

# Using ANT Perspectives to understand the role of technology in migration practices

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“Of is ons heimelijk bewust dat wij het essentiële, dat wij begeren, nooit zullen zien? Op het vertrek komt het aan, op de steeds hernieuwde poging, het opbreken, het zich niet gewonnen geven.”

***F.C. Terborgh***

“Or are we secretly aware that we shall never see the thing we desire most? It is the departure that matters, with every renewed attempt, to take leave, without surrender.”

***F.C. Terborgh***

## **ABSTRACT**

Studies of the migration-technology relationship and the shaping of the border are often concerned with either the role of hi-tech and the state, or communication technologies in relation to social-migration networks. Moreover, these theories often frame the migration-technology relationship in an overly technical or social constructivist way. This thesis aims to discuss how science and technology studies (STS) and empirical fieldwork might be used to inform migration studies and its dominant approaches to the technology-migration relationship. The main question is what can we tell about the migration-technology relationship in the current Greek experience on migration by using ANT as prism?

**Keywords:** Migration – Borders - Actor-network theory –European digital borders – Surveillance society - Low technology – Acts of Resistance

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Daphne Delsing, Maastricht, August 2018

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## **Chapter 1 – Introduction**

“To be a successful migrant you need to know the law. You need to be resourceful. You need a smartphone and to be on Facebook and WhatsApp. You need some money. Ideally you know a bit of English. And in my case you need a sister to push your wheelchair.”

- Nujeen - Europe, August-September 2015

During the time of writing this thesis the crisis of migration in Europe is still going strong. The European Refugee crisis is a tragic event that is caused by the emergence of conflict from North Africa and the Middle East. The crisis dates back to 2011, with the start of the Syrian civil war, which has led to mass devastation and a trail of destruction in the region. Europe started to notice its effects and consequences by 2015, when almost 400000 people tried to save their lives by taking dangerous routes to Europe (Popescu, 2016, p. 105). European countries are still trying to regulate the influx of migrants, by adjusting their policies and using more high-tech in order to be better able to distinguish (and select) between different groups of migrants. Migrants, however, are using more and more refined tactics to circumvent the strict border control measures, often with help of technologies.

The last decade there has been considerable interest in the relationship between surveillance technologies and border practices (Amoore, 2006; Broeders; 2007 ;). The need to know more about the relationship between policy and migration coincides with both the interweaving of migration, integration and security policy domains and the rapid pace of technological developments and the way these technologies have transformed the EU borders. Another factor that plays a role in the existing frameworks on migration-technology is the use of Internet and the enhanced connectivity. The re-bordering and European border management paradigm puts much emphasis on the role of surveillance

technology in the re-bordering of Europe. According to this paradigm, the border with its re-emergence of high fences, walls and advanced technologies has a serious disabling effect on migrants. There is however, with respect to the migration-technology relationship also another narrative to tell. That is a narrative that focuses on the enabling dimension of communication technologies for the migrant. This body of scholarly works (see for example Zijlstra & Van Liempt, 2017) examines how communication technologies, such as mobile phones, change the dynamics of border practices. Where the one body of literature places the emphasis on the state and its technologies, this body of literature contributes to the debate by presenting the migrant-technology relationship.

### *1.2 Research objectives & research question*

Acknowledging that migration and border practices can be explained to some extent by the involved technologies, I am trying to find insights on the role of humans and non-humans in the migration-technology relationship by using STS, and more specific Actor-Network Theory as theoretical framework. The aim is to provide a new way of looking at the migration-technology relationship, which finds itself in between contesting dominant views on migration-technology. However, it must be noted that it is obviously beyond the scope of this thesis to propose a whole new method. This thesis can be seen as one of the first steps in gaining more insight on the migration-technology relationship by using ANT *and* empirical research through questionnaires. Although several scholars (Dijstelbloem, 2012; Galiz, Tzokas & Tympas, 2016) already took insights from ANT literature to advance their ideas on the migration-technology relationship, these accounts often lack the observations that are needed to test, adjust and strengthen their hypothesis. Therefore, I have formulated the following research question:

*What can we tell about the migration-technology relationship in the current Greek experience on migration by using ANT as prism?*

This question is bounded to a particular time and space, and therefore I am not going to make generalizations. Although I do believe that in answering this question also some inherent characteristics of technology will be exposed. In order to find an answer to the question I formulated the following supporting research questions:

- Is technology taken into account in Migration Studies (and migration-related Border Studies)?
- Can (and how?) STS contribute to understanding the migration-technology relationship?
- What can we learn about the migration-technology relationship through research on the Greek experience with migration (a country standing at the frontier of the migration issue)? More specifically, what can we learn through a first attempt at adding questions on the technology-migration relationship in questionnaire research on the Greek experience with migration?

In order to find an answer to these questions I will review works of migration studies and migration orientated border studies and show the dominant ideas and its critics in order to come up with an alternative conceptual reasoning for the migration-technology relationship. Many studies on the changing nature, or securitization, of the EU's border regime are rooted in normative and critical stance. They are often taking a political perspective by criticizing the political workings of certain technologies and stating how they *should* operate. Dijkstra & Meijer (2011), who have edited a book on migration technologies and its connection to EU policy thereby using insights of ANT, are concluding that EU technologies and the way these are used to control border crossing practises are resulting in a machine-like force that is getting harder and



harder to control. Many studies, however, are not considering the socio-material basis of the constitution and working of the border. They treat the working of these technologies as black boxes by using a top-down perspective while basing themselves on simplified 'truths' or 'concepts' without really questioning its internal dynamics (Bossong & Carrapico, 2016, p. 9). Moreover, the study draws on an empirical research of migration practices in Greece. Altogether, 48 questionnaires with both open and closed questions have been carried out by students of the National and Kapodistrian University of Athens.

### *1.3. Scientific relevance*

An exploration of the analysis of migration-technology relationship through Actor-Network Theory might contribute to current debates in migration and migration related border studies as it sidesteps the framing of technology in an epochal way, can be placed in between technological and determinist point of views, as it understands technology as neither pure instrumental for social ends nor as an autonomous driving force for social practice. Moreover it reflects and expands on the recent turn to materiality by focusing on 'thing'. Last but not least, it contests the EU centred view, by taking into account the migrants narrative and it challenges the normative pitch of many critical studies.

### *1.4 Societal relevance*

So why do I think it is important to do more research on migration and then in particular the migration-technology relationship? We are experiencing, as the European refugee crisis shows, an increasing rate of 'undocumented' or 'irregular' migrants, whose classification is a product of structural forces instead of a given by nature (King, 2012, p. 6). Technology plays, as we shall see an important role in this. This thesis is dedicated to provide a further understanding on the use of technology in border and migration practices and the importance of discussing these

technologies in the public, political and academic debate. Moreover, this thesis tries to point out that both surveillance technologies and low technologies are both important objects of study because they both have the ability to transform important concepts such as 'border' and 'citizenship'. Therefore, the use of *all* kinds of technologies should critically be examined.

### *1.6. Structure of the thesis*

This section provides an overview of the path that will be followed in order to answer the research question as formulated in section 1.2. In the next chapter I will present the methodology of this thesis. I will first illustrate how I used ANT in order to shed light on the migration-technology relationship. Furthermore I will show how I collected and analyzed the empirical data, I will reflect on the limitations and justifications of this research and I will discuss some ethical concerns of this thesis.

Chapter 3 serves as an introduction to migration studies, in which I will provide an overview of important concepts/debates/works on the migration-technology relationship. The main purpose of this chapter is to identify some current gaps in the debate on migration-technology. These gaps will constitute the point of departure for analysis.

Chapter 4 forms the theoretical basis of this thesis. In this chapter the field of science and technology studies and actor-network theory will be explained, where after I will argue why STS can contribute to the debate as outlined in chapter 3. ANT takes into account the whole socio-material configuration and is not meant to be used in order to put forward a normative or critical stance, and might therefore add to the discussion on the role of technology in border practices.

Chapter 5 forms the empirical part of my thesis. The aim of this chapter is to give some preliminary insights on the migration-technology relationship through research on the Greek experience with migration by reviewing the answers of the questionnaires. This part can be seen as the first step in the empirical research, and is thus also included in this thesis

in order to critically reflect on the possibilities and limitations of adding questions on the migration-technology relationship in the questionnaires.

Chapter 6 can be seen of a synthesis of all the previous chapters. In this chapter I will explain what we have learned by looking at the Greek experience with migration through the lens of ANT.

In the final chapter the results of this thesis will be summarized. An attempt has been made to present a new angle to the migration-technology relationship by bridging divides such as low-tech versus high-tech, materiality versus culture, state versus migrant.

## **Chapter 2 – Methodology**

This section will cover the methods used in the research of this thesis. I have been embarked on this research during my stay in Athens (Greece), from February until July of 2017. Whilst in Athens I was informed about the Creative Europe EU project RISKchange.eu and offered the chance to participate. Using insights from the field of science and technology studies, I helped shaping the questionnaires within the context of the research project on migration and tailored it to fit the science and technology framework. During several meetings, I helped training the students on how to collect and submit the material. Apart from this, I was also responsible for the analysis of the results from an STS perspective. In the next section, I will first explain why I used actor-network theory to frame the use of border technologies. Subsequently; I will explain how I used ANT to reveal the border constitution dynamics. After that, I will explain how I have analyzed the questionnaires and explain how they have contributed to my research. In the last section of chapter three, I will discuss some of the ethical concerns and elaborate on the limitations of this research and pose some suggestions for further research on this topic.

### **2.1 ANT & Migration practices**

In this section I will explain why I applied concepts of Actor-Network Theory to the case of the enabling/disabling dimensions of border practices. As we will see later on, many studies on migration and the border are focusing on the broad picture while the specificities of the situation remain 'black-boxed'. By using the inductive approach of ANT, a deeper understanding of specific phenomena can be reached, thus giving substance to the macro levels of the debate.

ANT has an outlook on society-technology that lives up to the complexity of border practices and the migration-technology relationship. ANT helps resolve the dichotomy between technological determinism/social constructivism. Whereas technological determinism

rests on the notion that it is technology that drives history, social constructivism builds on the assumption that the social (or 'the human', is the driving force). The idea of ANT that sociotechnical systems are developed through interaction between human and non-human actors can be placed somewhere in the middle between these two theories.

