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**Organizational Practices of Public Administration**  
**Digitalization in the Italian Context:**  
An Explorative Research

**Pratiche Organizzative di Digitalizzazione della**  
**Pubblica Amministrazione nel Contesto Italiano:**  
una Ricerca Esplorativa

**Candidato**  
Fabio Maria Esposito

**Relatore**  
Prof. Paolo Landri

**Correlatore**  
Prof. Biagio Aragona

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Ai miei nonni e ai miei genitori,  
al loro impegno, origine delle mie opportunità.

Alla memoria di Filippo, Maurizio e Duccio,  
che continuano a vivere in ciò che mi hanno insegnato,  
e senza i quali oggi non sarei qui.

## Index

Introduction .....	6
1. The digitalization of Public Administration: definitions and conceptualizations .....	13
1.1 Digitalization: what are we talking about? .....	15
1.2 The use of digital technologies in the public sector .....	23
1.3 E-Government? T-Government? Digital Government? Definitions and definers .....	25
1.4 Digital government: contextualization, phases, models .....	30
1.5 Contextualization .....	31
1.6 Phases, Stages, Generations: tracing digital government over time .....	35
1.7 Concluding remarks and alternative perspectives .....	50
2. Methodology and research context .....	60
2.1 Research context .....	62
2.1.1 Why Bologna? .....	63
2.1.2 Interfaces as ‘sensitizing devices’ for ethnographic field construction .....	68
2.1.3 Moving on: with, behind and beyond the interfaces .....	73
2.2 Three empirical accounts: organizational practices of Italian PA digitalization .....	79
3. PA digitalization in the Italian context: the case of the Bologna municipality .....	99
3.1 Methodological notes .....	101
3.2 PA digitalization as an emergent and open-ended process .....	109
3.2.1 The Iperbole civic network .....	110
3.2.2 Demographic services and PA digitalization .....	131
3.2.3 Administrative digitalization .....	138
3.3 Local and national coordination of PA digitalization projects: digital agendas .....	144
3.4 Concluding remarks .....	157
4. Crafting action nets through digital platforms: technological agency and institutional work in public administration digitalization processes .....	164
4.1 Introduction: between OS and STS .....	164
4.2 Neoinstitutional theory: Organizational fields, institutional work and agency .....	168
4.2.1 Foundational concepts and developments in neoinstitutional theory .....	168
4.3 Neoinstitutional theory and ANT: non-humans and institutional work .....	174
4.4 Digital technologies and other non-humans as institutional actants .....	177
4.5 Analyzing public administration digitalization as a process of institutional entrepreneurship .....	179
4.5.1 Context .....	179
4.5.2 Methodology .....	182
4.6 AgID and the DTD as institutional entrepreneurs: the platformization of Italian PA .....	183
4.6.1 Enabling platforms, or “the country’s operating system” .....	184
4.7 The “country’s design system” .....	187
4.7.1 Designers Italia and Developers Italia, or how (we want you) to do what we want you to do .....	189
4.7.2 Inscription, normativity mimicry and standardized packages .....	193
4.8 The platform PA2026 .....	195
4.8.1 How PA2026 defines digitalization .....	195
4.8.2 Configuring PA organizations as platform users .....	197

4.8.3	Defining relations and practices through digital means, or the platformization of state-internal relationships.....	198
4.9	Concluding remarks .....	202
5.	The new production of citizenship: the Italian Public Service for Digital Identity (SPID) between digital practices and new inequalities.....	206
5.1	De-scribing technologies in use: some Actor-Network Theory concepts.....	208
5.2	A Brief definition of the context .....	210
5.3	Methodological notes .....	212
5.4	From citizens to users .....	216
5.4.1	The Italian Case: the Public Service of Digital Identity.....	218
5.4.2	Digitizing one's identity .....	222
5.4.3	Getting Recognized.....	226
5.4.4	Managing and using a SPID identity .....	230
5.5	Concluding remarks .....	235
6.	Conclusions.....	245
	Bibliography .....	251



## Introduction

Over the last decades, the vast proliferation and integration of 'digital' tools in various spheres of social life has led to a rearticulation and redefinition of organisational structures, interaction practices and, more generally, human agency: the circulation of information and content, the intermediation of services, the management of production, work and business processes are - to name but a few examples - increasingly supported by digitally organized infrastructures (Marres, 2017). In the wake of New Public Management and the fragmentation and outsourcing of state functions, this socio-technical phenomenon, generally summarised through the umbrella concepts of 'digitization', 'digitalization', and 'digital transformation', is also increasingly affecting public administration (PA) bodies and institutions.

