and 2 female, with ages between 18-35 years old, to whom I will refer by using the initials of their names; Direct observation through a survey of apps created for refugees that we accessed and experimented; Interviews to three privileged informants from organizations that work with refugees.

We want to understand the functionalities of the apps created for refugees, whether these are used by them or not, which other platforms they resort to through their smartphones and with which purposes, and, finally, we want to discover if something, and what, could be improved in this field.

4.1. Importance of ICT: Smartphones

First of all, we would like to present a small excerpt from an interview conducted to KA, which made us understand how important ICT, especially mobile phones, are to a refugee, not only in the process of integration in Europe, which is our focus, but also during the entire journey towards asylum:

“I would like to tell you a story about my journey. I got into several trucks on my way to Europe and one time the truck was very small and there was a plastic cover. We travelled for about an hour and then there was no oxygen. We were four people and I was the only one with a phone. We were shouting and knocking on the truck to stop it because we were not able to breathe. But the smuggler wouldn't stop because he didn't care at that time. Then, I used my phone to call to the agent that had arranged my journey to Europe. He phoned the smuggler and he finally stopped the truck. I don't know what would have happened if I didn't have my phone back then”.

- KA, interviewed on 14th April 2018.

In relation to our purpose, which is to understand if ICT is helpful with the integration of refugees in Europe. All refugees (see Question 5 and Question 6)¹⁸ and professionals (Q4 and Q5)¹⁹ considered that, nowadays, technologies are crucial for the integration of refugees in

¹⁸ See Attachment II.

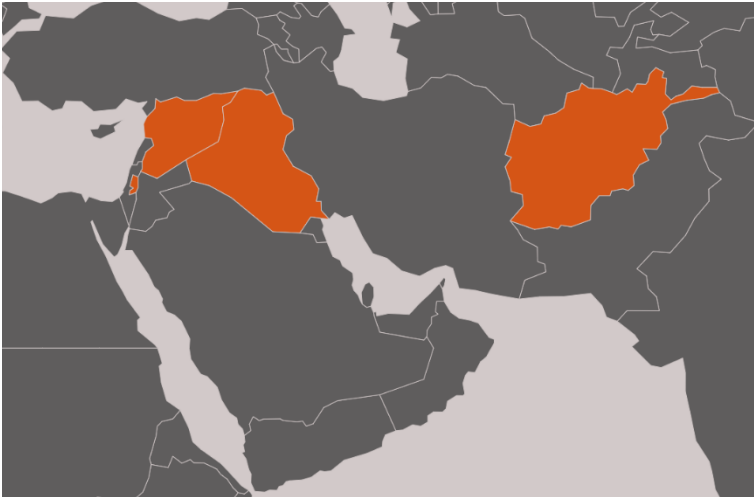
¹⁹ See Attachment III.

Europe, especially because, according to Andréa Martinez, some countries do not have an integration plan and ICT can be a major help in this process since most contemporary European societies are technologically advanced. This relates to what was mentioned by Castells in his studies of network societies, by referring that these societies are characterized by deeply technological transformations. However, “not everything coming out of the new boom in technology is making a positive difference. An overarching problem (...) is the distinct lack of communication between NGOs present on the ground and developers. This leads to apps which are neither necessary nor needed by refugees, leaving the very problem developers sought to help with unresolved” (Ariel Barbieri-Aghib and Martin 2018:14).

Regardless of that, most of the interviewed refugees mentioned smartphones as a very important technology since they depend greatly on this device. This may happen because, as Mossberger et al. (2012) mentioned, smartphones are a very practical and convenient gadget due to its portability and internet access. This may also be related to the fact that some refugees have lower household income levels, which turns smartphone into their main form of internet access (Mossberger et al., 2012).

In fact, all of the interviewed refugees had a smartphone in their home country (Q1)²⁰. Interviewees are from 5 different countries which include Palestine, Syria, Iraq and Afghanistan, as it is possible to see in Figure 5:

Figure 5: Interviewees' countries of origin.

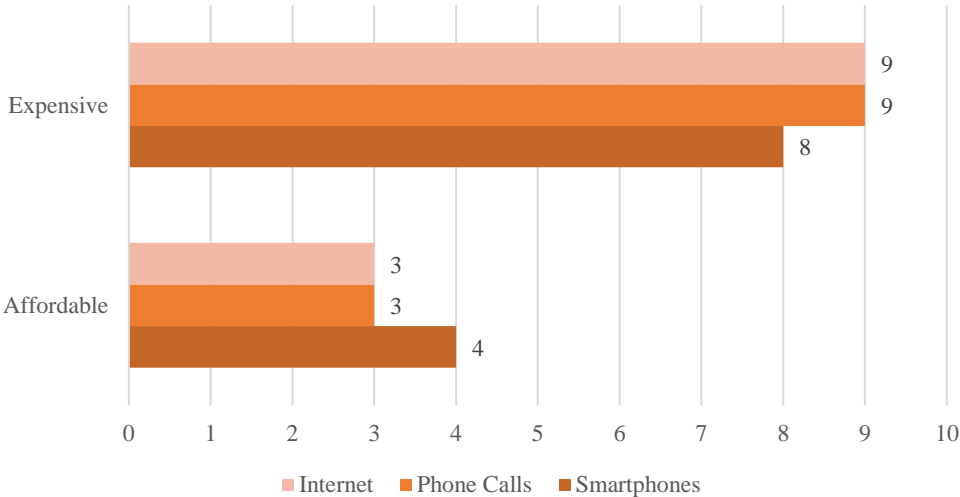


Source: Self-developed on 17-05-2018.

²⁰ See Attachment V.