Furthermore, ANT sees the world -because of the importance of associations between actors- as a network thus challenging the monolithic border apparatus that is a common way of thinking about migration & the border (see Hess, 2016). Instead of the idea that there is one powerful force and a victim, power is not as much something you have but something that occurs through the associations within the actor-network. By using ANT, the monolithic border apparatus is deconstructed and a new understanding emerging, pointing to actors, knowledge, technology, artifacts, practices and so on. This makes the approach suitable for the aim of this thesis, which is to show the importance of both 'high' and 'low' technologies and migrants in the shaping of the borders. Specifically, the goal has been to show the (establishment of) associations between all these actors. For doing so, I used the concept of 'translation' as described by Callon (1986a). Secondly, I aimed to show how power is distributed across the network and how these power relations might change as one can see happening during some successful acts of resistance. To do this, I studied an example of an act of resistance in order to show how the network got destabilized. The ANT idea that these micro-level practices can alter aspects of the whole society can fruitfully be used to show that the whole socio-materiality needs to be taken into account in order to examine the role of technology in border practices.

## **2.2 Data collection**

In this section I will describe how I have collected and used the data that I retrieved through the study of literature and the analysis of the questionnaires.

### 2.2.1 Deskwork

A part of my research is a keyword-led search through the Internet, the Catalogue of Maastricht University and databases of journals and books on migration, border crossing practices and technology. Furthermore, I used Google to get an impression of the public debate and for retrieving non-academic information. A main part of my desk research has been the study of the book *Migration and the new technological border of Europe* of Dijstelbloem (2011) and the more recent publication *EU Borders and Shifting Internal Security* of Bossong & Carrapico (2016). Some examples of search words I used to find literature on borders, migration and policy are: 'border-technology' 'surveillance' 'e-border'. Concerning Actor-Network Theory, I mainly drew from texts of Callon in which ANT and its process of translation is explained and illustrated with the case study of the 'Domestication of the Scallops and the Fisherman of St. Brieux Bay' and 'The case of the 'Electric Vehicle'.

### 2.2.2 Questionnaires

Inspired by the idea that migration could be the driving force in the constitution of the border, I chose refugees and/or the involved technologies as actants. In the first stage of my research, the actant had to be heard. For this reason, students of the advisor of this thesis (Tympas) conducted questionnaires in order to gain an understanding of the world of the migrant in relation to technology. The reason for the emphasis on technology and migration was that this part of the actor-network world was barely explored in previous studies. Because I was doing my research whilst being in Athens, all respondents were interviewed in Greece. I figured that this could actually contribute to my research, as Greece is one of the 'border' countries where many refugees first arrive while entering the EU-zone. In order to gain as much information as possible about the encountered technologies, I decided to let the students – after training them – do the fieldwork. I kept closely in touch with them during the fieldwork phase and answered their questions

regarding the questionnaires. I instructed them to write down the interesting stories they were obviously going to hear – as they were all extremely important to the research. In the end, the students managed to approach 48 people. For the questionnaires a timeframe of 20-25 minutes was given. Initially the questionnaires were not meant to be completely anonymous, however some of the respondents (mainly refugees) were afraid that their responses might influence the asylum process, and therefore we decided to just gather information such as age, education and position towards migration.

Based on the ANT approach, I helped formulating 9 special questions with respect to technology/and technical knowledge. Some of them are open, but most of them are closed. The part on technology is divided in two categories of questions, that is one on the use of technologies during the border crossing and the technologies they confronted, and another category of questions that looks deeper at the technical skills and knowledge the migrants and refugees already had before moving across the borders. The method The questionnaires did play an important role in mapping the actor-network world of the chosen actant. By doing this research, I did eventually experience the limitations of using questionnaires. Although it did give a lot of insight in the encountered technologies and the knowledge the migrants brought themselves, it would probably have been better to conduct semi-structured interviews as in the fixed questionnaires some presumptions had already been made, which set some limits to the research.

### **2.3 Ethical concerns**

In this section I want to discuss the ethical considerations of my research and more specifically of the way we conducted the questionnaires. This is an important matter because migrants and refugees are a vulnerable group that should not be subjected to harm in any way whatsoever. At first, we did ask for the names of the migrants and refugees, but they were hesitant. For me, full consent in participating in the project is very

important, and for that reason, and to make sure that the position of the migrants would not be endangered, we (the RISK CHANGE research team) decided to not register the names. Not even for research purposes. In the project description that came with the questionnaires, we did not make any exaggerations about the aims and objectives of the research or made any promises about the outcome of the research.

Furthermore, looking at migration through the lens of Actor-Network Theory is in itself a delicate task. One of the criticisms of Actor-Network theory is that the theory is 'amoral', by which is meant that it shies away from moral and political positions. From my perspective, it is however necessary to –before taking stance – first find out more about the underlying dynamics. I want to stress that I do acknowledge the suffering of the involved actor and I am convinced that some border practices are just brutal. My hopes are, however that a description of this particular actor-network might provide a basis for the strengthening of moral and political decisions. Moreover, I want to move beyond the dystopian view on migration technologies, not in order to neglect the suffering, but instead to find out more about the possibility of change. Within this context I do think that we must give the following idea of Hess (2016) some thought: “[This representational regime] not only calls for humanitarian responses, but it establishes a hierarchical neo-colonial matrix of the helping (and gazing) subject and the suffering and (looked at) object (p. 92).” Seeing migration as an active force does give way to new (empowering) perspectives.

## **2.4 Limitations and Justification of the Research**

In this section, I will briefly explain the limitations of my research and how I have dealt with them.

A first limitation to the research is that my analysis of Actor-Network Theory does not point out alternative trajectories to the dialectics of modernity. Actor-network theory becomes, because of its own methodological rules, quite descriptive. It fails to explain what the social



is, or how it is conceived, because of its emphasis on case studies and empirical observations. Following the remedy proposed by Cressman, I emphasized the concept of Translation, in order to reach a more interpretative approach to the questionnaires.

A second limitation has been that only questionnaires have been held, and there was no more time to follow the next steps of grounded theory, for example by doing semi-structured interviews. The advantage of semi-structured interviews is that you gather a lot more information and have more opportunities to test your ideas and assumptions. Moreover, the use of semi-structured interviews could have led to a broader picture of the actor-world, as it now might be the case that some interesting elements are missing. However, I do feel that, despite the obvious limitations of the questionnaires, it did give a good image of the technologies that have been encountered and the (technical) skills they brought themselves. By using the questionnaires, I was able to analyze more data than I could have done alone. I have furthermore repeatedly emphasized that the aim of this research is not so much done to arrive at a conclusion, but rather a set of ideas that gives way to a further exploration by using grounded theory.

Another limitation of this thesis is related to the use of Grounded Theory for analyzing the empirical data of the questionnaires. The search for general patterns can easily lead to an reductive approach.

## **Chapter 3 - An introduction to Migration & Borders**

### **3.1 An introduction**

Transnational migration is a defining feature of the twenty-first century. It is a subject that has far reaching consequences for the understanding of globality and new social dynamics in our society. It has become a key issues in both the political and public debate and has drawn the attention of scholars in many fields and academic disciplines, such as politicology, sociology and anthropology (Wang, 2016, p. 1). Earlier scholarship celebrated the mobility and flexibility of flows of people, goods, capital, technologies and information. In these studies the world was described as being borderless, with the decline of nation-states and hybrid identities, as people live simultaneously in different countries and cultures (Wang, 2016, p 1). Recent academic literature has witnessed a conceptual shift away from this ideal of mobility and came up with more nuanced conceptualizations of migration, the border and movements. Scholars have, for example, begun with drawing attention to issues of inequality in opportunities for migrants, the division of power and the use of high-tech in border practices. Research on the relationship between migration and technology is also a relative recent area of inquiry. The goal of this chapter is to assess the state of scholarly research on the role of technology in migration practices. I begin, after the conceptual part, with the review of a few factors that have influenced the increased attention towards the materiality of migration. I discuss different developments on both the domain of policy and technological developments. After that, I will turn to a discussion of different frameworks on the technology-migration relationship. Next I will review a number of empirical studies on the migration-technology relationship and show what they contribute to the field of Migration Studies and whether there are unexplored territories in all these studies.

### **3.2 What is migration?**

I will start my literature review with a question, namely 'what is migration?' In the public, political and scholarly debates on migration, borders and technology it seems as if it is not always clear what the difference between migrants, refugees and irregular migrants is. Nor does it seem as if the complexity of this concept is fully acknowledged. Usually the definition of "someone living outside their own country for a year or more" is used (Koser, 2007, p.16). However, in reality, a migrant covers a wide range of people in different situations. Other problems that arise with this definition is that it is usually not so easy to determine how long a migrant has been abroad and the fact that it is often unclear when a migrant stops being a migrant, although this too should be defined. Moreover, the common understanding of migration and the border is generally conceptualized in top-down mode, making the monolithic apparatus equally important in the conceptualization of migration (Hess, p. 91). It should be clear that migration is too diverse and multifaceted to capture its dynamics in a single theory. The common framework in migration studies is the push-and-pull model or push-and-closure model, with Lee (1966) as main proponent. According to Hess (2017) this understanding of migration is associated with the following image:

"[O]n the one side, there is a more or less strong and monolithic apparatus and a will to stop, to hinder, to exclude, and to suppress migration and/or to exploit it. On the other side, there are victims, either people who followed the call of capital and find themselves cheated and trapped in exploitation..."

(Hess, 2017, pp. 91-92).

Push-pull theory is strongly influenced by neoclassical thinking, as it understands migration dynamics as consisting of factors that can have either a 'pulling' or a 'pushing' effect on the migrant. The driving causes of migration can be forces such as poverty or violence (the pushing factors)

and factors such as economic opportunity (the pulling factors). Push-pull theory has often been successful in explaining trends over a longer period of time (macro-perspective), but has been criticised for not taking into account the socio-cultural factors and political reality of the migrants (King, 2012). Another (additional) explanation of migration dynamics can be found in social/migration network theory. The core of this theory states that there is a network of people in the sender country and previous migrants. These social networks transcend the border and play an important role in migration because they provide social capital that leads to the reduction of costs and risks.

