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The Italian Information Infrastructure for the Management of Migrants

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ABSTRACT

This paper examines the enactment of the Information Infrastructure for the management of migrants in Italy. The recent migration crisis required e-government tools to deal with the management of migrants in Italy, and this paper critically explores how the relevant Italian Authorities put in place a purpose-built government solution, the Information Infrastructure, to better manage and allocate migrants in the Italian Territory. This work closely focuses on the functionalities enacted in the Information Infrastructure, and critically analyses its main characteristics and interoperability. This research derives from a case study which enables the phenomenon to be explored from multiple sources and angles. The findings are explored through the lens of the assemblage framework, which helps to uncover the real nature of this Information Infrastructure, identifying it as an assemblage, a heterogeneous composite which results from the encounter of technology with a spectrum of socio-technical dimensions. Looking at this Information Infrastructure as an assemblage will help to unveil the role of mediation between the various interests and dimensions in the making of the assemblage. In particular, we will argue that the interplay of dimensions has led to an Information Infrastructure that is suboptimal and imperfect by contrast with the original plans because some dimensions fail to recognize the effects of the others. Moreover, we aim to demonstrate that the attempts to design an assemblage that is fully controllable a priori failed because an assemblage is always in-the-making and needs to be continuously cultivated by its actors.

Introduction

Europe has always been shaken by waves of migration, but recently these have become more consistent in the aftermath of the "Arab Spring". In the early phases of the migrants emergency in Italy, the situation was managed by using exactly the same procedures that were used in non-crisis periods. However, it soon became apparent that these old procedures were insufficient to cope with the new massive waves of migrants, particularly because they failed to exploit fully the advantages offered by e-government tools.

Studies around the usage of ICT in the Public sector (the e-government literature) have highlighted the benefits of ICT in public procedures, enabling them to become more efficient and effective (Heeks, 1999). Amongst the e-government initiatives undertaken by States, the designing of Information Infrastructures (II) has recently emerged as one of the most relevant. Information Infrastructures immediately turned out to be the ideal solution for the management of migrants in Italy. First, in non-crisis periods, a plethora of uncoordinated and dispersed Information Infrastructures sprang up. Following the emergency, under pressure from the Parliament, a process of re-organisation took place. This newly created Information Infrastructure for the management of migrants in Italy (called SGA, Sistema Gestione Accoglienza), is a carrier of different interests, from Parliament, aiming to monitor the allocation of migrants more effectively, to the several agencies directly interfacing with this II.

This paper aims to carry out a case study of the Information Infrastructure for the management of migrants in Italy (SGA). In particular, we will use the assemblage framework to demonstrate that this II can be seen as an assemblage and to show how the continuous process of mediation over the various socio-technical interests has led to a sub-optimal II.

Literature Review and theoretical framework

In the course of the last 15 years, with the advent of Communication in Information Technology (ICT vs IT), it soon became meaningless to talk about independent architectures that do not interlink with each other; rather, the so-called Information Infrastructures began to emerge. Information Infrastructures (II) are composed of interdependent layered systems over an installed base, which means that their design is path-dependent and shaped by

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existing infrastructures (Hanseth, Lyytinen, 2010).

The deployment of an II will be shaped by the dynamic interaction between socio-technical artefacts, and the Information Infrastructure will be the result of the inscription of these elements into the technology. The more designers aim to have control over the Information Infrastructure by fostering interoperability between these elements, the less flexible the platform will be (Ciborra, 1998). Even the most flexible system has inscribed legacies which do not allow for full flexibility, which means that "today's choices constrain tomorrow's possibilities" (Edwards et al, 2007). Enacting a system means that the designers have to translate the complexity of the world into the logic of technology, by means of what is called functional simplification and coding (Contini, Lanzara, 2014; Contini, Cordella, 2015).