Although interviewee *SM* did not have any internet access and did not know what social media was when he lived in the north of Iraq, all other 11 refugees had internet access before coming to the present country of resettlement. Possibly, *SM* did not know what social media was due to the living conditions of the city he lived in Iraq and, possibly, to its age and education. He is only 18 years old and he is in High School. Regardless of that, the fact that the 11 refugees used the internet before asylum confirms that smartphones are an increasingly accessible technology and that is not because a refugee owns a smartphone that he or she is not in need of help. Refugees are especially attached to smartphones because they need them to contact family and friends²¹ that live in different countries, among other uses which we will refer further down. However, as it is possible to see in Chart 2, most refugees (9 individuals) said that phone calls and the prices of internet are quite expensive in their resettlement country. In addition to that, the majority (8) also thinks that smartphones are expensive. Additionally, all of them possess only one phone and most of the interviewees do not change it regularly, but only when it is necessary²². Others, such as *MR*, like to buy a smartphone when it comes out in the market. These data demonstrates that, perhaps, refugees' income may differ. Some have a higher income and think that the prices of smartphones, the internet and mobile calls are accessible, and can pay for it and change their phones more often, while others find it more expensive and only change their phone if it is necessary.

Chart 2: Perception of the prices of smartphone, phone calls and internet in Europe.



Source: Self-developed on 12-04-2018.

²¹ See Attachment V.
²² See Attachment V.

Furthermore, many of the interviewed refugees and professionals mentioned that they know refugees who, in spite of the number of smartphone users is increasing worldwide (Statista, 2017b), do not have the money to buy this device or pay for phone calls and the internet. The interviewees also stated that they know some refugees who do not possess the knowledge to use those technologies. This may be related to their level of education. SA, a female refugee from Syria living in Denmark mentioned that a friend of hers did not know any English and had little knowledge of working with technologies when living in Syria.

All of these conditions may lead to a group of refugees that could be seen as less connected (Mossberger et al., 2012), since many do not have the capacity of participating online as easily as other people.

Nonetheless, all of the 12 interviewed refugees who had one smartphone of their own use it regularly and use several applications every day²³.

4.2. Applications for refugees

4.2.1. Survey of the Applications

In this section of the analysis, we can better understand one of the outcomes of the interest generated on smartphones as a way of humanitarian aid. This is apps and platforms created from part of aid agencies, mobile network operators, and other organizations as it was mentioned in the State of the Art.

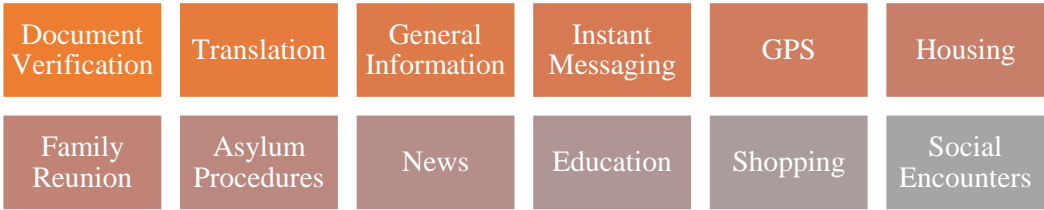
Therefore, we decided to do research and study five apps and web-based applications created for supporting refugees when they arrive in Europe. These include Ankommen, Refunite, InfoAid, Refugees Welcome and Love Europe²⁴.

During our research, we found out that in the market there exist hundreds of apps and web-based platforms created for the specific purpose of helping refugees. These may include worldwide and national applications with many functionalities, among which we established the following as the core ones:

²³ See Attachment VI.

²⁴ See Attachment I for the apps' characteristics.

Figure 6: Core functionalities of apps and web-based platforms created for refugees.



Source: Self-developed on 28-03-2018.

For the analysis of the five apps and web-based applications we decided to install those which needed to be downloaded and we accessed the others in order to better comprehend their purposes, functionalities, and overall functioning. This way, through research and experimentation, we found out that:

Ankommen is a free app for refugees living in Germany, available both on the Google Play Store and the Apple App Store. Although it is only available in Germany, it could not be ignored in this study since it has been very successful and it is the app with the highest number of installs²⁵. This is, in part, due to “the partnership between public government offices and private institutions. This partnership allows the information on the app to be vetted by a government office— ensuring that the app is not spreading misinformation. (...) This also show refugees that the government has a vested interest in the well-being of refugees present in their country” (Ariel Barbieri-Aghib and Martin, 2018:10). Nevertheless, we believe that the participation of the Government could potentially arise fear from part of many refugees that don’t want the Government to be deeply involved in their lives.

After experimenting with the app, we discovered that, generically, this app provides information for refugees about living in Germany, such as rules and rights, shopping, health services, transportation, among others, as well as relevant rules and asylum procedures. It also provides free German language courses, gives information about training courses and companies in Germany, and helps refugees find a job in the country. The app was considered to be user-friendly, as both the design and the information provided are organized in a very simple and intuitive format, and it was updated with recent information.

²⁵ See Attachment I.

Refunite is a non-profit organization with projects in Africa but it is also an online and mobile tracing platform that is available internationally and whose purpose is to reconnect refugees around the world with their missing relatives. This platform functions as a database where refugees can register some of their personal information. Refunite uses the details provided by registered refugees (name, village name, or other) and sends back a list of people who potentially match each other.

InfoAid is an app whose purpose is to provide information to refugees that are crossing or settling in countries in the Balkan route. The app news in the form of messages informs refugees about many topics such as the Balkan borders, weather, transportation, security, and refugee-related programs. The app also includes a Phrasebook, which translates basic sentences into the chosen language from the ones available²⁶. However, we believe that this app functions slowly, doesn't have a simple and attractive design, and had not been updated with recent material.

Refugees Welcome is a website that serves as a platform to help refugees find accommodation with people who register their flat. The first step consists of registering a flat by those who are able to accommodate refugees. Afterwards, the platform finds a suitable flat mate to share the house with and, finally, there is a possibility to start a funding process to pay for the rent. Refugees Welcome may send an email to friends and acquaintances asking for a donation. In addition to this, Andréa Martinez added that Refugees Welcome Portugal has an additional type of support by providing refugees with a mentor that helps them with logistical doubts when they arrive in the country.