### **3.3 Definitions**

As you can see, 'international migration' is a complex concept that can be viewed and explained in many different ways. Not surprisingly there exists un-clarity about the definition of 'migrant' in the public debate. Terms like economic migrants, refugees, irregular migrants, guest workers are all names used for international migrants. In order to provide some precision and clarity in this thesis I will present in this section the working definitions of this thesis.

For a 'migrant' I will use the following definition as proposed by EMN (2014):

"a person who is outside the territory of the State of which they are nationals or citizens and who has resided in a foreign country for more than one year irrespective of the causes, voluntary or involuntary, and the means, regular or irregular used to migrate"

(EMN 2014)

It is also important to define the term (irregular) migration. So what is irregular migration? Again following EMN (2014), a irregular migrant is defined as:

“A person who, owing to irregular entry, breach of a condition of entry or the expiry of their legal basis for entering and residing, lacks legal status in a transit or host country. In the EU context, a third-country national present on the territory of a Schengen State who does not fulfil, or no longer fulfils, the conditions of entry as set out in the Schengen Borders Code, or other conditions for entry, stay or residence in that Member State”  
(EMN, 2014, p. 172).

When a migrant leaves their country in an irregular fashion this is usually the result of restrictions on the legal movement of these migrants in the country of destination. Irregular migrants are thus entering the country without having the right authority to do so. They might, for example, circumvent border control. It is important to note that there are many reasons why a person can become an irregular migrant. They might use false documents, or they might stay after the expiry of their visa (Koser, 2007, p. 55). In this thesis I will focus on (irregular) migrants that crossed the EU borders whether this be voluntary or forced. The emphasis will thus be on the act of movement across the border instead of on their motives or the desirability of this movement.

### **3.4 Borders, migration and technology**

Research on mobility and (irregular) migration is intricately entwined with borders and bordering, as it raises questions about the constraints and regulations by borders and border practices (Macu, 2015, p. 214). In this section I will briefly discuss current conceptualizations of a space of control: the border. It is important to get an understanding of the debate, as the migration-technology relationship is closely connected to conceptualizations of the border and border practices. After a brief sketch of the two dominant views, I will also draw attention to a distinctive conceptualisation of the border and the involved technologies.

Traditionally, borders have been viewed in military terms, as historically, most wars had to do with the defence or conquest of the country's territory. The idea that borders are geographical demarcation

lines that can be defended or breached is part of the realist theoretical framework in border and migration studies. However, as Andreas (2003) argues, interstate military conflicts have become less prevalent, and military force is barely in the defence of the border. Hence, one could say that the military function of the border has become less important. Instead we see that irregular migrants are the 'new' security threats (Andreas, 2003, p. 82). Since then, two perspectives came to dominate the discussion on the EU borders; namely borderless Europe and after that the re-bordering paradigm, based on the securitization of the border.

The idea of borderless Europe came into being due to globalization: the liberalization of trade would have caused border erosion. However, nowadays a certain consensus is reached among scholars about the idea that borders did not disappear, although they did undergo changes (Brown 2010; Foucher 2007; Walter 2006). It can even be argued that border control has become more intensive, as we see in, among others the rise of law enforcement budgets, the development and use of more sophisticated surveillance and information technologies, more advanced visa's and travel documents and the use of tracking and control mechanism even after passing the border, for example by the use of databases such as EURODAC (2003, p. 79). There are, however, scholars that have moved beyond the arguments from traditional EU studies about the intensification of hard external borders of Europe. Instead it is proposed that the border has become increasingly *networked*, thus reaching deep into the EU territory, as Broeders (2007) proposes. These borders are less visible, but nevertheless very effective in excluding marginalized groups.

### **3.5 Interweaving of migration, integration and security policy**

According to many scholars (including Dijstelbloem 2012; Bossong & Carrapico, 2016) this more intensive border control has to do with recent technological developments as well as with the interweaving of migration, integration and security policy. Especially since 9/11 policy became more

restrictive and selective and tied up with integration policy and security policy domains. The recent developments have led to three interrelated discussions: the (restriction of) influx of migrants, issues surrounding the integration of migrants and issues surrounding security policy, such as border control around Europe (Dijstelbloem, 2012 p. 7). An example of this interweaving of immigration, integration and security policies is that, as part of our integration policy, migrants have to do a civic integration examination in their country before leaving for one of the member states (p. 9). This examination costs the potential migrant a lot of money and effort and is therefore affecting migration policy as well. Not every migrant does have the money or the capabilities to successfully take such an examination. Therefore, this integration method works as a selection mechanism as well.

### **3.6 Different approaches to the migration-technology relationship**

In this section I will present some studies and debates on the technologization of EU's border regime and point out that a strong emphasis is placed in many of these theories on the disabling dimension of these technologies for the migrant. Subsequently, I will briefly look at research that is concerned with the empowerment of migrants.

#### *3.6.1 Re-bordering Europe – a state perspective.*

In recent years, borders and border technologies gained a lot of attention of scholars (see, for example, Amoore 2006; Amoore and de Goede 2008; Dijstelbloem and Meijer 2011; Rumford; 2006; Walters 2008). The literature, mostly coming from the field of critical security studies and critical migration studies, commonly reflects on the transformation of border control techniques, and the border itself, by surveillance technologies, biometrics and information technologies (Broeders & Hampshire, 2013, p. 1202). Often, their critic is a response to the securization of migration policy as described above. Many politicians,

policy makers and institutions depict the globalizing society as a society consisting of both opportunities and threats. In the wording of Tom Ridge, Secretary of Homeland Security,

“as the world community has become more and more connected through the globalization of technology, transportation, commerce and communication, the benefits of globalization available to peace loving, freedom loving people are available to terrorists as well”

(Department of Homeland Security, 2005, p. 1, *in* Amoore, 2006)

According to critical security studies, the techniques of this ‘targeted governance’ made possible by information technologies is not limiting the risk, but is instead ‘embracing the risk’ (Amoore, 2006, p.339). According to Amoore governments are creating risks because of the enactment of dividing practices in which the subjects are deducted to calculable risk factors. While the technologies are presented as neutral implementation instruments, they are in fact used for the identification of ‘risky groups’ (p. 339) Dijstelbloem (2012), with reference to Pickering and Weber (2006), has also argued that technological borders can be seen as an expression of state power. In this case, technology is framed in a certain way. The emphasis lies on the political dimension of the use of these technologies, because the use of border technologies has an immediate effect on inclusion or exclusion of people from the state (p. 5). According to Dijstelbloem, the use of surveillance technologies transforms the European border slowly into technological borders. While the state attempts to make the movement of citizens and aliens more visible, the mechanisms of control are becoming more and more subtle. It can even be argued that technology (that is high-tech) plays such an important role in border control that Europe is transforming into a surveillance area. Dijstelbloem distinguishes clearly between surveillance technologies and



brute force technologies. According to him, these 'migration technologies' are employed during a decision procedure of which the outcome is decisive: the migrant can stay or he/she has to leave *and* consists of all sorts of technologies that are not normally part of the bureaucracy apparatus, such as the x-rays and biometric data. It is this special attention to the body in combination with the interweaving of immigration, integration and security policies that puts migrants in an extremely vulnerable position (Dijstelbloem, p. 7)

Dijstelbloem (2012) and Amoore (2006) are not the only scholar who expresses his concerns about the use of technology in European border control. Whilst reviewing authors that are concerned with the re-bordering of Europe and the use of technology, I noted that many analyses, especially after the outbreak of the European Refugee Crisis' were rooted in normative and critical stance. Many scholars focus on how the EU and its technology *should* operate and point out that the European co-operation on refugee policies and the intergovernmental institutions were insufficient, as they would, for example, slow down the process of integration (Niemann & Speyer, p. 24). From the political critical stance, (state) technology often has a disabling effect on migrants in many different ways.

A big part of the scholarly literature is dedicated to biometric technologies and the readable body. Louise Amoore (2016) argues in a recent article, for instance, that the use of these technologies in border management has to be understood as a form of bio-politics through which "people's everyday lives can be made amenable to intervention and management" (Amoore, 2006, p.337). Another example is the article of Van der Ploeg & Sprenkels (2011). They also analyse biometrics and come to the conclusion that these technologies become increasingly important in the identification procedures of migrants (p.97). In their article they express their concerns, as biometrics is presented as "supposedly objective", "safe" and "fraud-proof", even though in reality the data retrieved from

the body undergo many 'translations' and are thus not as objective as it might look like. Amoore (2006) and Van der Ploeg & Sprenkels (2012) both argue that border technologies might disable migrants, for example, by denying them access because they have a 'risk' profile. The existing literature represents the e-border quite often as a 'control apparatus' that becomes "machine-like (Dijstelbloem, 2011)", is "influencing people's everyday lives" (Amoore, 2016) and whose power is "more and more difficult to resist".

Within this framework, border technology is usually seen as an expression of state power with a strong state that tries to regulate (to stop?) the influx of migrants. From all this, I can conclude that the re-bordering of Europe is mainly a matter of inclusion/exclusion and its boundaries and that many authors are concerned about the disabling effects the technologies might have on migrants.

### *3.6.2 Criticism*

According to Sabine Hess (2017) there are, however, two narratives regarding the power of migration vis-à-vis the border regime. The first narrative focuses on the migratory tragedies and is concerned with the 're-bordering' of EU as described above. According to scholars that look at migration through this paradigm, the border with its re-emergence of high fences, walls and advanced technologies has a serious disabling effect on the movement of migration (Hess, 2016, p. 89). However, the newspapers tell from time to time another story as well: a story of migrants that perform acts of resistance and manage to make optimal use of the socio-material configuration to circumvent the restrictions imposed on them.

The fact that there is another narrative, a narrative of resistance is usually postulated among scholars that built on the hypothesis of the autonomy of migration (see among others Hess 2017; Papadopoulos & Tsianos 2013). According to the concept of autonomy of migration, echoing versions of

marxism, it is migration that is the thriving force in social change thus reversing the state and control perspective p. (581). For this reason, AoM criticises the narrative of the re-bordering of Europe. According to Scheel (2013a), it is the migrants' practices that "recode the devices of border control into mechanisms that still enable mobility and labour, but only under the precarious conditions of [the actively produced] 'illegality'. Hence, borders may not be seen as a fortress, but instead as "dynamic sites of contestation and negotiation, where migrants' practices and tactics encounter the strategies and devices of control, entering a 'relationship of reciprocal determination" (p. 582). For this reason, Hess (2017) proposed the 'autonomy of migration'-approach as contesting the common view on migration and border practices. The common understanding of migration is called the push-and-pull, or push-and-closure model, and means that on the one side we have a strong monolithic apparatus and on the other side the victims, that is the suppressed migrants and refugees. As you can see, this model has a strong hierarchical structure, with a strong apparatus that forces their wishes on the helpless refugees (p. 92). Hess (2017) stresses that she does not want to "imply here that the European border regime is not brutal and that it does not produce so much hardship and pain" (p. 92). On the contrary, it draws attention to the fact that it creates the positioning of the "neo-colonial matrix of the helping (and gazing) subject and the suffering (looked at) objects.