As we will see in the first chapter of this dissertation, the digitalization of PA is often presented as an unambiguous, desirable and/or even inevitable process, and linked to discourses concerning organizational efficiency, transparency and effectiveness. On the other hand, what 'digitalization' in the public sector means *in practice* is scarcely analyzed and subsequently the empirical aspects of this process – which encompasses multiple areas and functions of public administration – often remain unaddressed. What we discursively define as 'digital' in fact empirically presents itself as a heterogeneous multiplicity of software/immaterial technologies (interfaces, apps, platforms, user profiles, data, websites,...) and hardware/material devices (PCs, tablets, smartphones, sensors,

datacentres,...) that base their functioning on Boolean algebra and binary language, i.e. on symbolic-numerical expressions of logical relations that can be applied in a wide variety of domains for diverse purposes (Bruni, 2022).

Thus, digitalization can refer to heterogeneous processes and involve very different technologies, knowledge, actors, concepts, discourses and practices. In this sense, it is difficult (or at least of little use) to talk about digitalization and its effects in an abstract and general way, and instead it seems sensible to consider the different digitalization processes empirically in their specificity and in a situated manner. This general principle can also be useful when applied to the digitalization of PA, where IT elements and processes of various kinds entangle with procedures, practices and matters of public and collective interest, rearticulating the ‘machinery’ of the state apparatus and influencing the way it deals with its objects and instruments of government (whether it is a matter of collecting data for policy planning or digitalizing interactions with citizens). Indeed, as acknowledged in the relevant literature, the digitalization of PA affects multiple domains and functions, embracing issues within, between and beyond state organizations that also develop according to specific contextual factors (Janowski, 2015).

This dissertation is the outcome of an exploratory research on Public Administration (PA) digitalization in the specific Italian national context. In the first chapter we will see how PA digitalization is often described in academic as well as in grey literature by using deterministic and techno-optimistic stances,

how it is subsequently measured and defined through things such as rankings, stages, evolutionary models, and benchmarks and how it is normatively linked to outcomes such as efficiency or better government. Here, the idea is to look at PA digitalization from a different, qualitative, perspective. The methodology itself, the research context, and the broader contextual factors that participated in and influenced its construction and enactment will be described in the second chapter, moreover each empirical chapter has its own analytical section, methodological notes and conclusions. For this reason, the first chapter will only briefly introduce the analytical approaches used for the scopes of this paper, mainly Actor-Network Theory, Scandinavian Institutionalism and Infrastructure studies.

The empirical part of this dissertation is divided into three distinct chapters referring to diverse analytical and empirical focuses that emerged during the enacted research path:

- 1) the first focus is on the digitalization trajectory of the municipality of Bologna, allegedly one of the most digitalized municipalities in Italy; here we will see how (early) PA digitalization arises upon local and contextual factors over time, and in relation to specific fields of municipal action such as demography, institutional communication, and public service delivery, leading to the current state of affairs.
- 2) the second empirical focus is on the strategies and the efforts the Italian central state (through some dedicated governmental agencies) is



putting into place to coordinate, homogenize and standardize local and national digitalization processes that took place in a dispersed and fragmented ways over the last decades, here we will look at how governmental agencies engage in forms of *institutional work* and *institutional entrepreneurship* aimed at changing the way “things are done” - also through the platformization of state internal relationships;

3) the third and last focus deals with one of the elements that emerged as central to PA digitalization practices for citizen, namely forms of verified digital identity. Through this chapter we will look at how (at least in the Italian case) PA digitalization also relies upon the delegation of specific set of actions and practices to users, here made visible by taking a closer look at how citizens deal with the production, management, and use of the national digital identity SPID.