Love Europe is an app, which also provides information about refugees settling in European countries. In addition to general information, it provides important places of the country of resettlement, events occurring in nearby locations available by using a GPS signal, it presents emergency numbers, media information, language tips, and will soon present the option of a refugee buddy, someone in the country of resettlement that may support refugees' integration. This app was considered very user-friendly since it has an appealing design and seemed to have up-to-date information, although it is not completely functional in Portugal, the country where this research is taking place.

²⁶ See Attachment I.

4.2.2. Applications' Usage

From the 12 conducted interviews, as it is possible to verify on Table 1, six interviewees said to know about only one of the above-mentioned applications, which is Refugees Welcome. From these five, only one refugee, *OR*, who is based in Portugal, in fact used the platform to arrange for accommodation.

Therefore, we explained the purposes of each application during the interview and asked if they would use it or be interested in learning more about them. The majority of the interviewees said to be interested and would probably use the platform to find accommodation. *AO* and *MR* added that these applications should expand their reach by improving their Marketing plan, in the United Kingdom and in Portugal respectively, which is where they are currently living.

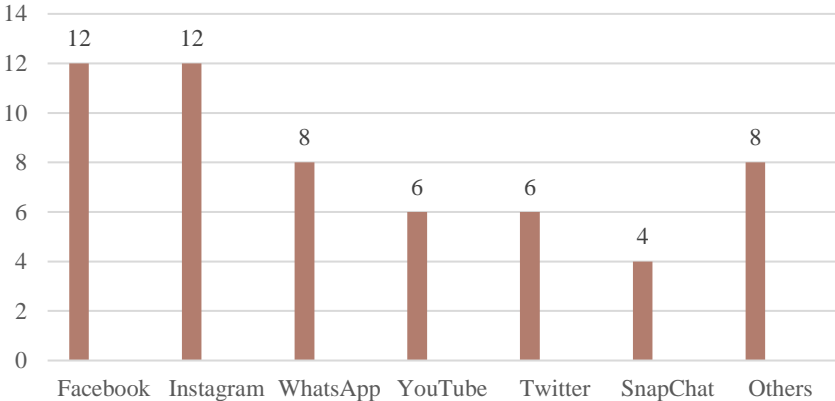
Table 1: Refugees' use of the studied apps and online platforms.

	<i>Ankommen</i>	<i>Refunite</i>	<i>InfoAid</i>	<i>Refugees Welcome</i>	<i>Love Europe</i>
<i>Know the App</i>	0	0	0	6	0
<i>Don't know the App</i>	12	12	12	6	12
<i>Use or used the App</i>	0	0	0	1	0
<i>Never used the App</i>	12	12	12	11	12

Source: Self-developed on 30-03-2018.

When it was asked which applications the interviewees use daily, as it is possible to see on Chart 3, some platforms stood out. Facebook and Instagram are the most popular apps among refugees in this research, since all of the 12 interviewees said to use these social networks. These are followed by WhatsApp (8 interviewees use it), YouTube (6) and Twitter (6), and SnapChat (4). This coincides with what was referred by Miller & Sinanan (Miller & Sinanan, 2017), that mention apps such as Facebook and Instagram as the most common in contemporary societies.

Chart 3: Applications used by the interviewees.



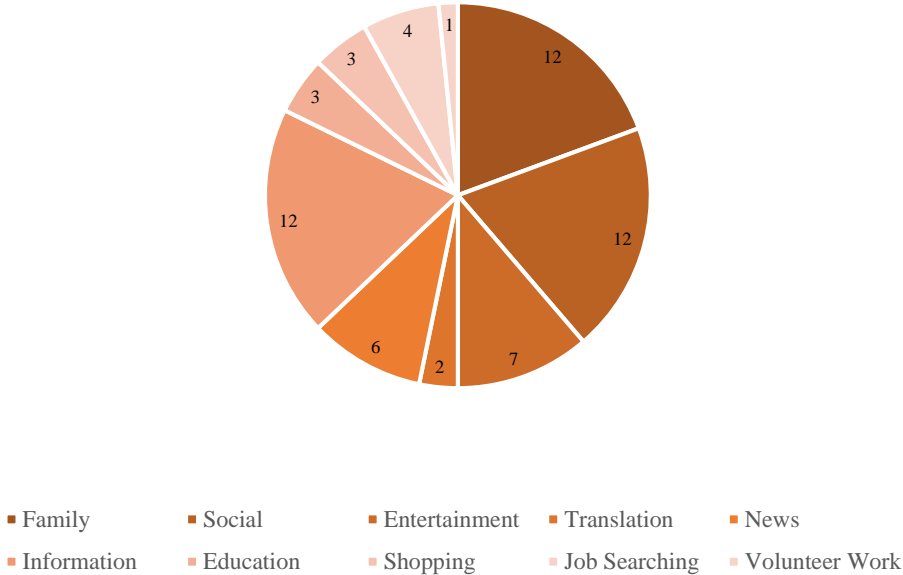
Source: Self-developed on 30-03-2018.

8 interviewees also state that they use other platforms related to instant messaging (IMO and WeChat), to meeting new people (Meetup and Couchsurfing), education including language learning (Coursera, Memrise and Duolingo), shopping (OIX, Amazon, Alibaba and Wish), dating (Badoo), translation (Google Translate), GPS directions (Google Maps) and job searching (LinkedIn).

In question 11 (Q11)²⁷, it was asked what the interviewees use the above-mentioned applications for. In Chart 4, it is possible to see that most individuals (12) use the applications to talk to their family, to get access to information, this is, to get to know the country’s culture, transportation schedules, procedures, laws, etc., and for social purposes, which include talking to friends, companions, acquaintances or meeting new people. Interviewees also use smartphones for entertainment purposes. Refugees said to watch videos, listen to music, and share photographs and other entertainment content. Additionally, refugees stated that the mentioned apps were important to get news on the resettlement country and the country of origin. Job searching is also one of the purposes of the platforms, as it is shopping and education. By education refugees referred to learning a new language, getting information about available courses in the country of resettlement, and having a platform to share content with their classmates regarding their ongoing studies. Finally, one interviewee (FS) said to use these applications for his volunteer work at Phone Credit for Refugees and Displaced People.