### *3.6.3. Communication technologies & social-migrant networks*

Recently, some scholars (e.g. Zijlstra & Van Liempt, 2017) did argue that technology can also be *empowering* for migrants. Usually the emphasis lays on the use of ICT and communication technologies. Zijlstra and Van Liempt (2017) come in their research to the conclusion that mobile technologies transform contemporary migration flows, as the migrant's mobility might be increased though access to online information.

According to Zijlstra & Van Liempt (2017):

“Mobile technologies [thus] change the underlying dynamics of how irregular migration evolves. They potentially give migrants more autonomy in organizing and funding their journey; they also enable smugglers to communicate and spread information faster and more widely than ever before” (p. 188).

Although migrants could use the Internet to look up information, it shows that the social-migration networks, which can be contacted through the technologies, are still deemed the most trustworthy information source. However, they also show that not all migrants are able to make effective use of these technologies, something they refer to as the digital divide (p. 178). Some countries, for example, lag behind with their use of ICTs. In Afghanistan only 2% of the population has Internet access at home, compared to 39,4 % of Syrians (Zijlstra & Van Liempt, 2017, p. 178). It could thus be the case that mobile technology makes migration more selective, as the more educated persons in the society have greater opportunities of reaching the destination countries. Another important finding of Zijlstra & Van Liempt (2017) is the way mobile technology influences the travel methods of migrants. They point out that: “Mobile technology can [thus] enable migrants to become more self-reliant because they can check information on the internet about smugglers, travel routes, and places to stay or they can ask friends through their online social networks” (p. 182).

### **3.7 Towards a greater understanding of the migration-technology relationship**

In this section I will reflect on the above-mentioned literature where after I will point out the need for a new vocabulary in order to make sense of the migration-technology relationship. I will show that the fields of migration studies, migration orientated border studies and security border

studies approach the migration-technology relationship quite often approach according to a modernist binary logic that, from my point of view, needs to be challenged as it does not live up to the complexity of 'reality'.

To begin with, I want to point out that in both, instrumental and critical arguments on the migration-technology relationship technology seems to be taken as a given; as the straightforward application of the "will to govern and control individuals and societies, as Bellanova & Duez (2016) argue (p. 25). It seems as if technology, even though it is often being critically examined, remains black-boxed in many discussions on migration-technology. Most of these accounts do not adequately problematize the use of technology as emergent within a particular socio-material configuration. The need for a further exploration of the dynamics between technology and migration also shows out of the traces of binary thinking in the reviewed literature. Apart from some post-structuralist approaches to migration-technology, the emphasis in scholarly works lies on either the state or migrant-networks, high-tech or low-tech, social-technical, enabling-disabling, object-subject.

#### a) High-tech versus Low-tech

A good deal of work, as we have seen, is focusing on state-high-tech thereby (purposely) neglecting the importance of all other kinds of devices. The social universes in which these technologies are deployed are often framed in terms of information management and surveillance. As Amicelle, Aradau and Jeandesboz (2015) point out this focus on contemporary artifacts and the way the context is framed has its limitations. For example, as Amicelle et. al. show, the difference between advanced and primitive societies does not rely on high-tech alone, as 'the technologies of the intellect' as examined by Goody (1977) include a variety of (inscription) devices, from "memorization techniques to the

printing press, and from clay tablets to paper” (Goody 1977 *in* Amicelle et. al. 2015; p. 295). It can be questioned whether hi-tech follows different dynamics than other sorts of technologies and artifacts.

#### b) State versus Migrants

Moreover, most studies on the migration-technology relationship are highly state-centred. The subjectivity of migrants is often deemed irrelevant, even though it can (and should) be argued that migrants do play an important role in the migration-technology relationship, as they are after all, the ones that perform the act of migration. Recently, a body of literature emerged that does look at the role (communication) technologies such as the Internet play in social-migration networks. However, migrants are rarely taken into account in the debate on surveillance technologies and border control, except then as “powerless object”

#### c) Enabling versus Disabling

Also the role of technology is often framed as either a disabling force on migration, or as enabling migration, as is the case with the literature that focuses on the role of technology within the social-migration network. Sometimes it seems as if this enabling or disabling dimension is presented as a characteristic of the technology, making technology a ‘fixed’ entity. However it can be argued that the prosperities of technology can only be seen as an effect of a chain of associations.

#### d) Social versus Technical

Lastly, many scholars adopting a critical stance on border control technologies (such as Topak & Ozgun, 2010; Van der Ploeg, 1999; Amore, 2006) focus on the social and discursive contexts of these technologies without taking the technical dimension into account. However, it can be argued that the border should be conceptualized as “a relational field of negotiations” between human and non-human actors.

To challenge these false dichotomies, which is so rooted in Western thought, is to explore migration issues with a more open mind... Following Wang (2016) and Basu and Coleman (2008) I will argue for another way of looking at the migration technology-relationship, namely by looking at the interaction between people (state, migrants and others) and things and how this constitutes border dynamics. I will also argue that all kinds of artefacts, devices, or materiality play an important role in this. As Basu and Coleman show (2008), the material reality of migrant consists of more than just hi-tech, instead all other things such as food, clothes, the waves of the sea, the built environment play an important role too.

## **Chapter 4 – Using Actor-Network theory as prism**

As we have seen in the last chapter many scholarly works focus on the migration-technology relationship by relying on a specific discourse on technology, in which attention is drawn to particular high-tech devices and the debate is usually framed in terms of the state, border control and border management. Other literature bodies are focusing on the empowering effects of communication technologies for the migrants. The interesting fact is, that in these accounts, usually 'technology' is taken as a given. It is often seen as the implementation of a certain will, the will to stop migration flows, or the will to cross the border. However, these technologies, just like the border, are the effect of the heterogeneous relationships in the actor-network. If we want to explain its role, we thus have to review its embedding in this network. The entities and meanings that are built into technology are countless (Cressman, 2009, p. 9).

In this chapter I will explore whether STS can (and how?) contribute to the understanding of the migration technology relationship. In order to answer this question I will bring forth some important concepts of ANT in order to show why this seems the more appropriate STS approach in order to understand/interpreted the migration technology relationship. After that I will bring to the table some attempts from previous scholars (Dijstelbloem, 2012; Galis, Tzokas & Tympas, 2017) that used insights from Actor-Network Theory to understand the migration-technology relationship.

### **4.1 The field of Science and Technology Studies**

The field of Science and Technology studies emerged from movements that were critical of science. Concerns were especially raised after the US use of nuclear weapons on Hiroshima and Nagasaki in World War II. Moreover, science and technology often result in unevenly spread benefits, costs and risks. Parallel to this development during the 1970s, a group scholars became labeled "Science, Technology and Society". This group had an interest in the working of science and technology and



viewed these as problematic social institutions, which led to the promotion of a socially responsible science. They were concerned with the reformation of science, about the even distribution of the benefits and risks of science, and about the relationship between science and democracy (Sismondo, 2010, p. 10).

Science and Technology Studies as we know it today is a multi-disciplinary field, i.e., it has its roots in many different disciplines, including history, sociology, politics, law, economics and philosophy, and thus embodies a great variety of theoretical frameworks and methods (Jasanoff, 2004, p. 2). STS exposes the 'invisible' entanglement between science and technology and hierarchies and societal norms and values. Thus, it challenges the idea the following picture of science, which is still dominant in popular understandings of science, namely the picture of accumulating knowledge by revealing 'facts' about the natural world around us. Other concepts that play an important role in this view are *progress* and *consistency*. Progress is being made because of the systematic scientific method by which evidence can be accepted or rejected. The idea is that scientists could, in theory, duplicate the experiments and thus find out themselves whether the hypothesis is correct or not. This would make it possible for scientist to agree on truths about the natural world we live in. Technology, in this view, is the straightforward application of science (Sismondo, 2010, p. 8). In the common picture, we often see the idea of a linear model of innovation, in which basic science goes from applied science to development and production. Technology is thus limited by the limits of scientific knowledge, as this model makes us belief.

True, The first generation of STS scholars (1950s and 1960s) did not really question the basis of science and scientists, this however changed when STS scholarships became focused on the social construction of knowledge from the 1970s onwards (Collins & Evans, 2002, p. 239). This new wave of science studies is usually referred to as 'social constructivism', although there are many variants. Examples of

these variants are the sociology of scientific knowledge (SSK) and SCOT.

Social constructivism can be seen as a reaction to technological determinism. Technological determinism is a reductionist theory that assumes that technology is the driving force in our society. According to this theory, social progress is the inevitable result of technological innovation. According to some critics, social constructivism is following the same logic, thus making it look like as if society is the driving force behind technological developments. Although social-constructivism is often contested, it has helped with putting more emphasis on the effects of technology (Sismondo, 2010, p. 9).

#### **4.2 Actor-Network Theory**

Actor-network theory (ANT), which emerged from the field of Science and Technology Studies in the early 1980's, resists the notion of social construction of science and technology. Instead, ANT scholars argue that nature and the built environment are produced by society *and* culture, and are thus not a 'given' outside society or socially constructed (Galis, 2016). However emerged from STS, it was also inspired by grounded theory and semiotics (Garrety, 2014, p. 14). In the 1970's Bruno Latour (a French anthropologist and social scientist) and Steve Woolgar (A British sociologist) did ethnographic fieldwork at a scientific institute in California. The approach of Latour and Woolgar, was to study the work within the laboratory as if they were anthropologists that had never seen the laboratory practices before. Their study resulted in the book *Laboratory Life: The Social Construction of Scientific Facts* (1979). In this study Latour and Woolgar showed the importance of material objects – such as machines, papers, chemicals, drawing - in the construction of scientific facts. The thesis put forward was that these material objects persuaded reader in believing that 'facts' about nature were represented (Garrety, 2014, p. 15). This study was followed by other studies that examined the success and failures of science and technology, by focusing on the attempts to built chains of associations between human and non-human

actors. Examples are Callon's study of the Electricité de France (1986a) and the examination of the knowledge production on scallops off the coast of France (1986b) in which they contribute to knowledge on the development of technologies and scientific knowledge. During the 1980s, Michel Callon, Bruno Latour and John Law described the basics of ANT in more detail (Law 1986; Latour 1987).