The acknowledgement of the importance of socio-technical factors is also present in the framework of assemblages (Lanzara, 2009). We will use this framework to look at the case of the Italian Information Infrastructure which is in place for the management of migrants. According to this framework, the development of an assemblage is the result of negotiations that involve several actors, such as political authorities, bureaucratic organizations, ICT providers and so on. From this viewpoint, an Information Infrastructure with these features of mediation of interests could be seen as an assemblage, that is to say, a context-dependent composite seeking to compromise multiple socio-technical dimensions and interests.

The process of enacting an assemblage is characterized by the continuous mediation of these interests, which makes the project unpredictable and subject to frequent changes and interventions. Because of the ongoing mediations of interests that have the tendency to maintain their own specificity, assemblages tend to grow "in layers" and never reach a final stage (Lanzara, 1999). In this chaotic situation, usually, there is the emergence of an institutional sponsor (like the Government) and a project champion, which takes control of the development of the assemblage and tries to mediate the various and often conflictual interests. It appears clear that an assemblage cannot be designed a priori, rather it is a process of continuous refinements (and reconversion of available material for new purposes or "bricolage") (Ciborra, 2002).

The rise of assemblages modifies the organizational landscape in the Public Sector, introducing new practices and making some of the old ones obsolete. Public organization practices are increasingly the result of the concatenations and mediation of administrative and technological interests (Barry, 2001). The administrative action thus becomes dislocated: as the assemblage is a loosely structured and heterogeneous composite, so organizational practices are no longer contained within fixed boundaries but are instead inscribed in all the components of the assemblage. Thus, the development of an assemblage entails a re-organisation of the Public Organisations involved. This can also lead to friction between the many power groups that make up the Public Sector.

Lanzara considers also the concept of interoperability when examining the assemblage; the scholar maps out its innovative character based on three interoperability domains: technical compatibility, functional compatibility and institutional compatibility. Technical compatibility refers to the compatibility between the technical components of the Information Infrastructure; Functional compatibility is the functional simplification of the normative/institutional components in the technology; Institutional compatibility refers to the degree of integration between the multiple institutional agencies dealing with the assemblage.

Thus, it appears clear that the interconnections that arise in an assemblage are not only interconnections between systems, but also between dimensions (e.g. political, juridical, technical). Thus, assemblages are composite configurations of technical artefacts with socio-technical and institutional components, that, during the process of development, may also be converted and linked. The development of an assemblage does not come out of the blue. Rather it should consider the presence of a context-specific and history-dependent installed base in a given dimension, and not force changes in such a dimension if it shows reluctance towards change. The installed base could be both technical and infrastructural, but, especially in the public sector, also organisational and institutional. The installed base should be seen as a duality. It could be a source of inertia in e-government action, but also a powerful enabler of new trajectories in the e-government domain, especially when its components can be turned into useful resources. It is thus in the hands of the various actors to cultivate (Ciborra, 2003) the multiple components of the installed base to make the assemblage grow fruitfully. In other words, the installed base is not a fixed concept but could evolve and mutate as the development of the assemblage progresses (Velicogna, Carnevali, 2009).

The proposed framework could lead us to deduce that, because of these continuous interactions of multiple actors, the dynamics of assembling components can be understood only in the enactment of the assemblage, and not as an abstract a priori. Particularly, the construction of an II is the result of ongoing interpretation of the socio-technical components that characterize the assemblage. Because the various actors involved have different experiences and backgrounds they tend to interpret the same components differently, thus enacting "strategies for the construction of alternative versions of reality' (Lanzara, 1993; Lanzara, Patriotta, 2001). This paper distances itself from IS research of so-called technological determinism (technology development follows a linear fashion), instead, it is in line with the stream of research arguing that the enactment of technology needs to be continually "cultivated", interpreted and is always in-the-making.

Methodology

The aim of this paper is to explore the following research questions:

"Why this Information Infrastructure can be considered an assemblage?"

"How the interaction and balance of multiple socio-technical dimensions may lead to a sub-optimal Information Infrastructure?"