²⁷ See attachment II.

Chart 4: Applications' usage purpose.



Source: Self-developed on 30-03-2018.

We also asked the privileged informants about the applications used by refugees (Q11)²⁸, who said that these are especially important to refugees to keep in contact with relatives that live far away, to get information about the country of resettlement, and to get social connections. Facebook and WhatsApp were the two applications mentioned by the privileged informants as the most important for refugees in Europe.

Through the refugees' interviews we found out what the mentioned apps are specifically used for. Facebook is the most common platform to talk to family, for social purposes, to get in contact with co-workers, to get information about a country and to access the news. Refugees also resort to WhatsApp to speak with their relatives and other people, such as social workers. Instagram, YouTube, Twitter and SnapChat are mainly used for entertainment and social purposes.

It is our belief that the purposes mentioned by refugees and privileged informants, and the ones identified by our survey of applications, comply with the core domains of integration mentioned by Ager & Strang (2008) in Figure 2. This is, *applications provide ways of accessing employment, housing, education, health, social connections, language, culture, and may*

²⁸ See Attachment III.

provide a link between refugees, safety assistance, and rights and citizenship, since there are applications concerning documentation and asylum procedures.

4.3. “What would you do?”

In the conducted interviews we asked refugees: If you could create an app for refugees, what would you do? (Q12). In Figure 6, we present the purposes of the apps proposed by refugees. Refugees responded with different ideas for apps, which include:

- A job platform only for refugees and within their country of resettlement, where companies could post job openings and refugees could create a profile and share their professional information;
- A legal assistance app where they could contact lawyers and other forms of legal support;
- A community finder, where they could get information on whether there are communities of their nationality living in the country of resettlement. For instance, the interviewee *KA* lived in Spain and wanted to find out if there was an Iraqi community in the country;
- A chat with refugees from other countries, in order to perceive the reality and conditions of European countries before moving there;
- An app with information about education, which would include the courses available in the country and the documents needed in order to apply;
- A live translation app since, according to *AO*, “Sometimes there is a need for a translator but it takes a very long time to schedule, so I think there should be a live translation app similar to WhatsApp where you can instantly help others translating without the need for an ID”;

- Finally, it was said that there should be a database app with information about the country of resettlement. This includes information about services in the country, directions, laws and obligations, rights, contacts, culture, and any other useful material

Figure 7: Apps proposed by refugees.



Source: Self-developed on 07-04-2018.

The proposed apps meet some aspects of the integration issues previously stated by the UNHCR (2005). This is, unfamiliarity with the language of the country of resettlement and different culture, and lack of information for refugees. These integration challenges could, therefore, be solved or improved by these applications, since they gave information and translation solutions. Additionally, some ideas have already been in practice, since there are several apps that function like a database with information about the country of resettlement (such as Ankommen and Love Europe). However, some of the proposed ideas are not yet in the market (for example the community finder) at the time of research. This makes us question if the entities that created apps for refugees considered their opinions.

In addition to the ideas for new apps, some refugees mentioned that other initiatives should be taken into account in the field of ICT to help refugees' integration in Europe, besides the creation of these platforms. *SS* mentioned that in some countries, such as Portugal, the public services would be more efficient if they were technological updated. Others, such as *SA* and *AM*, mentioned that Governments or International Organizations should provide refugees with smartphones. However, *SS* added that instead of giving smartphones, there should be a

technological fund, of around 300 euros for example, and a list of technologies that refugees could choose. This is because many refugees already have smartphones and would rather have a computer or money to pay for phone calls and internet. *FS* stated that there should be given phone credit to refugees in order for them to speak with their families and also to contact the needed services when they arrive in the country of resettlement. Besides this, this interviewee also believes that the provided WiFi signals should be improved, because when there are many people trying to use these signals the internet connection functions poorly and makes it hard to phone friends and family that live abroad.

In relation to the privileged informants' opinions, Mariana, Andréa and Shelley believe that some improvements could be done to the existing apps and also that other initiatives could be taken into account (Q10 and Q12)²⁹.

Mariana Vareta says that the existing apps created for refugees might be improved by creating offline versions, or they could have more available languages, and should be updated more often. Mariana also thinks that besides apps and websites, there should be other initiatives to help refugees in the field of ICT. For instance by providing them with smartphones and training in fields such as coding. Andréa believes that it is important, at least in Portugal, to provide refugees with a tech guide (for example an app) with all the information about Portugal including services, contacts, etc. Besides that, Andréa mentions that many refugees have “black and white” SIM cards, which they do not use due to lack of money, so she thinks that it is also important to give assistance in this area.

Shelley, for instance, believes that there are already too many apps developed for refugees and that many of them function by crowdsource information that is not verified. As it was stated by Barbieri-Aghib and Martin (2018:10), apps should work with international or national agencies instead of in parallel with them in order to “allow the information on the app to be vetted (...) — ensuring that the app is not spreading misinformation”. Besides this, Shelley believes that other things could be done, such as for example, make smartphones under 60\$ available, and provide WiFi in several locations.

Furthermore, we asked the privilege informants what their motivation to create or work in the field of technologies for refugees was (Q2)³⁰. Mariana and Andréa answered that, although their company is related to technology, their work is not in that field. Nevertheless, Shelley said that she created the RefAid App because, among other people, she felt very touched by seeing the

²⁹ See Attachment III.

³⁰ See Attachment III.

picture of the little boy, Alan Kurdi, dead in a shore of Turkey. Shelley was already working in the field of technology and this event made her feel that she needed to do something in order to help refugees. Shelley is one of many people who feel a humanitarian impulse and decide to create technologies for refugees, and we believe that this is one of the reasons why there are already so many apps for refugees in the market.