#### **4.2.1 The basics of ANT**

In this section the main concepts of ANT will be explained. ANT is difficult to summarize, because it cannot be reduced to one, universal theory, as it develops through the observations that are being made while conducting the research. Hence, the use and understanding of ANT may differ from person to person. Moreover, ANT does challenge the concepts that are used in the Western world to make sense of the world. In explaining ANT one, then, has to be particularly aware of the use of concepts and words. This said, I am nevertheless going to explain the main concepts and terminology of classical ANT in order to show on what assumptions my analysis of migrant technologies and the distribution of power within a network is based.

*Methodologically*, ANT focuses on the making of science and technology by conducting micro-level studies of the places where science and technology come into being, such as laboratories and institutes. At these places, ANT 'follows the actors', that is, it follows the prime network builders, such as engineers and scientists. By doing so the black-box of science and technology is opened, by tracing the connections between all kinds of actors, such as governments, knowledge, texts, people, technologies and so on (Cressman, 2009, p. 2).

ANT describes these dynamics by introducing the specific concept of the *actor-network*. Within these networks, non-human actors and human actors form associations, thus building relationships with one another to form the network. All actors act on behalf of their interests. In the

network these interests thus need to be accommodated, managed and used. When a network is established a certain effect is produced, that is the coming into being of scientific knowledge and technologies. Note: nothing can be reduced to an actor alone or to a network. It thus challenges, the notions of agency & structure, and content & context as "an actor-network is simultaneously an actor whose activity is networking heterogeneous elements and a network that is able to redefine and transform what it is made of" (Cressman, 2009, p.3). Thus, it is not so much about the interaction between all these actors, but instead are ANT scholars concerned with the way actors "define and distribute roles, and mobilize or invent others to play these roles" (Law & Callon, 1988, p. 285). Within this context ANT scholars speak about the concept of 'translation'.

*Translation*, in the definition of Callon, means the association of "heterogeneous entities" to form an actor-world. These associations are formed through assigning to each entity "an identity, interests, a role to play, a course of action to follow, and projects to carry out" (Callon, 1986b, p. 24). The translator becomes the "spokes[person] of the entities he constitutes" by expressing "their desires, their secret thoughts, their interests [and] their mechanisms of operation (Callon, 1986b, p. 25). However, the roles are not fixed and the actants can also be part of other – competing - actor-worlds. What the translator tries, is to become an "obligatory passageway", that is that the only way, for all the involved actants, to reach their goals is with help from this translator. The first moment of translation is the *problematization* phase, in which the problem and the solution are defined. The second stage is *interessement*, the network is developing as actants built 'a system of alliances' by aligning their identities and wants with the definition of the translator. The third stage is called *enrollment*, and this is the stage in which the actants act upon the role they have been assigned. A network can only be stabilized, when other actants act in the way they are expected to. To get to this

point “multilateral negotiations, trials of strength and tricks” are needed (Callon, 1986b, p. 211). These negotiations are usually carried out with the representatives of the enrolled actor-networks, hence the last step is *mobilization* of the other member to enact on the assigned roles.

*Power* is within this context thus different defined that more traditional accounts in which is implied that power is something you *have*. Instead This approach may be in contact with the understanding of power by Foucault, who understood power as a “perpetual” battle (Horowitz, 2011, p. 809). By looking through the actor-network lens, power is exerted through the associations in the network. These associations can form larger networks, more influential networks and more durable networks and thus increase the power. Power, just as other phenomena, such as people, social orders and technology, are thus an effect of the actor-network (Latour, 1986, p. 265). This means that all these qualities cannot be presented as an essential, static characteristic of the person, institution of technology that is examined. This can be illustrated by doing an interesting thought experiment. Let us imagine that we have a powerful institution or person, such as the European Commission, and put them in the middle of the desert. Then you cut off all the ties that connect them to the outer world, such as mobile phones, other people and other technologies. The result is that the institution or person is no longer powerful, being on its own in the desert (Garraty, 2014, p. 16).

ANT distinguishes itself also from other sociotechnical approaches by the way of looking at human and *non-humans* in a actor-network. According to the ANT-approach, human and non-human actors have a ‘generalized symmetry’, as both can delegate behavior to humans (Callon, 1986a). Thus, when looking at the migration-technology relationship through the ANT prism, there won’t be a privileged study of the role of the EU, or the social migration networks. Instead the analysis will focus on situations where the interaction between high-tech, low-tech, migrants, the state and all other actors of the socio-material setting produce “action or

inaction" (Latour, 1996, p.373). The statement that human and non-humans should be treated symmetrically remains controversial. A lot of the confusion can be traced back to the meaning of concepts such as 'intentionality' and 'agency'. ANT scholars argue that the agency of things and humans depend on their role within the network. What they want to say is that both humans and non-humans do not act by themselves; instead the 'act' is the result of negotiations, interactions and effects. Thus, mobility or immobility is the effect of a process of associations in a network (Galis, 2016, p. 831).

#### **4.2.2. ANT scholars on Migration-Technology**

Recently, the migration-technology relationship drew the attention of scholars of the field of STS. Dijstelbloem (2012), for example, makes a first attempt to use insight of ANT to shed light on the technologization of the European Borders. Dijstelbloem is making an attempt to provide a macro perspective on the working of the sociotechnical. He describes the assemblage of technologies, policy and so on. Galis et. al. (2016) provide us with a micro analysis of the socio-materiality of border practices, by focusing on hybrid arrangements between migrants and truck crypts. My own account will differ from these accounts, as I will try to use ANT insights in combination with questionnaires as a first attempt to address the technology-relationship through empirical research. Moreover, I will be trying to address, following the autonomy of migration movement, the 'resistance' within this actor-network. STS scholars did already a good job in focusing on the construction of the actor-world of technologies, such as Eurosur (Bellanova & Duez, 2016) and Eurodac (Kuster & Tsianos, 2016). The emphasis in my thesis will, however, be on the deconstruction of these actor-networks, by placing emphasis on successful migration attempts and the role of technology in this. This angle is up till now almost unexplored territory, although Kuster and Tsianos (2016) do acknowledge that there are indication that "migration constitutes a self-

reflexive part of the border regime’.

### **4.3 How can ANT inform migration studies?**

This last section is dedicated to the answering of the following (supporting) research question: Can (and how?) STS contribute to understanding the migration-technology relationship? I think that STS, and ANT in particular, propose a vocabulary that can greatly contribute to a movement beyond the binary logic of earlier migration studies as outlined in the previous chapter. We have to move beyond this modernist binary logic in order to be able to understand phenomena in all their complexities, and by doing so bringing discussions on the migration-technology relationship to the next level.

As we have seen in the previous chapter, the recent conceptualization of the migration-technology relationship by scholars from the field of migration studies, migration orientated border studies and security studies did encounter some problems. To begin with, in many accounts technologies are presented as a given; as a sort of direct application of a will to influence individuals and societies. Of course, as the field of STS and ANT argues, technology is by no means as straightforward as it is often presented. In the ANT vocabulary reality is complex and fluid, thus resulting in a more dynamic relationship between all actors. This is especially important when looking at an area such as migration-technology that is fast-changing due to all kinds of technological and societal developments. Moreover, a less static view enables us to study the possibility of shifting power relationships within an actor-network, thus giving way to perspectives of change.

Moreover, ANT challenges common dichotomies such as the distinction between the social-technical. Technology from an ANT perspective plays an active role in the shaping of social realities because of their position in the actor-network. The active role of objects is for example described by

Galis et. al. (2016) in their reflection on migrants crossing borders in truck crypt from an ANT perspective, of which the hybrid arrangement between human and non-humans can enable or disable mobility. It is thus the configuration of the social and the material that produces a certain effect. By focusing on the whole socio-material configuration ANT can contribute to existing literature on migration-technology is by positioning itself in the following knowledge gap: that is the lack of examination of the link between migrants and border control technologies from the migrant perspective. The subjective experience of migrants is in the literature decoupled from the operations of the state technologies, even though migrants do have important information exchange strategies that do influence the operations of systems such as Eurodac (Kuster & Tsianos, 2016, p. 54). An emerging body of literature is examining the role of communication technologies on social-migration-networks (See for example Zijlstra & Van Liempt, 2017) but this literature is not connected to the working of surveillance systems.



## **Chapter 5 – Questionnaires on migration-technology**

Based on the ideas presented to you in the previous chapters, I integrated questions on the migration-technology relationship in the questionnaire that was, at the time, prepared by the RISKCHANGE group. In this chapter I will try to find an answer to the question: 'what can we learn about the migration-technology relationship through research on the Greek experience with migration (a country standing at the frontier of the migration issue)? The idea is to not only point out some preliminary theoretical findings on the migration-technology relationship but also to reflect on the practical value of an ANT informed approach. Therefore I will also more specifically address the question: what can we learn through a first attempt at adding questions on the technology-migration relationship in questionnaire research on the Greek experience with migration? This chapter starts with some information on the RISK CHANGE research program and the design of the questionnaires within the RISK CHANGE framework.

### ***5.1. Introduction to The RISK CHANGE research program***

Europe faces currently structural challenges, such as globalization, migration and poverty. The economic downturn made these issues even more pressing. The RISKCHANGE research teams try to gain a better understanding of what is going on in our contemporary societies and try to bridge the gap between culture, science, economy and politics by sharing knowledge, opening closed scientific circles and trying to find an audience to raise awareness for these complex problems (Riskchange.eu).

The theme of the research project is the co-construction of migration policies in the EU. The research aims to support useful and exemplary approaches and implementation processes towards migration related issues in local communities across the EU. The NKUA RISK CHANGE team of the National and Kapodistrian University of Athens is part of the 'Technology and Borders/Migration' Research Group. This Research group is specialized in the interaction between 'History of

Technology', 'History of Science', Science and Technology Studies and 'Migration Studies', 'Border Studies' and related fields.