Given the complexity of this issue, the research method chosen for this paper is that of the in-depth case study. A case study requires the author to do "research which involves an empirical investigation of a particular contemporary phenomenon within its real-life context using multiple sources of evidence" (Yin, 2009). It thus proves to be particularly effective for studying those phenomena that are relevant in contemporary debates, like the migration crisis that is shaking Europe and Italy in particular.

The focus of this research will be the allocation of migrants managed by SGA (even though this paper also stresses the interdependences of SGA with other II). A case study involves collecting data from multiple sources, and this research is not exempt from this approach.

The qualitative methodology of this dissertation will include consultation of documents made for internal purposes and semi-structured interviews with employees and executives from the agencies involved in interfacing with SGA. See Figure 1 for a list of interviewees.

To carry out coherent data analysis, all interviews were tape-recorded and transcribed. Then, the transcripts and documents were categorized according to a thematic analysis approach.

Case study

The management of migrants in Italy is performed by several Public Agencies, all of which deal with an architecture of Information Infrastructures. Three main infrastructures are put to use in the management of migrants: SGA; VESTANET and DUBLINET. These three infrastructures are interconnected so as to manage the phenomenon at a local, regional and national level. Our study will look specifically at the SGA II and will analyse in depth how this infrastructure manages the allocation of migrants within the Italian territory.

SGA is used to "be a supporting tool for all those actors involved in the management of the initial reception of migrants and the planning of their allocation. In particular, by means of SGA, it is possible to keep complete track of the migrant's progress, from arrival on Italian Territory to exiting the hospitality process" (Ministry of Internal Affairs, SGA manual). SGA has been heavily promoted by the Italian Parliament, with the aim of gaining an overview of the allocation of the migrants in Italy. Parliamentary pressure is leading to replacement of the old system of monitoring which relied on obsolete integration between the Information Infrastructures at a local and central level.

SGA, which inherits some functions from previous Information Infrastructures that were in use at local level for the management of migrants, was designed to be integrated with two pre-existing infrastructures: VESTANET and DUBLINET. VESTANET is used to recognize the status of political refugee. DUBLINET is a national system which allows for the reallocation of a certain number of migrants within the EU countries that have ratified the Dublin III Treaty.

Linking back to SGA, this is in the hands of the Ministry of Internal Affairs and, with stringent limitations, also accessible to private owners of CAS, accommodation structures where migrants are allocated. The Ministry of Internal Affairs is divided into three bureaucratic structures responsible for managing immigration: the Central headquarters (DCSCIA), local offices (Prefectures), and local police stations. Thus the SGA system is managed by all these three structures, each holding authority for different procedures and having sole access to specific functions in the Information Infrastructure. By concentrating certain functions within the Central headquarters and decentralizing other functions to the periphery, the bureaucratic structure of the Ministry of Internal Affairs seems to match the principle of "dispersed" management of migrants in Italy. In fact, the existence of an extensive network of local offices of the Ministry of Internal Affairs facilitates the management of migrants who are distributed throughout the entire Italian territory.

POSITION	DATE	LOCATION
Prefect of Arezzo	12/04/2018	Arezzo
Prefecture IT official	13/04/2018	Arezzo
Prefecture official for migrants	13/04/2018	Arezzo
NGO representative	13/06/2018	Arezzo
Vice-Prefect of Rome	12/06/2018	Rome
Local Police office IT functionary	17/07/2018	Arezzo
SGA responsible	18/07/2018	Rome
DCSCIA Director	18/07/2018	Rome
Prefecture IT official	20/07/2018	Arezzo
Prefecture IT official	22/07/2018	Lecce
Prefecture IT official	24/07/2018	Florence

Figure 1: List of interviewees

Because SGA is used simultaneously by different agencies within the same Ministry, the developers of this II were questioned about the creation of one single tool within SGA to give each user the opportunity to monitor all the steps involved in registering and allocating every migrant, regardless of the agency involved. Thus, SGA developers came up with a flagging tool available to all the structures of the Ministry to monitor progress in allocating migrants and the status of the operations.