In order to conclude this chapter, we believe it is important to list some major points about the use of smartphones from the part of refugees:

- 1) Most of the interviewed refugees own a smartphone and they believe this is the most precious gadget to help them with integration issues;
- 2) The majority of refugees think that the prices of smartphones, phone calls and the internet in Europe are expensive;
- 3) There are hundreds of applications and platforms created for the purpose of helping refugees that arrive in Europe and worldwide;
- 4) The five studied applications' purposes include providing general information about a country, reuniting families, and finding accommodation. Other existing platforms are related to document verification, translation, instant messaging, GPS, asylum procedures, accessing news, education, shopping and social encounters;
- 5) In general terms, the interviewed refugees do not know the applications mentioned in this dissertation and have never used them, but showed interest in learning more about them;
- 6) Their most used applications through a smartphone are Facebook, Instagram, and WhatsApp. However, they also use others.
- 7) They essentially use their smartphone to reach their family, for social purposes, entertainment, translation, access news, get information, for education, shopping, job searching and volunteer work;
- 8) Most refugees and privileged informants believe that there could be improvements related to apps and other initiatives related to new technologies in general, in order to help refugees' integration in the country of resettlement;
- 9) The apps' improvements may include: Developing a better Marketing plan, including their research field, by talking directly to refugees and taking into account their needs; Working closely with national and international agencies; Creating offline versions; Having more available languages; Updating and verifying their information more often;

10) The ICT related initiatives may consist of providing refugees with smartphones, credit for phone calls and internet, a monetary fund for a technology of their choosing, and increase and improve WiFi connections.

5. FINAL CONSIDERATIONS

In this section, we will present the conclusion of our research by confirming that we achieved our purposes, verified or not the hypothesis, as well as answered the main questions and derived questions, presented in the Introduction. Additionally, we will provide possible recommendations on the studied topic.

In order to support the investigation, we formulated a derived question for each purpose, and a hypothesis for each derived question.

In Chapter 3 – “Analysis”, we responded to the main and derived questions, as well as verified the formulated hypothesis. To respond to the MQ we developed interviews to refugees in different European countries and to three privileged informants, analyzed in “Importance of ICT: Smartphones”. In order to respond to the DQ1 and DQ2, and verify H1 and H2 we conducted a direct observation of applications presented on “Applications for Refugees – Survey of the Applications”. Lastly, in “Applications for Refugees – Applications’ Usage” we responded to DQ3 and verified H3.

5.1. Hypothesis Verification

The first hypothesis, which was formulated for the derived question 1, states that there are several applications in the market in order to help refugees. The veracity of this hypothesis is confirmed. As we discovered, there are hundreds of apps and platforms in the market for this purpose.

The second hypothesis refers to the purposes of these applications by referring that they are used to help find work, accommodation, learn a new language, etc. This hypothesis is completely confirmed. Most platforms to support refugees are related to document verification, translation, general information, instant messaging, GPS, housing, family reunion, asylum procedures, accessing news, education, shopping and social encounters.

Lastly, the third hypothesis states that refugees use the applications developed with the purpose to help them. This hypothesis was refuted, since we cannot confirm its veracity. From the conducted interviews, we discovered that most refugees do not know or use the studied apps. Refugees mainly use other popular apps such as Facebook, Instagram and WhatsApp.

5.2. Answering the Questions

We concluded that the purpose of the present investigation has been reached, that a response has been formulated to the general question, that each specific objective has been met and that the derived questions have been answered.

Regarding the main question, it is possible to state that ICT has a positive impact on refugees' integration in Europe since these provide a great amount of resources to refugees settling in Europe. Consequently, we managed to achieve the main purpose since we understood that ICT has a positive impact in the integration of refugees in Europe, in spite of some technologies, such as apps, being unnecessary.

Moreover, we present the answers to each derived question below:

DQ1: Which smartphone applications and platforms are currently in the market targeted to refugees? Presently, there are hundreds of applications and platforms in the market with the purpose of supporting refugees' integration in European countries.

We emphasized five which were considered to be the ones with more downloads or recognition by the conducted research. These are Ankommen, Refunite, InfoAid, Refugees Welcome and Love Europe.

DQ2: What are their purposes? The above-mentioned apps purposes include providing general information about a country, reuniting families, and finding accommodation. Besides this, other apps built for refugees have purposes such as document verification, translation, instant messaging, GPS, asylum procedures, access news, education, shopping and social encounters.

DQ3: Do refugees use them? No. We believe that refugees do not use the apps created specifically to support them in European countries. They tend to use other well-known platforms such as Facebook, Instagram or WhatsApp. This may be because they feel less excluded from society when using applications that other people, and not only refugees, use every day. Besides this, the apps created for refugees may not satisfy their needs. We believe that it is possible that entities which created these apps did not do direct research among refugees to understand their needs. Instead, many entities responded to a humanitarian impulse and focused on creating something to help, but forgot to ask refugees what could be useful for them.

5.3. Recommendations

We believe that we can make recommendations for two key audiences: people that work in the field of ICT and academics in relation to their future studies.

First, we think that organizations which have already built apps to support refugees should improve their marketing plans, conduct research with refugees in order to understand if their needs are being fulfilled by their apps, and work closely with International and National Organizations for the same purpose and to provide better and more trustable support. We considered the existing applications to be very useful for refugees. However, most of them did not know any of the applications mentioned in this dissertation.

It is our belief that people and organizations who work in the field of new technologies and want to support refugees' integration should not build more apps. We think that the market is saturated and that there are other ways which, nowadays, would be more useful for the integration of refugees in Europe. For instance, we believe that it is more important to provide refugees with technological devices such as smartphones, computers or others, and to assist them with phone credit in order for them to make phone calls and access the internet.

To conclude, this study intended to understand if refugees use the applications and platforms created for supporting their integration in Europe. As we stated before, it is our belief that some of these specific applications are useful since they meet the domains of integration presented by Ager & Strang (2008), however, refugees do not know that they exist. Therefore, we think that in future studies, it is important to develop a Marketing plan for these, in order to make them known to a broader number of refugees.

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ANNEX

I: Characteristics of Apps for Refugees.