Through these focuses, we will look at the heterogeneity of PA digitalization practices and see how new ‘institutions’ related to digitalization arise in the realm of PA, how they are designed, redesigned and coordinated in a nested way (Goodin 1996) through the activities of ‘institutional entrepreneurs’ engaging in ‘institutional work’ aimed at the construction of a digital PA infrastructure - rather than simply adopted or induced by deterministic forces (Maguire, Hardy & Lawrence 2004; Lawrence and Suddaby 2006). Moreover we will see how digitalization is related to new practices in the interaction between PA and citizenship and how this may lead to new forms of inequality, here we were

mainly inspired by the concepts of ‘script’ (Akrich 1992) ‘user configuration’ (Woolgar 1990) and ‘new production of users’ (Hyysalo et al. 2016). More generally, apart from exploring the current landscape of Italian PA digitalization, we will try to highlight the organizational role played by (digital) technical objects in the definition of new institutional settings and practices.

In fact, even though today the empirical world and our daily experience suggests how much technology and organization are deeply intertwined among each other, on the disciplinary lever there seems to have been a lack of recognition of this phenomenon. After prominent studies regarding the relationship between technology and organization had been enacted through the central decades of the twentieth century (see Plesner and Husted 2019), later technology seemed to have vanished as an Organization Studies focus of interest, while organizational and work dynamics had gone missing in Science and Technology Studies research.

Indeed, in 2008 Wanda Orlikowski and Susan Scott (2008) published an influential article about sociomaterial practices, denouncing an unjustifiable underrepresentation of technological dimensions in organizational studies, and challenging the analytical separation of technology and organization so largely widespread throughout organizational and managerial disciplines (see also Law 1997). Today, given the widespread use of digital technologies in everyday life, the relation between organization and technology appears to be ubiquitous and it seems difficult to challenge the idea that technologies affect organizational

issues such as power relations, labour (processes), professionalism, communication and (infra)structure in undeterminable, unforeseeable and intertwined ways (e.g., Barros 2014; Van Dijke et al. 2018).

While nonetheless deterministic and dualistic narratives on digital technologies remain almost hegemonic (Plesner and Husted 2019; Bory and Di Salvo 2022), during the last decade many disciplines, among which Organizational Studies, have increased their interest in the role played by technology and tried to escape a deterministic stance by integrating sociomaterial theories and concepts developed within Science & Technology Studies (e. g. Czarniawska and Hernes 2005, Plesner & Husted 2019). Simultaneously, the initial interest STS showed for organizational and work dynamics (cfr. Callon 1991) seems to have decreased – if not been completely erased over time until lately. In fact, despite the symmetrical vocabulary it provides (Akrich and Latour 1992), its long-haul tradition in de-scribing relational dynamics at the junction of work, organization, and infrastructure (Akrich 1992; Star 1999; Walsham and Sahay 1999), and more recent contributions following these paths (see Bruni and Tirabeni 2022), STS seem to be struggling to find the right place and acknowledgement in the contemporary ‘techno-organizational’ disciplinary landscape. With the aim to also reconstruct interdisciplinary connections by looking at empirical cases, throughout this dissertation OS and STS concepts have been used as a source of inspiration to enact an analysis of Public Administration digitalization projects in the Italian context.