When a new group of migrants arrives, with the consequent creation of a build-up, five flags are activated. These five flags correspond to "national planning of allocation of migrants"; "regional planning of allocation of migrants"; "allocation"; "census" and "validation of the arrival of the migrants in accommodation". See Figure 2.

To explore the process of allocating and housing migrants throughout the Italian territory we will take a detailed look at how SGA works.

When a boatload of migrants first arrives in Italy, the system begins to record an initial snapshot of the situation of migrants upon arrival, which then will be further implemented and extended. This first monitoring is carried out by the Central Headquarters (DCSCIA) and, as regards the census, by local police offices.

Following the creation of this "arrival of migrants" event, the flags on the monitoring tool are activated. The first flag refers to national planning of migrants within the Italian Territory. This step is in the hands of the DCSCIA, which is responsible for all those tasks that require central coordination between multiple actors (the Italian regions). With this processing stage, the migrants are allocated from the "hotspots" (accommodation near the place of landing) to the regional hubs.

The SGA system takes great care to avoid migrants getting "lost" during the transfer and allocation process, which means preventing some migrants voluntarily or involuntarily becoming "invisible" to the system, either because they escape or because of human error (e.g. keying in the wrong number of migrants). Thus, the system has proved to be of great use in minimizing the risk of human error (e.g. alert in case of keying in inconsistent numbers of migrants).

Having discussed the first step in allocating migrants, now we will turn our attention to regional planning. The prefecture heading the region (Prefettura Capoluogo di Regione) is responsible for the allocation of migrants within the single provinces of the region. See Figure 4.

There are some important factors that affect the allocation of migrants within each Italian Province. The local prefecture may indicate that a socio-cultural event (e.g. political party or trade union demonstration) is to take place in the Province in a specific period of time. As the allocation of migrants in Italy is heavily charged with political implications, the recognition of external social factors is important in order to manage the allocation of migrants more effectively. Pragmatically, the Ministry of Internal Affairs tries to avoid the allocation of migrants while a demonstration is being held in a particular Province if the political climate is heated. See Figure 5.

The third flag refers to the allocation of migrants in each Italian Province and is carried out by local Prefectures. The Local Prefecture is responsible for ratifying conventions with CAS managers, the private owners of accommodations.

The fourth flag refers to the census of migrants. This processing stage is crucial for allocation because the census of migrants means that those that have the right to hospitality, those that do not and those that have to be treated differently (e.g. those that show vulnerability) can all be distinguished from each other. The census, which is in the hands of the local police stations, has proved to be particularly problematic because often migrants lack of any kind of documents. For this reason, the first step is to provide each migrant with a unique identification code (CUI). Recently, each CUI has been univocally linked with a fingerprint of the migrant. In this way, the migrant can be univocally monitored throughout the allocation process. See Figure 6.

The census is fundamental because some nationalities (e.g. Syrians) are supposed to follow a different pattern of allocation, being reallocated within those countries which have ratified the Dublin III Treaty. Thus there is tight integration between the census of migrants and DUBLINET, the II responsible for the reallocation of migrants.