All members of the research team use two main instruments in order to generate results, namely Desk Research and life-staged-based interviews. The Desk Research is a keyword led search through Internet, databases of journals, books, articles and grey literature (project reports, policy documents) on migration and related issues. The life-stage-based interviews will be used to deepen the results of the desk research and to conduct life-stage-based interviews with members of target groups in the local/national communities. These interviews will be semi-structured. (Riskchange.eu)

## **5.2 The questionnaire**

The empirical research supporting this article was aimed at gaining qualitative and quantitative insight into the migration-technology relationship of the migrants themselves that came to Greece. Technology and technological knowledge play an important role in migration and border crossing practices. The EU's use of surveillance and information systems for border management has often been examined, as I showed in Chapter 3 and 4 in which I presented studies on the migration-technology relationship, first coming from migration studies and thereafter coming from the field of Science and Technology Studies. However, I also identified the need for a reconstruction of the migrant's narrative on migration and their experience with technology, in order to show how other actors also matter and are part of the co-construction of the technologization of the border. The RISKCHANGE project team also needed to conduct questionnaire surveys in order to gain insight on information seeking behavior, literacy and digital literacy of the migrant and to be able to screen older adults who could act as peer trainers later on in their research. The questionnaire that got developed included multiple-choice questions and open questions for collecting more thorough

descriptions and ideas from the respondents. It was divided in the following sections:

Section A: Questions related to technology and science

Section B: General questions on migration experience

The questions of section A were formulated with the idea to make a first attempt to map the use and confrontation with technology during their border crossing attempts. The general questions of section B were concerned with the background and the migration experience of the respondents. Inspired by grounded theory (Adams, Lunt, & Cairns, 2008) the questions were formulated without any prior hypothesis for focusing the research. The advantage of laying the basis for further research based on grounded theory is that in grounded theory, the theory is developed as soon as there is data to analyze. Of course are data from a few questionnaires not likely to produce a good theory, but the coupling of the data to insights of – in this case – ANT makes it possible to gather more data that can be used to validate or expand the initial theoretical findings (p. 140). The questionnaires as presented here, must thus be seen as a first step towards the validation of the migration-technology relationship through the prism of actor-network theory. After this preliminary questionnaire survey, more in depth interviews need to be held with more specific questions in order to validate or expand the potential hypothesis that came out of these questionnaires. Below I will present the answers to the questions that were related to technology and science. After presenting the answers I will organize them according to the themes that are most visible in this first attempt to address questions on the technology-migration relationship.

### **5.3 Results of the survey with migrants in local communities in Greece**

5.3.1 Who participated in this first part of the research?

| <b>Age</b>            |    |
|-----------------------|----|
| Under 20 years:       | 8  |
| 20 – 30 years:        | 18 |
| 30 – 40 years:        | 3  |
| 40 – 60 years:        | 18 |
| Over 60 years:        | 1  |
| <b>Nationality</b>    |    |
| Nigeria               | 1  |
| Afghanistan           | 2  |
| Colombia              | 1  |
| Syria                 | 11 |
| Romania               | 2  |
| Russia                | 1  |
| Spain                 | 1  |
| Albania               | 16 |
| Ukraine               | 1  |
| Georgia               | 2  |
| Cameroon              | 1  |
| England               | 1  |
| Belarus               | 1  |
| Turkey                | 2  |
| Iraq                  | 1  |
| Eritrea               | 1  |
| Pakistan              | 1  |
| Bulgaria              | 1  |
| Tanzania              | 1  |
| <b>Working status</b> |    |

|   |    |
|---|----|
| Schooling   | 11 |
| Unemployed  | 12 |
| Employed  | 23 |
| Other   | 2  |
| <b>Gender</b>   |    |
| Male  | 30 |
| Female  | 18 |
| <b>Living condition – How long have you been in Greece?</b> |    |
| More than 30 years:   | -  |
| 20 - 30 years;  | 16 |
| 15 to 19 years:   | 7  |
| 10 – 14 years:  | 2  |
| 6-10 years:   | 2  |
| 2-5 years:  | 3  |
| 1 - 2 years:  | 8  |
| Less than 1 year:   | 10 |

## 5.4 Answers to the Questions on Technology-Migration

### PART A: Technology during travel to Greece

**QA1 – Which technologies/means of transportation did you use for entering Greece? Or which technologies your parents used for entering Greece (in case of second generation refugees/migrants)?**

|                  |           |
|------------------|-----------|
| <b>Walking</b>   | <b>17</b> |
| <b>Car</b>       | <b>8</b>  |
| <b>Train/Bus</b> | <b>16</b> |
| <b>Boat</b>      | <b>13</b> |

|                        |   |
|------------------------|---|
| <b>Smugglers' boat</b> | 8 |
| <b>Truck crypt</b>     | 2 |
| <b>Other: Plane</b>    | 4 |

**QA2 – Which technologies did you confront?**

|                                       |          |
|---------------------------------------|----------|
| <b>Fences</b>                         | <b>9</b> |
| <b>Thermal cameras</b>                | 4        |
| <b>Mines' field</b>                   | 2        |
| <b>Police</b>                         | 29       |
| <b>Coast Guard</b>                    | 10       |
| <b>Frontex/NATO</b>                   | 3        |
| <b>Other: Non</b>                     | 2        |
| <b>Other: Custom officers</b>         | 1        |
| <b>Other: nonprofit organizations</b> | 1        |
| <b>Other: the army</b>                | 4        |
| <b>Other: the Albanian army</b>       | 1        |
| <b>No answer</b>                      | 2        |

**QA3 – When you began your trip, were you aware about EU monitoring and registration process, data bases etc. (e.g. EURODAC, EUROSUR, etc.)?**

Yes: 10 persons

No: 36 persons

No answer: 1 person

Please describe briefly:

"We did not know anything about it. The key issue was moving was the cost for moving per family."

*Respondent did not know if he could enter EU legally, and did not know either whether Greece belongs to the EU.*

They have been told that they would be in Germany in 3 days. They have been in Greece for 1,5 years.

"Not a lot of details."

*"No" the respondent did pay someone to take them across the borders, they would take care of everything.*

Friends informed the respondent about those things and also about the documents he was going to need once he reached the destination.

"I didn't need to."

"Yes but I chose to leave his own country anyway, to secure a better future for my family "

"The fingerprints."

Respondent found out about the registration process along the way.

**QA4 – Which technologies/ means of transportation did you use for travelling in Greece? Or which technologies your parents used for travelling in Greece (in case of second generation refugees/migrants)?**

|                     |           |
|---------------------|-----------|
| <b>Walking</b>      | <b>6</b>  |
| <b>Car</b>          | <b>7</b>  |
| <b>Train/Bus</b>    | <b>25</b> |
| <b>Boat</b>         | <b>13</b> |
| <b>Truck crypt</b>  | <b>2</b>  |
| <b>Other: Plane</b> | <b>4</b>  |
| <b>Other: Ship</b>  | <b>1</b>  |
| <b>Blank</b>        | <b>1</b>  |

**QA5 – Did you use cell phones/internet during your travel to and inside Greece? How did these technologies help you?**

Yes: 26 persons

No: 21 persons

Please describe briefly:

For keeping contact with family members that have been relocated in another country of the EU/that had already been living in Greece/ that are still in homeland/ that are still travelling: 9 persons

I use it to communicate with my friends in Greece: 4 persons

Navigation/route information: 7 persons

For translation: 1 persons

Used it while being on smugglers boat to call the Coast Guard: 1 person

To gather information: 1 person

To check if there was a delay of the airplane: 1 person

Did help, but the use of these technologies was hard: 1 person

Capture trip on video and show to authorities: 1 person

Did use technology (cell phone) but didn't help: 1 person

No, recent technologies were not available back then: 3 persons

No, the others arranged everything: 1 person

No, I did use maps instead of the internet: 1 person

## **PART B Technical/scientific knowledge/skills**

### **QA6 – Please, state your maximum acquired education?**

---

Have you got your degree in  
your country or in Greece?

|                                     | No of<br>Participants | Country of<br>origin | Greece |
|-------------------------------------|-----------------------|----------------------|--------|
| <b>Primary school</b>               | 5                     | 2                    |        |
| <b>High school</b>                  | 23                    | 10                   | 2      |
| <b>Faculty education<br/>(BA)</b>   | 16                    | 8                    | 7      |
| <b>Faculty education<br/>(MA)</b>   | 1                     | 1                    |        |
| <b>Doctor of science<br/>(Ph.D)</b> | 1                     |                      | 1      |
| <b>Never been to<br/>school</b>     |                       |                      |        |



**QA6b - Do you have any special technical knowledge/skills?**

Yes: 19 persons

No: 27 persons

No answer: 1 person

Please describe briefly: Use of cellphones and other basic technologies (4 persons), Computer related skills such as ICT (4 persons), Household related skills (2 persons) Baking bread (2 persons), Farming (1 person), Electric machines, (1 person), Plumbing (1 person), Radio technical engineer (1 person), Carpenter (1 person), Vehicle Mechanics (1 person), Locksmith (1 person).

**QA7 – Do the technical knowledge/skills you have helped you in the integration process in Greece? Do they help you in any aspect of your life in Greece?**

Yes: 17 persons

No: 27 persons

No answer: 3 persons

Please describe briefly:

Was/will be able to find a job: 9 persons

Gathering more information about Greece: 2 persons

Skills are used for self-employment: 1 person

Increased self-sufficiency: 1 person

Skills helped getting in touch with other people: 3 persons

Was/will help me with communicating with people in new country: 2 persons

**QA8 – Do you use computer and internet in your everyday life? Does the use of computer/internet help your integration in the local society?**

Yes: 35 persons

No: 12 persons

Please describe briefly:

Yes, it helps improving language skills: 4 persons

Yes, it helps in communicating with locals/social media: 9 persons  
Yes, it helps me gather information about the country: 6 persons  
Yes, it helps me find info about events/places: 4 person  
Online news helps me understanding local society: 2 person  
Internet helps respondent to be informed about public transport: 1 person  
Google maps helps with navigation: 2 person  
Computer helps with adapting to society: 1 person

Not as much as going to school did: 1 person  
No, my children help me when I need something: 2 persons  
No, I only use internet for informal purposes: 1 person

**QA9 – Do you have any personal experience on disabled people crossing the borders or people who got disabled during their effort to cross the borders?**

Yes: 8 persons  
No: 39 persons

Please describe briefly:

Daughter lost legs during travel due to the cold.  
There was a woman in a wheelchair on the boat. She wore a life jacket and her sons helped her.  
I have seen blind people trying to cross the border.  
An Albanian soldier broke the arm of a three years old girl and then he killed her with his gun.  
Respondent helped a mother with an injured arm to cross the border.  
No, but he has heard about relatives that got shot or got infected by wounds.  
Cousin of a friend was a disabled person who died during his effort to cross the border.