## 1. The digitalization of Public Administration: definitions and conceptualizations

As we saw in the introduction, while discussing about the ways diverse scholars framed the relation between technology and organization over time, there is a long academic tradition focusing on the societal and organizational implications of (digital) technologies. Far from being only a phenomenon of mere academic interest, the way technologies intertwine with human thought and practices constitute a matter of interest and concern for many kinds of organization as well. In the academic realm, three main interpretative lenses have been developed to analyse and make sense of the relationship that ties material and immaterial “technologies” with human (individual or collective) activity: technological determinism, social constructivism and the so called sociomaterial approach (Plesner and Husted, 2020; Orlikowski and Scott, 2008; Leonardi, 2013; Aragona, Arvidsson and Felaco, 2021). While the first two approaches tend to highlight, respectively, either the technological *or* the social factors involved in the development and implementation of technologies (or to use these factors as an *explanans* for the consequences they bring by), the third approach tries to overcome the determinist stances by articulating a more “symmetrical” view of the relationship between social and material aspects of reality (Latour, 2005). To do so, sociomaterial approaches, particularly *Science & Technology Studies* (STS), are built upon an ontology that doesn’t accept any *a priori*

essential distinction between human and non-human<sup>1</sup> actors (Plesner and Husted, 2020).

To be aware of these distinct theoretical and analytical frameworks is important if one wants to approach and inquire phenomena somehow related to the interplay of work, organization, and technology (*ibidem*). Since the digital transformation of public administration and public service delivery is one of such phenomena, one of the aims of this chapter will be to lie the foundations necessary to define an adequate analytical framework to study this particular transformation. Generally, the choice of a specific analytical framework depends, among other things, on the chosen “object” of inquiry and on how previous research and literature studied and approached this “object” so far. This is why the following chapters will focus on different topics: (1) the definition of digitalization (in the public sector) as an object of inquiry; (2) the way this “object” has been addressed, represented and thought of in different ways within the related academic and grey literature, and the main issues and concerns that surround it; (3) the way this “object” manifests practically in the international context (by giving some practical examples) (4) the definition of the “object” in the Italian context<sup>2</sup>. Specifically points 1, 2 and 3 of the above list are necessary for the definition of what we think is the most adequate analytical framework to

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<sup>1</sup> This can be texts, objects, technologies or other elements that “modify a state of affairs by making a difference” (Latour 2005, 71).

<sup>2</sup> This section of the thesis will be based on secondary statistical data as well as on ethnographic material – mainly deriving from observation and document analysis. The sources and methods used to gather this data will be described more accurately in the methodological chapter of this thesis.

empirically explore the way digital transformation of the public sector unfolds in practice. Obviously, the different topics are deeply intertwined, thus it is difficult to separate them discursively in strictly delimited sections, nonetheless their conceptual distinction can help us to address and explore the different implications, fundamental issues and concerns surrounding the digitalization of public administration and services as they articulate on different – theoretical and practical – levels. We will now start to look at how terms like digitisation, digitalization and digital transformation have been differently defined. Successively we will analyse how these terms are applied to the public sector. Finally, we will look at different models, rankings, and conceptualizations of digitalization in government proposed by scholars and professionals in academic and grey literature and to the ways these have been framed and criticised. In conclusion, we will briefly introduce a different set of approaches to digitalization in government and a few analytical concepts that will be further discussed in the following chapter.

### *1.1 Digitalization: what are we talking about?*

For some authors, “digitalization is the most significant on-going transformation of contemporary society” (Reis et al., 2020, np). While the term digitalization is nowadays broadly used, most definitions of the term do not go beyond the technical aspects of the phenomenon (Schimdt et al., 2016), are vague, tautological and/or simplifying, as for instance the following examples show:

- “[digitalization means] enabling or improving processes by leveraging digital technologies and digitized data.” (Gupta, 2020)
- “[digitalization] represents the integration of multiple technologies into all aspects of daily life that can be digitized.” (Grey and Rumpe, 2015)

. Definitions that try to go beyond the mere technical level define digitalization, for instance, as “the networking of people and things and the convergence of the real and virtual worlds that is enabled by information and communication technology (ICT)” (Kagerman, 2015: 24), or try to highlight different non-technical related aspects (but then, mostly business-related) like the creation of new opportunities that affect existing business models and industry barriers (Weil & Woerner, 2015) or the nature of services/products and value-creation processes (Schmidt et al., 2016), while others, given the rapid pace of digital technology developments, simply seem to be nowadays a bit outdated (Tapscott, 1996).