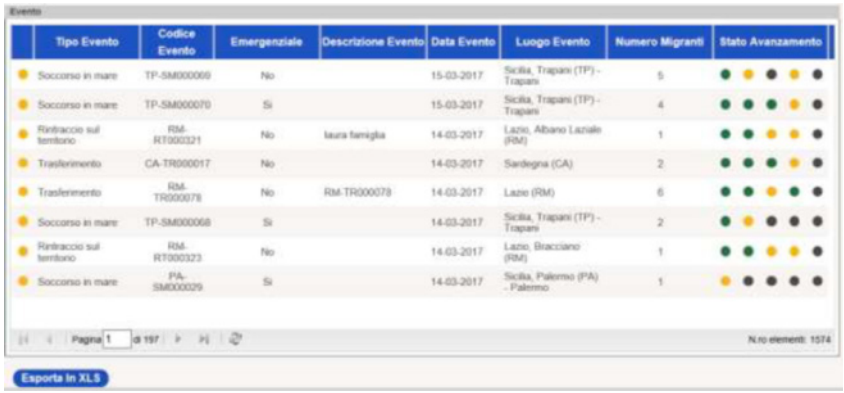

Figure 2 : The flag tool in SGA

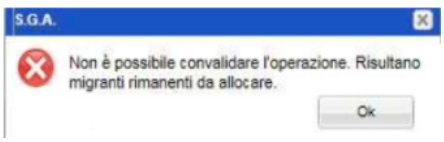

Figure 3: Alert message in SGA in case of missing migrants

The system next registers whether the migrant is vulnerable, and thus if he/she could be given the status of refugee. Clearly, the census of migrants is closely integrated with VESTANET, the II which is in the hands of those authorities whose role it is to recognize or deny the status of refugee. See Figure 7.

The fifth flag is the validation of the arrival of migrants in accommodation. This processing step involves close collaboration between the local Prefecture and the managers of CAS. For this reason, SGA is also accessible (with stringent limitations) to the private owners of accommodation.

This processing stage is fully operative only thanks to solid cooperation from the managers of the accommodation structures, who have to communicate promptly directly on SGA if the migrant has not arrived in the accommodation or he/she has left the accommodation without authorization, so as to activate the tracking procedures by the relevant authorities.

Analysis and Discussion

The enactment of the Information Infrastructure for the management of migrants in Italy has been supported by a plethora of different actors, namely, Parliament, the DCSCIA, Prefectures and "questure". This is coherent with one characteristic proposed by Lanzara, stating that an assemblage is the result of the mediation of the interests of multiple actors.

The decision to design this Information Infrastructure came after criticism moved by the parliament commission for digitalization in the Public Sector (the Institutional Sponsor of this assemblage) to the DCSCIA. This criticism claimed that the management of migrants failed to exploit fully the advantages offered by e-government tools.

Consequently, the DCSCIA stands out as the real project champion for the development of this new Information Infrastructure as the DCSCIA organized meetings with the actors that were supposed to interface with the Information Infrastructure to collect the requirements for SGA. Clearly this led to changes in the organizational landscape. In the enactment of SGA, the DCSCIA took a powerful, central role. In fact, before making SGA fully operative, the DCSCIA required all subunits (Prefectures and local police offices) to upload all information relative to migrants. It required all the prefectures to send offline excel sheets with the migrants' details to central headquarters. This "despotic" behaviour proved to be particularly ineffectual and led to delays in the introduction of the II. Moreover, it led to frictions amongst the power groups and to a low degree of institutional compatibility.

In the enactment of the Information Infrastructure, some components have been interpreted differently by different actors. For example, the confirmation of the presence of the migrant in accommodation in some Provinces is directly in the hands of the Prefectures, while in others it is managed by the managers of private accommodation. Specifically, this depends on the interpretation of the privacy regulations in each Local Prefecture.

The SGA case also presents characteristics of re-adaption of components from previous Information Infrastructures. In fact, SGA took some of its components from the Tuscany region II for the management of migrants. As a result, the construction of the assemblage in layers and the