App Name	Developers	Downloads	Field	Supported Languages	Countries covered	Rating
Ankommen	Bayerischer Rundfunk	100,000 - 500,000	Information	English French German Arabic	Germany	4.5/5
Refunite	Refunite (nonprofit tech organization)	Not applicable	Family	English French Arabic Bengali Spanish Hindi Indonesian Japanese Panjabi Portuguese Russian Urdu Filipino	Non applicable	Non applicable
InfoAid	Migration Aid International and volunteers	5,000 - 10,000	Information	English Arabic Farsi Greek Pashto Urdu	Turkey Greece Macedonia Croatia Hungary Bulgaria Serbia Slovenia	4.6/5
Love Europe	Agape Europe	5,000 - 10,000	Information	Turkish Italian French Tamil Greek German Spanish Arabic Portuguese Somali Maltese Tigrinya Farsi English	Germany Netherlands Switzerland France It will also be available in: Greece Austria Sweden UK Malta	4.5/5
Refugees Welcome	Mensch Mensch Mensch e.V.	Not applicable	Housing	English German Greek Portuguese Spanish Swedish Polish Italian Czech Romanian	Germany Austria Greece Portugal Spain Sweden Netherlands Poland Italy Canada Czech Republic Romania Ireland Australia	Non applicable

Source: Self-developed on 26-03-2018.

II: Refugees' Interview Structure

'Dear,

My name is Sara Costa, I am a student at ISCTE-IUL and I am developing a Master Thesis about the integration of refugees in a new country and their use of smartphone apps. Your help will be precious for this paper and the collected data will only be used for academic purposes. Thank you.

1. Before being a refugee, did you often use a mobile phone with internet?
2. How many smartphones/mobile phones do you have?
3. How often do you change your phone?
4. Who do you usually contact during the day?
5. Do you think that new technologies are important to a refugee? Why?
6. Do you believe that a smartphone is helpful for the integration of refugees in the receiving country? In which way?
7. Are you familiar with any of these smartphone apps/ web based platforms? (If no, skip to question 11)
 - Ankommen (for refugees in Germany)
 - Refunite
 - InfoAid
 - Refugees Welcome
 - Love Europe
8. Do you use any of those apps?

9. If yes, in which ways were they helpful?

10. What do you think about these and other smartphone apps created for refugees that could be improved?

11. Do you use other apps such as Facebook, Twitter, WhatsApp, Instagram or others? If yes, which ones and what do you use them for?

12. If you could create an app for refugees, what would you do? Or what would you improve about the existing ones?

13. How do you feel about the smartphone prices in the country you are living in?

14. What do you think about the prices of phone calls and internet?

Age:

Sex:

Country of Origin:

Country of resettlement:

Period of time in the country of resettlement:

Education:?

III: Privileged Informants' Interview Structure

1. Do you think refugees are being able to integrate in European countries?
2. What was your motivation to create or work in the field of technologies for refugees?
(If applicable)
3. In which way do you think that your company's technology is being helpful for the integration of refugees? (If applicable)
4. Do you think that new technologies are important to a refugee? Why?
5. Do you believe that a smartphone is helpful for the integration of refugees in the receiving country? In which way?
6. How do you feel about the refugees' accessibility to smartphones?
7. What is your opinion regarding the prices of phone calls and the internet in general, in Europe?
8. Are you familiar with any of these smartphone apps/ web based platforms? (If no, skip to question 10)
 - Ankommen
 - Refunite
 - InfoAid
 - Refugees Welcome
 - Love Europe
9. Do you think these apps are useful for refugees that want to integrate in Europe? In which way?
10. What do you think about the existing smartphone apps created for refugees and how they could be improved?

11. Do you consider apps such as Facebook, Twitter, WhatsApp, Instagram or others, to be useful? Why?

12. What could be done in the field of new technologies in order to ease the integration of refugees in Europe?

Name:

Company/Organization:

Role in the company/organization:

IV: Socio Demographic Characterization of the interviewed Refugees.

	AGE	SEX	COUNTRY OF ORIGIN	COUNTRY OF RESETTLEMENT AND PERIOD OF TIME	EDUCATION
AS	26	Male	Afghanistan	France, 5 months	High School
AO	27	Male	Syria	United Kingdom, 2 years	Bachelor
JJ	18	Male	Iraq	Germany, 6 months	High School
MR	28	Male	Syria	Portugal, 1 year	Bachelor
MA	25	Male	Syria	Germany, 2 years	Bachelor
OR	35	Male	Palestine	Portugal, 3 years	Master
SA	34	Female	Syria	Denmark, 2 years	Bachelor
SM	18	Male	Iraq	The Netherlands, 5 months	High School
AM	27	Male	Iraq	Portugal, 1 year	Bachelor
SS	25	Female	Palestine	Portugal, 1 year and 4 months	Bachelor
KA	35	Male	Iraq	Spain, 7 months	Bachelor
FS	21	Male	Afghanistan	Belgium, 1 year	High School

Source: Self-developed on 02-04-2018.

V: Refugees' use of smartphones.

	PHONE AND INTERNET BEFORE BEING A REFUGEE	CURRENT NUMBER OF PHONES	CHANGE OF PHONE	OF DAILY CONTACTS
AS	Yes	1	When it is needed	Friends and family
AO	Yes	1	Approximately every two and a half years	Friends and family
JJ	A phone without internet.	1	When it is needed	Friends and family
MR	Yes	1	When a new iPhone comes out	Friends, family, teachers
MA	Yes	1	Every year	Friends and family
OR	Born as a refugee.	1	When it is needed	Friends and family
SA	Yes	1	When it is needed. Approximately 3 years	Friends, family, teachers, companies, health services
SM	Yes	1	When it is needed	Friends and family
AM	Yes	1	When it is needed	Friends, family, old colleagues
SS	Yes	1	Each 2 years	Friends, family, services
KA	Yes	1	When it is needed. Approximately 7 months	Friends, family, social workers
FS	Yes	1	When it is needed. Approximately 1 year	Family, friends

Source: Self-developed on 02-04-2018.

VI: Refugees' use of Applications.