But let us take a brief step back, since obviously almost every definition of digitalization (be it more or less “technical”) contains the word digital (or the term “digital technologies”), as we can see in the list of definitions of the term provided by Reis and colleagues (2020 - Table 2). In fact, the synthetic term 'digital' defines a vast set of devices and computational infrastructures (Marres, 2017), software and hardware, ranging from the now 'domesticated' smartphones, tablets and PCs through less familiar elements such as data centres, algorithms, (open) standards, physical networks and interoperability protocols, to the internet itself and its modes of access and interaction through browsers, search engines,



apps, platforms and other interfaces (Constantinides et al., 2018). This means that when we talk about “digital technologies”<sup>3</sup> or “information and communication technologies (ICTs)” we refer to a very broad and heterogeneous range of material and immaterial artifacts. It is important to keep this in mind, because as we will see, the implementation of “digital technologies” is difficult to be conceived as a univocal phenomenon and can assume many different forms, depending – among other things – on the technology to be adopted and on the broader ‘pre-existing’ (technological- and) non-technological context. Indeed, all these different technologies are defined as digital, in so far as they are all founded on binary logics (Boole, 1854; Plesner and Husted, 2020), which rely upon the transformation of analogue<sup>4</sup> information into digital information, i.e. information encoded into zeroes and ones<sup>5</sup>. This latter process is defined by some academic and non-academic authors (Bloomberg, 2018; Plesner and Husted, 2020; Gupta, 2020) as *digitization*, which is not to be confused with the term *digitalization*.

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<sup>3</sup> For instance, the OECD states that “Digital technologies refer to ICTs, including the Internet, mobile technologies and devices, as well as data analytics used to improve the generation, collection, exchange, aggregation, combination, analysis, access, searchability and presentation of digital content, including for the development of services and apps.” (OECD, 2014: 6)

<sup>4</sup> Robinson (2008: 21) defines “analog” as: “smoothly varying, of a piece with the apparent seamless and inviolable veracity of space and time; like space and time admitting infinite subdivision, and by association with them connoting something authentic and natural, against the artificial, arbitrarily truncated precision of the digital (e.g., vinyl records vs. CDs).”

<sup>5</sup> Some trace back the “birth” of binary logics to G. Leibniz’s work on binary systems and the Morse code, the latter being a communication system which functions by alternatively combining only two different discrete states, like the zeros and ones in computational binary logics, another practical (non-computer related) example of binary logics are traffic lights (Brennen & Kreiss, 2016).

In fact, there seems to be quite a bit of confusion regarding the usage of the terms *digitization* and *digitalization* (Clerck, 2017), for some authors (Srai & Lorentz, 2019) the difficulty of finding a univocal definition in the literature - and the resulting ambiguity of what we are referring to - are to be derived from the elusiveness of the term itself, referring, as we saw, to the use and implementation of a broad and heterogeneous set of different technologies “united” within one definition only because of their underlying functioning logic. In fact, it seems that terms like digitization and digitalization are often simply used as synonyms in the literature (Brennen & Kreiss, 2016, Larrson & Teigland, 2019) without any further distinction, this is true for a third term as well: *digital transformation*. Some authors have recognized the “confusion” surrounding the three terms and thus point out to the importance of an adequate and more accurate definition, or at least, to the usefulness of a more differentiated language (Bloomberg, 2018, Mergel et al., 2019).

Broadly speaking, as we just saw above, digitization refers to the transformation of analogue information into digital data, more specifically, as Brennen and Kreiss (2016: 2) note:

Digitization is a process that has both symbolic and material dimensions. Symbolically, digitization converts analog signals into bits that are represented as 1s and 0s. Digitization therefore produces information that can be expressed in many different ways, on many different types of materials, and in many different systems. At the foundation of digitization in the context of contemporary computing are transistors, devices that amplify and conduct electrical signals.