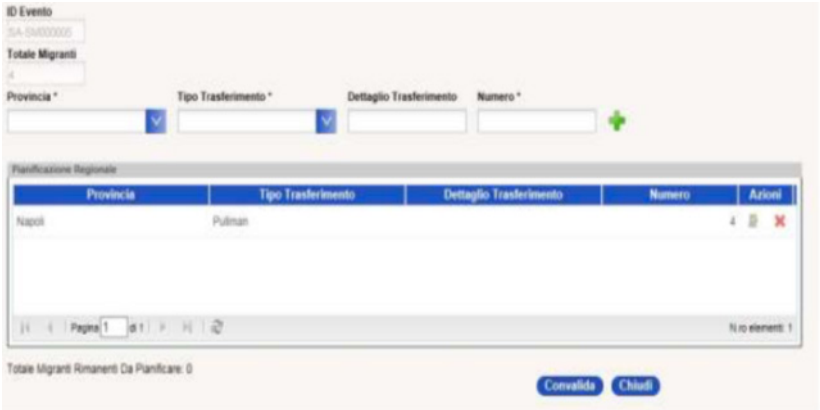

Figure 4: Regional planning for the allocation of migrants

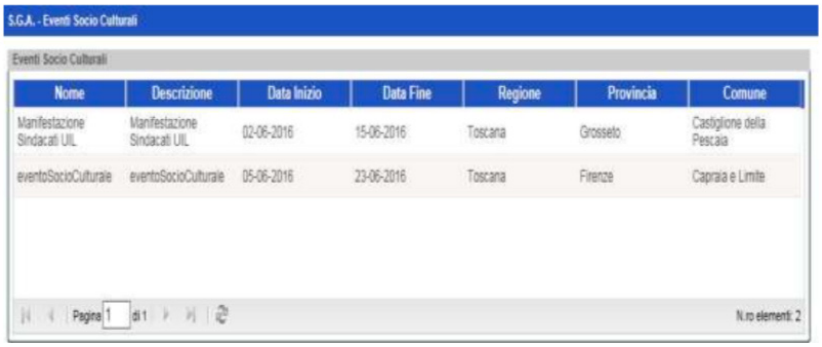

Figure 5: The socio-cultural events displayed by SGA

reconversion of existing materials for new purposes (bricolage) can clearly be seen.

The design of an assemblage should take into consideration the presence of a strong installed base in a given socio-technical dimension and not force changes in such a dimension if it is reluctant to change. This reflects the balancing of interests and dimensions that tend to maintain their own specificity and the impossibility of reaching an optimal solution. In other words, interests need to be made compatible with one another; they have to be mediated. In accordance with the framework proposed, SGA is also the result of interconnections between different dimensions (e.g. political, technical, juridical etc). For example, the SGA system is designed so that the managers of accommodation for migrants can themselves interface with SGA. However, because of the constraints of Italian Privacy legislation, the technical SGA interface which is in the hands of private actors is limited in its functions, so as not to disclose sensitive information concerning migrants.

If we regard the installed base as a duality, we are able to observe how in the case of SGA this assumes mainly an inactive role. It has been observed in fact that Italian Legislation, a critical installed base in SGA, places considerable constraints on the enactment of technology in the Public Sector (Lanzara, 2009). Particularly, as we have observed in our case, the Privacy Code and its interpretation have acted as inertia in the enactment of SGA. However, in the duality of the installed base, we have also been able to identify some enabling components. This is true of the fingerprint database that has been linked to the CUI code to identify the migrant univocally. In this case, this newly created technical compatibility between two components has formed a strong installed base, eliminating the risk of duplication of migrants' profiles. In other words, this installed base has avoided the risk that the same migrant, when moving to another county, declares another biographical identity and is counted twice.

The installed base is not a fixed concept but is evolving over time. The actors thus have to be ready to recognize the changes in the installed base and cultivate them. Italian legislation has recently introduced consideration of vulnerabilities as a determining factor for the recognition of the status of political refugee. Following this, the technical infrastructure had to change accordingly, to inscribe within its functions the vulnerabilities of the migrants. This installed base showed an evolving pattern. The various actors thus had to cultivate the new components with a caring attitude and adapt their behaviour as change occurred, recognizing that an assemblage is always in-the-making.

Main lessons and implications

This case study intended to examine the setting up of the information infrastructure for the management of migrants in Italy. Our findings suggest that this information infrastructure can be analysed under the lens of the "assemblage framework" as depicted by Lanzara. To this end, we highlighted the important role of the mediation of interests in the enactment of an Infrastructure. In line with the assemblage framework, we showed how this Information Infrastructure is not only the result of the interaction of technical components, but of a broader spectrum of socio-technical dimensions, such as technical and juridical dimensions. The result of the ongoing attempt to balance these dimensions is a sub-optimal Information Infrastructure. One finding of this research is that to reach more satisfactory outcomes, dimensions should recognize the effects of other dimensions on the assemblage.