	FAMILIARITY WITH ANY OF THE 5 APPS/PLATFORMS IN STUDY	OTHER APPS/PLATFORMS	OTHER APPS/PLATFORMS USAGE PURPOSE
AS	Heard of Refugees Welcome but doesn't know the purpose	Facebook; Instagram; YouTube; Google Translator; Google Maps	Family; Social; Entertainment; Translation; News; Education; Information
AO	No	Facebook; Twitter; WhatsApp; Instagram; YouTube; Couchsurfing; Snapchat, Google+; LinkedIn	Family; Social; Entertainment; Translation; Shopping; Job searching; News; Information
JJ	No	Facebook; Instagram; YouTube; Snapchat	Family; Social; Information
MR	Yes, Refugees Welcome but never used it	Facebook; Instagram; YouTube; Olx;	Family; Social; Education; Entertainment; Shopping; News; Information
MA	No	Facebook; WhatsApp; Instagram	Family; Social; Entertainment; News; Information
OR	Yes, already used Refugees Welcome	Facebook; Twitter; WhatsApp; Instagram; IMO; Couchsurfing; Meetup; LinkedIn	Family; Social; Entertainment; Job searching; News; Information
SA	No	Facebook; WhatsApp; Instagram;	Family; Social; Entertainment; Information; Information
SM	No	Facebook; Instagram; YouTube; Snapchat	Family; Social; Information
AM	Yes, Refugees Welcome but never used it	Facebook; Twitter; WhatsApp; Instagram; Badoo; WeChat	Family; Social; Job Searching; Information
SS	Yes, Refugees Welcome but never used it	Facebook; Twitter; WhatsApp; Instagram; Snapchat; Amazon; Alibaba; Wish	Family; Social; Shopping; Job Searching; Information
KA	Yes, Refugees Welcome but never used it	Facebook; Twitter; WhatsApp; YouTube; Signal; Meetup; Life360; Coursera; Memrise; Duolingo	Family; Social; Entertainment; Education; News; Information
FS	No	Facebook; Twitter; WhatsApp; Instagram	Family; Social; Information; Volunteer Work

Source: Self-developed on 03-04-2018.

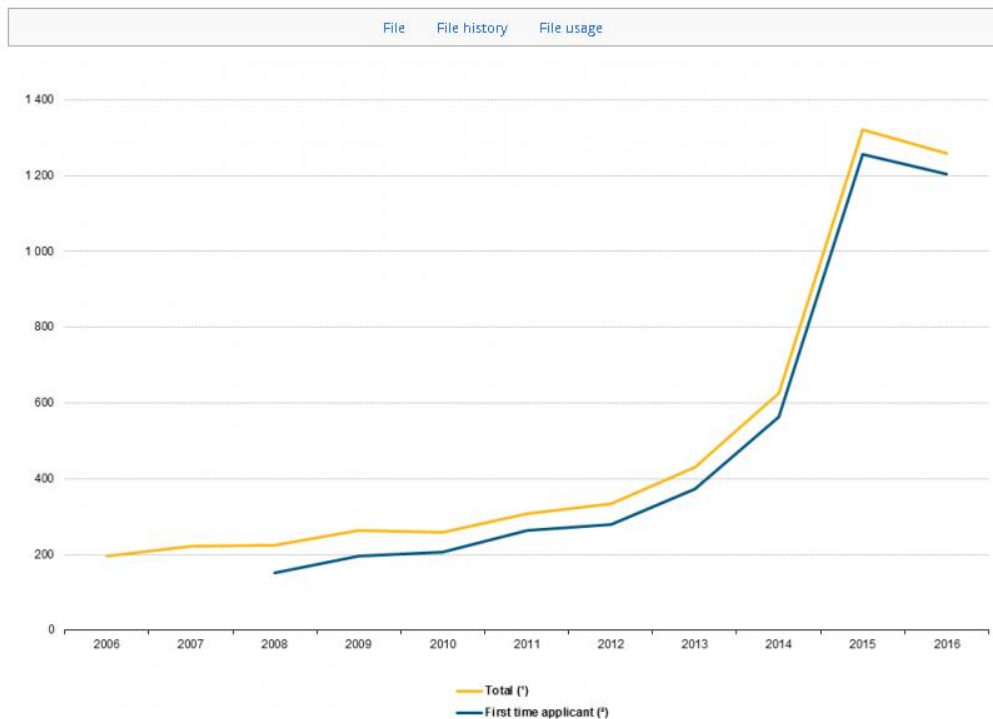
APPENDIX

I: Broad level categories for ICT products.

Broad level categories	Number of CPC subclasses (products)
Computers and peripheral equipment	19
Communication equipment	8
Consumer electronic equipment	11
Miscellaneous ICT components and goods	14
Manufacturing services for ICT equipment	5
Business and productivity software and licensing services	11
Information technology consultancy and services	10
Telecommunications services	12
Leasing or rental services for ICT equipment	3
Other ICT services	6
Total	99

Source: OECD, 2011.

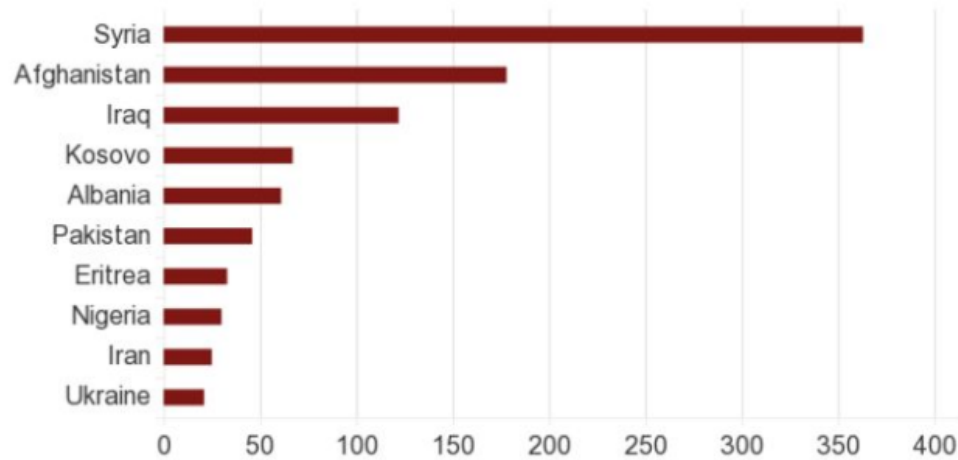
II: Asylum applications in the EU 2006-2016.