**5.5 Thematic analysis of the questionnaires**

In order to gain as much information as possible about the encountered

technologies in this first round of empirical research, I decided to let the students – after training them – do the fieldwork. I kept closely in touch with them during the fieldwork phase and answered their questions regarding the questionnaires. I instructed them to write down the interesting stories they were obviously going to hear – as they were all extremely important to the research. In the end, the students managed to approach 48 people. For the questionnaires a timeframe of 20-25 minutes was given. Initially the questionnaires were not meant to be completely anonymous, however some of the respondents (mainly refugees) were afraid that their responses might influence the asylum process, and therefore we decided to just gather information such as age, education and position towards migration. The respondents had varying levels of technological knowledge and confrontations with technology. The participants were asked a few questions on their use of technologies and confrontation with technologies during the border crossing experience. But also about the technological knowledge, their education and whether and with what purpose they used cellphones or not. The questionnaire format did allow the participants to specify the answers and I did encourage the students who took the questionnaires to note all interesting stories and ideas the migrants might tell because all this information is valuable.

The initial analysis of questionnaires took a thematic approach that was guided by the frequency of the issues raised by the respondents. I also gave special attention to the answers that were deemed of great importance. Areas that needed attention with regard to the migration-technology relationship are: the role of low-tech border control technologies; the use of cellphones and the internet; and the importance of social-migration networks for getting informed while crossing the border. There is a strong indication that information (through communication technology) comes primarily from the social-migration networks they are embedded in. Moreover, there seems to be more awareness about the confrontation with 'visible' technologies, such as the police (29) and the coast guard (10), than less visible surveillance

technologies such as EURODAC. 36 of the 48 respondents remarked that they did not know about the EU's use of these surveillance and information technologies. From this questionnaire it is not yet clear how this has influenced the choices the refugees/migrants made. Would they have used another approach if they had known about these procedures? Where did they get their (lack of) information? These answers do give an indication of the direction we need to head in further enquiries. Some answers stated:

"No" the respondent did pay someone to take them across the borders, they would take care of everything.

Friends informed the respondent about those things and also about the documents he was going to need once he reached the destination.

The study identified that the migrants/refugees technological knowledge often depended on the social-migration network. One respondent noted that they indeed were aware of the strict border control, but decided to go anyway to secure a future. Another respondent answered, "fingerprints". These answers do give the indication that important information such as this is circulating within social-migrant networks. Recent research of Kuster and Tsianos (2016) on Eurodac does affirm this. During their interviews they came repeatedly across the indication that "glass is dangerous".

The reliance on the social-migration network is also interesting for another reason, that is the role communication technologies play in migration practices. 26 out of 47 respondents stated during this questionnaire that they did use cell phones/ Internet during the travel to and inside Greece and that these technologies did help them during these practices (Note: many of the respondents have been living in Greece for many years now, back then when they crossed the borders mobile cellphones and Internet were not available). The main reason for using these technologies was,

according to 9 and 4 respondents respectively:

For keeping contact with family members that have been relocated in another country of the EU/ that had already been living in Greece/ that are still in homeland/that are still travelling.

For communication with my friends in Greece

Besides the communication with family and friends, the cellphone and the Internet was used for navigation/route information purposes (7 persons). As shown in QA6, the respondents had varying levels of education, which might influence the opportunities the Internet might offer them in terms of getting access to information. According to Dekker and Engbersen (2014) it is usually the younger and higher educated migrants that are more empowered by the use of the Internet and mobile devices. Older migrants might rely more on traditional information sources. The research of Zijlstra & Van Liempt (2017) does show the same evidence, however they do stress that the lesser educated do often know how to communicate through certain apps, and might learn to make better use of the technologies during their border crossing practices.

## **5.6 Conclusions**

The conducted questionnaires have been helpful in mapping the actor world of a underexposed actor, that is the migrant. The finding that technology helps the migrants matches with previous studies on the role of technology and social-migrant networks. However, striving for a more holistic approach to the migration-technology relationship I read these findings as a part of an overarching narrative. I think that the part of the actor-world that got exposed has to be placed within greater dynamics. Following chapter will be an attempt to tell this narrative, by using insights from migration studies, ANT and the questionnaires.

## Chapter 6 – Discussion

In this chapter I will present some preliminary findings on *the migration-technology relationship in the Greek experience on migration by using insights from ANT and the fieldwork*. The idea is to extend some existing analyses of border technologies by foregrounding the migrant as actor within the actor-world. As said before, many scholars take policy actors as prime movers, thereby neglecting the migrant (and its hidden information network). By using insights from ANT and the preliminary results of the fieldwork I want to present both a theoretical and empirical contribution to the examination of the socio-technical context of border technologies and the effect of migrant-technologies on its configuration. Point of departure of this analysis is the strong indication that the successful mobility of the respondents is related to counter-strategies that involve *hybrids* of migrants-technology-information networks. However, before we explore these dynamics, I first want to outline the nature of technologies and its produced effects.

As we have seen present many scholars from the field of migration, border and security studies technology as the implementation of a will or policy. According to ANT, reality is more complex and dynamic. From the Actor-network theory point of view, technologies are the effect of heterogeneous networks. These socio-technical relationships that constitute the technology are usually hidden and are therefor referred to as a black box. When you open the black box of a technology a whole world of actors and association becomes visible.

### *Opening the black box of technology*

Before we move on, I want to illustrate that border control technologies such as Eurodac are indeed made up out of heterogeneous elements by drawing attention to the following simplified example. The actor-world of the European Commission, who was responsible for the implementation of Eurodac, consists of various actors that all need to be in place in order for Eurodac to function well. This world consists of social actors, such as

nations, the police, politicians, international networks of criminals and smugglers (Bellanova & Duez 2016). It consists also of radars, boats, information-systems and even mobile phones. And these non-human actors, consist of chips, fuel cells, electrodes, electrons, algorithms etcetera. Moreover, as we have learned from the questionnaires, it also consists of migrants, mobile phones, SIM cards, boats, planes, networks of family and friends, technical knowledge and so on. In order for a technology such as Eurodac to work well, all these components need to be in place. The data has, for example, to be properly stored. If this doesn't happen because the storage devices break down, the result would be equally disastrous as when the migrants manage to surpass the system, or when the regulations were not being enforced. Now we have accepted that border technologies are made up out of heterogeneous elements and associations, we can look at its construction by "asking how our actor-world is built, for without the actor-world, the technical object would not exist" (Callon, 1986a, p. 23).

### *How come technologies and its effects into being?*

Some studies on migration did try to analyze the effects of technology on migration, without understanding the internal dynamics. I will proceed my argumentation by explaining how border technologies and its functions and effects come into being. For technology to produce a certain effect, all the heterogeneous entities as described above needs to act in a certain way. It is through the actor-network that the identity, roles, nature, respective size and history of the entities get defined. All elements need to be successfully *translated*, thus form a stable network for an effect to be produced (Callon, 1986a, p. 24). For example, let us take the assumption of some critical migration scholars that state technology is used to disable the mobility of flows of migrants. In order for technology to produce this effect, the European Commission translates surveillance technologies, storage devices, migrants and EU member states, what means that the EC attributes identities, interests and roles to all these

actors. The EU member states can be seen as independent countries with their own wishes and desires that are reflected into their policy. However, within the actor network of the EC, these characteristics do not exist. The interests and abilities of the countries relate to cooperative border management. In the same way, as it translates the characteristics and performance of the involved software and risk assessments, that could theoretically be used in thousands of different ways that have nothing to do with the aim to control the influx of migration.

The translator, the EC, can thus be seen as a translator-spokesman of all the entities that became part of the actor world (p. 25). As long as the entities are successfully translated, the network remains stable. However, and this is in particular important for my analysis, all the entities could in theory halt the translation and define the future differently (p. 25). This is exactly what happens in all those moments that migrants, individually or collectively perform acts of resistance. As we have seen in the case of the crypts or migrants who carve their fingertips in order to not be registered, do the migrants have the ability to challenge the whole world as defined by the EC: it challenges the EC's version of the way migrants (and their technologies) should behave, it challenges the effectiveness of surveillance technologies as EUROSUR and EURODAC, it challenges consensus among the EU member states, and it challenges the doubtful future of a limited influx of migrants. Hence, translation always occurs with acts of resistance and should therefore not be taken for granted (Callon 1986a, p. 26).

### *Migrants, technologies and the reconfiguration of the actor-world*

In this section, I will look at the factors that lead to the destabilization of the actor-network. After looking closely to the questionnaires I found that, next to the technologies they use to enter the country, the migrants are themselves an actor-network that consists of technologies and other actors, such as mobile phones, information and also a whole knowledge-network – consisting of family and friends in Greece and in the country of



which they departed. It is this micro network that makes resistance possible, whether it is collective or individual. I will start this section by stating that I will follow Tsianos & Hess (2016) in the idea that the forces and movements of migration challenge cross and reshape the borders and thus influence the power dynamics. If the distribution of power is less centralized as Dijstelbloem's account suggests, then a world of possibilities with respect to the transformation of the actor-world of border control remains open. What is the phenomenon that makes the transformation of actor-worlds happen? The answer can be found if we look more closely to the different elements of the actor-network. As I have explained, all elements are closely connected in an actor-network. However, these elements that constitute the actor-network are simplifications of a more complex phenomenon. All these actors enroll a network of silent others that contribute to the workings of the entity. Thus for the elements in the network to stay in place, their own relationships have to be stable. The rubber boats that are, for example, used for crossing the EU border mobilize migrant bodies, the ocean, smugglers, the person who is steering the boat, the weather that all need to be in place for the migrants to do their job within the broader network.