This study also highlighted the duality of the installed base. The installed base could be both an enabling force for the development of the assemblage but also a dead weight. In our study, we demonstrated how the interconnection with the fingerprint database has had beneficial effects on the Information Infrastructure. On the other hand, Italian Legislation, and particularly the Privacy Code, does not permit the full exploitation of e-government tools.

Lastly, we argue that the assemblage is not exempt from interpretation problems. As we have outlined above in the analysis of the case, the validation of the number of the migrants in accommodation is carried out differently in different Provinces, and this increases the overall inefficiency of the II. The outcome of the assemblage cannot be predicted a priori because different interpretations may occur, and actors may deploy the same components differently. This is in line with the research stream

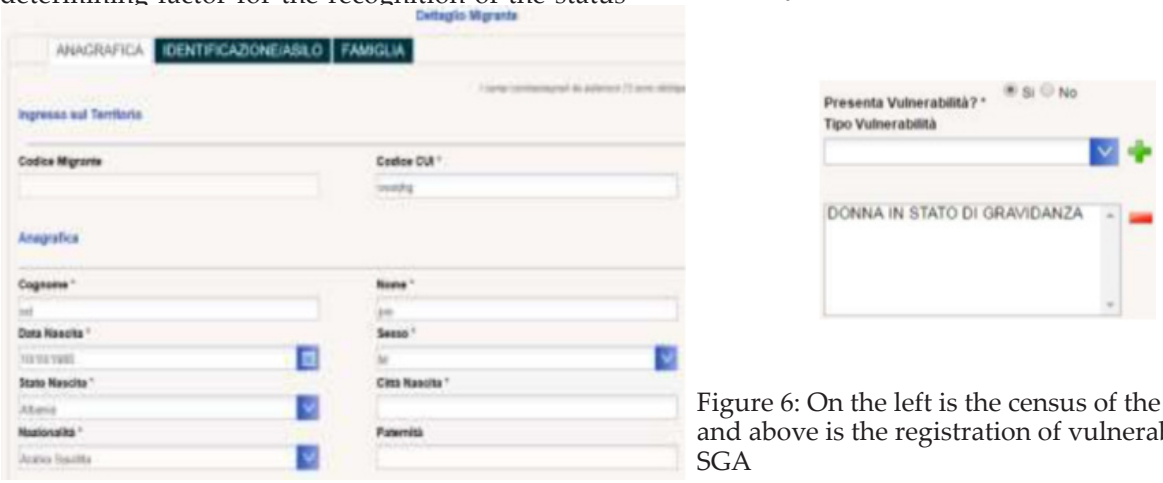

Figure 6: On the left is the census of the migrant and above is the registration of vulnerabilities in SGA

rejecting the so-called technology determinism; technology enactment does not happen in a linear fashion, rather it is characterised by continuous interventions, adjustments and refinements.

Conclusion

The use of ICT in the Public Sector is rapidly gaining momentum and this paper explored one such application in a particular area of Public procedures in Italy. Our case study aimed to study specifically one II (SGA), which is in use for the allocation of migrants, through documents and interviews. These data sources revealed some positive features of the II under analysis, for example, the presence of alerts to limit users' mistakes. Using the lens of the assemblage theory, we also observed problems in the enactment of this II. In particular, we highlighted how the interplay of conflictual interests, actors, and dimensions has led to a sub-optimal Information Infrastructure.

Given the plethora of public agencies involved in the management of migrants in Italy, we decided to focus only on those that directly interact with the Information Infrastructure for the management of migrants. We hope that future research will also conduct interviews and collect documents from other agencies which do not directly interface with SGA but have a substantial effect on the management and allocation of migrants in Italy. One limitation of this research is that it fails to analyse the trade-off between usability and security. However, the interviewees did not disclose any details regarding this trade-off.

In conclusion, we believe that novel research in the domain of the Information Infrastructure for the management of migrants should also explore the phenomenon at European Level, conducting interviews and gathering documents from European actors.

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