This definition connects the symbolic and material aspects of digitization, which we could frame as a process of “translation”, and, as the authors highlight, is based on the existence of very material elements – i.e. transistors – and can be expressed on very different “materials”. In fact, these authors frame *digitization* as a “technical process of conversion”; *digitalization*, on the other hand, refers to a wider process that encompasses “the structuring of many and diverse domains of social life around digital communication and media infrastructures” (ibidem: 5). Bloomberg (2018) compares this academic definition of digitalization with a more “business-oriented” one given by Gartner<sup>6</sup>, stating that while it is useful to differentiate between digitization and digitalization, at the same time there is no “single, clear definition” for the latter. Beyond the nuanced meanings that the term digitalization may assume for different actors in different sectors, (that, based on their interests respectively highlight one or another aspect of digitalization processes) we can give for good that the difference between the terms digitization and digitalization resides in the fact that the first one describes the “technological conditions necessary for digitally related social change” while the latter refers to “the actual change” (Ringerson et al, 2018, np). This “actual change” is often also referred to as “digital transformation” (ibidem, Mergel et al, 2019), while, however, this third term, as Bloomberg (2018: np) notes, should be interpreted differently, since:

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<sup>6</sup> “**Digitalization** is the use of digital technologies to change a business model and provide new revenue and value-producing opportunities”.

an organization might undertake a series of digitalization projects, ranging from automating processes to retraining workers to use computers. Digital transformation, in contrast, is not something that enterprises can implement as projects. Instead, this broader term refers to the customer-driven strategic business transformation that requires cross-cutting organizational change as well as the implementation of digital technologies. Digital transformation initiatives will typically include several digitalization projects [...].

Apart from defining digitalization as something that can be implemented through single projects (while stating that digital transformation normally includes several digitalization projects) this definition highlights the customer-oriented transformation requiring “cross-cutting organizational change” that needs to be enacted concomitantly with “the implementation of digital technologies” to achieve a “digital transformation”. Here we notice how this kind of process rearticulates not only the internal relationships of an organization (e.g., for the integration of the single digitalization projects), but also the way in which it interacts with external actors and stakeholders, in this case customers. In other words, digital transformation encompasses the implementation of not just one, but rather of a wide range of projects (Larsson and Teigland, 2019), which means that the adoption of digital technologies is paralleled by a more general strategy of organisational change (Bloomberg, 2018).

Similarly, Mergel et al. (2019, p. 12), who try to find an “empirical” definition of the three terms rather than a theoretical one by interviewing

different kind of experts, show how the use of a differentiated language can better prepare and inform research work about these phenomena. In this sense, they state that the concept of digitization is best “*to highlight the transition from analogue to digital services with a 1:1 change in the delivery mode and the addition of a technological channel of delivery*”, the term digitalization should be used to “*focus on potential changes in the processes beyond mere digitizing of existing processes and form*” while the term digital transformation – which should be based on a more “holistic” view of the organization – comprehends the revision of core processes and services and should be used to “*emphasize the cultural, organizational, and relational changes [...] in order to differentiate better between different forms of outcomes*”. In other words, basing on the empirical data gathered by interviewing experts, the authors (*ibidem*) highlight three main points that differentiate the term “digital transformation” from its ‘cousins’ digitization and digitalization and from more theoretical framings: (1) empirically grounded definition of digital transformation focuses on holistic process to change products and culture (2) digital transformation goes beyond digitization and digitalization by including the whole organization (3) digital transformation changes bureaucratic and organizational culture and relationships to stakeholders.

As a closer look at how the terms *digitization*, *digitalization* and *digital transformation* are defined and declined shows, an accurate and adequate

vocabulary seems to be necessary in order to confront ourselves with the implementation of digital technologies in organizational contexts. Nonetheless, as we saw many authors state, there is a sort of confusion surrounding the terms and a clear and univocal definition of what digitalization is doesn't seem to have been developed yet. In this sense, the place and context in which digitalization happens in practice, and is studied in theory, seem to influence the different declinations of its meaning. Professionals and practitioners mostly emphasize economic and economy-related aspects of digitalization, like business models, customer-orientation and value-creation processes, while academics – also depending on the different disciplines they belong to – adopt different perspectives: some focus exclusively on technical implications of digitalization processes, while others intend to highlight the social and organizational aspects of this phenomenon, as for instance the new forms and channels of interaction it brings by (Henman, 2019). For this reason, some authors call for a more context aware exploration of the topic, terminologically as well as empirically/practice related (Mergel et al., 2019; Reis et al., 2020). In this sense it seems to be meaningful to further explore the diverse theoretical and practical dimensions related to the implementation of different technologies in organizational contexts, and, in our case to narrow down the context of digital transformation to the public sector.