In order to be able to see this dynamic I will examine the destabilization of the actor-world of EUROSUR by analyzing through translation how acts of resistance work. Inspired by the "autonomy of migration" framework that insists that "it has the capacity to develop its own logics, its own motivation, its own trajectories (Papadopoulos & Tsianos, 2013, 184) implying that migration is a force that might lead to new modes of cooperation and action, I will confront the configuration of border control and the sovereign conception of border politics by showing that the 'walls around the West' are not as foolproof as they might look like. In this section I will show how migrants manage, by use of technology/technological skills/technological knowledge to alter the socio-material setting, thus enabling movement. To examine this phenomenon I

have chosen to follow an actor through his act of resistance. I will start with examining the actor-world with the migrant as translator spokesman. As we have seen is every actor an actor-network in itself. In an optimal functioning actor-world of the EC, the migrant does not cross the border in a smugglers boat, and true, many refugees do not make that choice. However, can we say that this counts for all migrants? Controversies exist when the representivity of spokesman is questioned, discussed, negotiated, rejected, and so forth, according to Callon (1986b, p. 79). What we see happening in the summer of 2015 is that, despite the measures of the EC, a massive amount of refugees chose to make the leap. Hence, the migrant-who-shall-not-illegally-cross-the-border, is no longer acting as a simplified entity. Instead the black-box opens and we will find a whole actor-world consisting of migrants, smugglers, vessels, cellphones, friends and family in Europe, Internet connections, refugee help organizations, TV's, societies. All these elements work together in order to perform the action of the movement or non-movement of migrants. The questionnaires might elucidate why the interessement of the EU has not been efficient.

As my thematic analysis of the questionnaires and insights out of migration studies show do technology and social-information networks play an important role in the decisions migrants make. Close ties to friends and family enable migrants to make the move because they inform the migrants on the needed strategies and are often involved in providing the means that one needs to make the move. Thus, as we see one of the reasons why the interessement phase has not been successful might be because of the accessibility to technologies and smugglers and a social network of family and friends who enabled the migrant to cross the border nevertheless. Another reason might be that Angela Merkel, Federal Chancellor of Germany, declared back then that the EU should do more thus putting the EU-migrant relationship in a more positive light. One should however not think that this hidden actor-network functions without

any struggles. In this actor-network of the migrant we do see the same dynamics as in the actor-network of the European Commission. In order for the migrant to be enabled to cross the border, all other actors also need to be adjusted, or translated, to this goal. Out of the conducted fieldwork so far we can, for example, identify already 5 actors that need to be enrolled and mobilized:

(1) *Other migrants and refugees*: other migrants and refugees also want to cross the EU borders to have a better and saver life; and because they are with many they might collectively perform an act of resistance. Even though the EU tries to halt the influx of irregular migration. Moreover, the images of other successful border crossing make them believe they can conquer the EU border regime. It is not only a symbol of hope, for other migrants and refugees are also an important player in the information network on which the migrants and refugees base their strategies.

(2) *Smugglers*: smugglers want to make money by promising the refugees and migrants a way to the EU. They are interested in the forced opening of the borders as it gives way to more business and they provide a way for the migrants to cross the borders. If the smuggler betrays the migrant, the border crossing will never take place.

(3) *The border*: the border is the object of the discussion. The socio-material configuration decides both the future of the border and whether the migrants are enabled or disabled

(4) *EU member states*: trying to halt undesired migrants from migration, by use of surveillance technologies and brute force technologies. They want to solve the humanitarian crisis but also want to control the influx of migrant. They do, however, realize that the EU must find a solution for the problem.

(5) *Technologies/technical knowledge*: the deployment of these technologies and skills in this context depends on the choice of the

migrants to cross the border and the ability of migrant to perform acts of resistance depends on the ability to use these technologies.

## **Chapter 7 – Conclusion**

This thesis provides a theoretical alternative to the migration-technology relationship as proposed by high-tech theory and an addition to the social-migration network. Instead of looking solely at the internal dynamics of technology or removing the focus (almost) entirely from the technical, I propose in this thesis a conceptual vocabulary that monitors the multiplicity of the migration-technology relationship by simultaneously addressing the interactions between migrants, the state, low-tech, high-tech, policy makers and all other kinds of human and non-human actors. In so doing, I want to show that technology can have an enabling or a disabling effect on the migrant, and that the nature of this effect depends on the whole socio-material configuration. For instance, does the use of EUROSUR by the EU disable migrants? This depends on the workings of EUROSUR, the migrants and the way they try to circumvent EUROSUR, the different nation states, policy makers, coast guards, and so on. What we have learnt from ANT is that the migration-technology relationship cannot be reduced to the mere technical or social. From this point of view, it is necessary to leave the artificial dichotomies of migration studies, that is the opposition of technological-social, object-subject, enabling-disabling, human-artifact behind, in order to come closer to an understanding of the role of technology in migration practices.

In this thesis I have tried to strengthen this argument by shedding light on the migrant-technology relationship in the Greek encounter with migration, by combining insights from Migration Studies with the theoretical vocabulary of ANT and insights from the first attempt to add questionnaires on the migration-technology relationship. The main research question that has been answered is: what can we tell on the migration-technology relationship in the current Greek experience on migration by using ANT as prism?

The thesis was structured in such a way that either chapter was dedicated to the answering of one of the following supporting research questions: Is technology taken into account in Migration Studies (and

migration-related Border Studies)? Can (and how?) STS contribute to understanding the migration-technology relationship? What can we learn about the migration-technology relationship through research on the Greek experience with migration (a country standing at the frontier of the migration issue)? More specifically, what can we learn through a first attempt at adding questions on the technology-migration relationship in questionnaire research on the Greek experience with migration? The answers to these research questions are not only illuminative on the migration-technology relationship as such but are also meant as a critical reflection on the use of ANT and questionnaires.

In the following section I will briefly recapitulate the answers to the supporting questions, before I head on to the implications of these findings.

While reviewing literature on the migration-technology relation I came to the conclusion that many scholars did mainly reflect on how technology works or was supposed to work without examining its underlying dynamics thus keeping the concept of 'technology' black boxed. Many scholars from normative and critical stance make technology for example synonymous to advanced state-of-the-art technologies, or high-tech. In most accounts, even the critical accounts, technology is presented as the implementation of "a will to control individuals or societies". This lack of knowledge on the dynamics of technology results, the way I see it, in analyses that built on diverse false dichotomies, for example by contrasting high-tech to low-tech, the controlling actor (state) to the controlled (migrant), or 'things' to humans or by focusing on either the enabling or disabling aspects of technology. By focusing the analyses on either the one side or the other, the overall dynamics of migration-technology remain poorly understood. This results in views on the migration-technology relationship that are neither living up to its complexity, nor give an nuanced view on which can be built.

After reviewing migration literature, I came to the conclusion that

STS, and in particular ANT, might be able to provide a vocabulary in which the dynamics of the migration-technology relationship can be captured. The first advantage of using ANT is that it opens the black box of technology by questioning the fundamentals of technological developments. According to ANT, technology is, just like every phenomenon, the effect of the associations between heterogeneous associations within the network. In doing so, it moves beyond conventional dichotomies such as object-subject, human-non-human, enabling-disabling and so on.

Moreover, because ANT presents reality as fluid, it gives way to the exploration of power relationship in relation to migration and technology. In migration studies, technologies are often presented as a presentation of state-power. However within the actor-network power is distributed across the network and not something you have or possess.

Hence, following the logic of ANT the movement or non-movement of migrants is the result of associations between different actors in an actor-network. Technology, as one of the actors, is not so much an aid or restrictive factor, instead it can be seen as an actively shaping force within this network of which the effects are only to understand by looking at the associations within the social network, as explained in the previous chapter. Contrasting critical migration literature, the effect of technology on migration cannot be sought in political factors alone. Reality according to ANT is more complex and fluid, and it is through the vocabulary of ANT that we can do justice to the fast moving and changing area of migration and border control.

The last part of the thesis examines the practical value of an ANT informed approach to migration-border technologies. Drawing on ANT and fieldwork through the use of questionnaires, this first attempt to include questions on the migration-technology relationship led to interesting findings that would have remained underexposed if I had not decided to 'follow the migrant' in order to find out more about the relationship between migrants and technology. This first attempt of addressing questions on the migration-technology relationship did help in several

ways: first of all, it helped in mapping the actor-network of the migrants themselves. Just like technology, one could see the migrant also as a black box. By asking questions on the migration-technology relationship a whole world got exposed; a world consisting of information networks, cellphones, GPS, the internet, friends and family, educational institutes and so on. Moreover, linking ANT and their insights on technology, with the questionnaires helped with formulating hypothesis that needs to be further examined.

In the end, combining ANT and the questionnaires has led to the indication that migrants are sometimes able to re-configure the actor-network of the European Commission, because of the dynamics of the actor-network they are embedded in. The European Commission only sees migrants, however these migrants have "enrol[ed] a mass of silent others from which it draws its strength and credibility". The strength of the e-border depends not only on the durability of the associations between actors in the actor-network, but also on the network that make up each point in the network. According to Callon (1986a) this is the phenomenon that can explain how actor-worlds are transformed (p 32). It is because of the combination of ANT with Migration Studies that the data collection became more focused, which will help in developing a research strategy in the further conduct of the (empirical) research. Of course I cannot stress enough that this first attempt to include questions on the migration-technology relation is not enough evidence to verify the above-mentioned indication. Therefore I strongly encourage a further exploration of the main themes by conducting in-depth interviews.

By writing this thesis I tried to contribute to the debate on the deployment of all kinds of state-of-the-art technologies and its relation to migration. Whilst many authors view these technologies as not much more than the application of migration and security policy, I was trying to show that technology is an effect of the actor-network that does not have static prosperities. Moreover, and this is the main contribution of my thesis to



the academic debate, I point out that the subjectivity of the migrant is usually excluded from the debate on border control technologies and should be included if we want to understand the role of border control technologies. Indeed, there is an emerging body of literature that draws attention to the role of technology from a migrant perspective by elucidating the empowering effects of technology during the act of migration, but these scholars do still distinguish between migrants and the state, between hi-tech and low-tech, while the dynamics of technological change can not be explained in this terms as I have showed.

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