Source: Eurostat, 2017.

III: Top 10 origins of people applying for asylum in the EU.

First-time applications in 2015, in thousands



Source: Eurostat

Source: BBC, 2016.

IV: First time asylum applicants, 2016-2017.

File File history File usage																				
	Q3 2016			Q4 2016			Q1 2017			Q2 2017			Q3 2017			Q3 2017	Change in %		Applicants per million population (¹)	Last 12 months
	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.		between Q2 2017 and Q3 2017	between Q3 2016 and Q3 2017		
EU-28	114 545	133 285	118 900	78 160	70 265	58 945	54 655	52 335	59 500	44 790	52 500	51 535	54 090	56 110	54 135	164 340	10	-55	321	687 045
Belgium	1 035	1 250	1 100	1 290	1 170	1 155	1 150	1 080	1 210	1 080	1 080	1 045	1 170	1 240	1 315	3 725	16	10	328	13 995
Bulgaria	1 505	2 790	2 065	2 550	1 730	795	375	355	505	200	255	230	215	305	365	885	29	-86	124	7 800
Czech Republic	85	80	115	120	80	75	110	90	95	70	110	90	105	85	95	285	4	-2	27	1 130
Denmark	395	285	295	340	275	255	220	205	245	235	260	285	300	300	310	915	14	-7	159	3 200
Germany	76 540	92 105	76 500	32 385	25 890	18 965	16 055	14 950	18 075	13 335	15 095	13 680	15 000	16 630	14 565	46 195	10	-81	558	214 620
Estonia	10	10	20	20	25	5	25	15	20	30	20	20	10	15	10	35	-51	-15	25	200
Ireland	160	195	220	185	225	260	165	225	215	170	295	210	175	215	335	730	8	28	152	2 675
Greece	3 940	3 450	5 040	6 160	7 470	6 615	6 260	5 525	4 755	2 610	3 905	4 040	3 960	4 905	5 755	14 640	39	18	1 361	61 960
Spain	1 005	1 220	1 305	1 795	1 905	1 555	2 080	2 270	2 365	1 940	2 725	2 350	2 690	3 190	2 830	8 710	24	147	187	27 605
France	6 075	7 120	6 910	6 980	6 150	7 080	7 000	6 975	7 985	7 155	7 210	6 825	7 685	7 555	6 965	22 195	5	10	331	85 560
Croatia	90	230	340	395	260	175	45	45	55	65	70	65	110	110	60	280	40	-59	68	1 455
Italy	10 870	11 290	12 295	13 315	13 435	11 020	11 570	11 820	13 510	9 405	11 840	12 805	12 050	10 670	10 390	32 505	-5	-5	537	141 330
Cyprus	225	215	265	340	405	250	255	355	505	215	250	265	440	275	635	1 350	84	92	1 577	4 180
Latvia	25	30	25	55	60	30	55	45	55	50	20	35	15	20	20	55	-48	-29	29	460
Lithuania	35	65	40	100	50	15	60	10	30	70	40	60	85	35	20	140	-17	-1	50	570
Luxembourg	120	195	195	275	165	200	230	225	225	195	195	145	160	180	190	535	2	5	904	2 375
Hungary	1 750	1 260	1 055	1 155	675	580	460	355	265	190	235	225	225	265	225	720	10	-82	73	4 860
Malta	130	175	165	220	145	110	120	105	160	105	170	140	175	120	125	425	3	-11	960	1 690
Netherlands	1 530	1 755	1 875	2 035	1 920	1 540	1 245	1 160	1 220	1 025	1 155	1 225	1 395	1 440	1 385	4 215	24	-18	247	16 735
Austria	2 945	3 110	2 470	2 455	2 190	2 230	2 030	1 845	1 935	1 750	1 910	1 825	1 990	2 295	1 820	6 105	11	-28	696	24 280
Poland	1 045	765	620	395	390	395	345	300	320	270	210	255	395	225	195	820	12	-66	22	3 695
Portugal	70	60	70	80	65	60	65	70	115	75	80	105	70	60	100	235	-10	16	23	945
Romania	115	140	190	415	275	290	90	125	410	640	405	280	410	750	685	1 845	39	315	94	4 780
Slovenia	35	120	110	85	185	130	30	30	130	80	190	150	120	145	150	415	4	57	200	1 405
Slovakia	0	20	15	5	20	15	25	20	15	0	10	15	5	10	10	20	-19	-42	4	140
Finland	335	460	470	310	275	270	235	355	425	400	425	420	440	430	270	1 140	-8	-10	207	4 255
Sweden	1 525	1 700	1 790	1 880	1 720	1 570	1 545	1 305	1 525	1 250	1 415	2 020	1 980	2 550	2 490	7 015	50	40	702	21 245
Switzerland	2 360	2 310	2 085	2 920	3 140	3 320	2 815	2 470	3 140	2 195	2 810	2 715	2 680	2 700	2 835	8 215	6	-13	125	33 735
Iceland	40	65	175	200	255	105	65	70	80	60	80	125	125	150	105	380	42	35	1 120	1 420
Liechtenstein	10	0	10	10	5	10	25	25	15	10	10	15	10	10	0	20	-45	-14	476	140
Norway	255	290	260	255	225	410	465	305	395	340	405	340	255	230	165	650	-40	-19	124	3 790
Switzerland	2 360	2 310	2 085	2 920	3 140	3 320	2 815	2 470	3 140	2 195	2 810	2 715	2 680	2 700	2 835	4 400	7	-35	523	18 365

(¹) Relative to population as of 1st of January 2017

Source: Eurostat, 2017.