### *1.2 The use of digital technologies in the public sector*

The use of digital technologies is obviously not limited to the private or public sector, to the point that some define it as a “total social fact” (Lury and Marres, 2017), however, establishing a distinction between digitalisation in the public and in the private sector seems to be adequate since there are “features of the public sector that, taken together, create a specific context for digitalisation and make the conditions for digitalisation different from those in the private sector” (Lindgren et al., 2019: 1178). Indeed, there seems to be a “relevant difference” between the organizational changes triggered by the use of ICTs in the private and public sector (difference scarcely addressed by academic research), also because the use of ICTs in the public sector is part of policy-making processes that can have deep implications on the “nature” of public services and the democratic principles upon which these are built (Cordella and Iannacci, 2010). The first governments started adopting digital technology to support *internal workflows* (Andersen & Dawes, 1991), as for instance Denmark, a country that started using electronic archives since the 1970-80s (Plesner and Justesen. 2018), while in the 1990s some countries (e.g. Estonia) adopted the implementation of ICTs as a broader governmental strategy comprising institutional communications and interactions with citizens and other non-governmental actors (Marcus, 2020). Although public institutions have “long been developing and

adopting digital technologies for the policy processes and service delivery” (Henman, 2019: 6), this didn’t immediately foster academic interest regarding the phenomenon. However, since the late 1990s scholars have started to focus their attention on the implementation of digital technologies in the public sector; this initial work (e.g. Henman, 1996; Frissen, 1997; Fountain, 2004) lies as foundation that inspires a now growing research interest about these issues (Henman, 2019). Generally speaking, the concerns surrounding digitalization first appeared in practical/professional contexts, to only later become an object of academic interest, e.g. the term “digital transformation” was first coined by professionals and only later became a phenomenon studied and researched on by academics (Reis et. al, 2020). Even in relation to the public sector, in fact, these issues are - and have been – often addressed by “professionals” in grey literature published by private companies and consultancy groups<sup>7</sup> (e.g. Gartner, PwC, Capgemini), local and national governmental institutions and supranational organizations like the United Nations (UN), the Organisation for Economic Co-operation and Development (OECD), the World Bank, and the European Union (EU) (Barcevicius et al., 2019 - e.g., European Commission, 2020) and there is nowadays a whole “industry of developing, ranking and ever progressing what is typically

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<sup>7</sup> <https://www.gartner.com/en/industries/government-public-sector>  
<https://www.pwc.com/cb/en/publications/assets/cr-building-a-digital-government.pdf>



called e-government or more recently digital government” (Henman, 2019: 71).

### *1.3 E-Government? T-Government? Digital Government? Definitions and definers*

In a similar fashion to how we saw is valid for the “generic” definition of digitalization, definitions of digitalization in the public sector too are often vague and tautological but mostly tend to overcome a merely technical approach by also addressing the organizational and broader societal dynamics tied to digitalization processes; here the adjective term “digital” is more often applied than its processual derivation “digitalization”, and in fact many refer to digitalization in Public Administration by using the terms “e-government” or “digital government”, and less commonly “smart” or “intelligent” government (Barcevicius et al., 2019). As we noticed for the terms digitalization and digital transformation, also the terms “e-government” and “digital government” are often used interchangeably (ibidem). Yet there seem to be recognizable differences between the two. In the introduction of the 2014 “Recommendation of the Council on Digital Government Strategies”, for instance, the OECD proposes a set of definitions, including two different ones for “digital government” and “e-government”, being the latter defined as: “the use by the governments of information and communication technologies (ICTs), and particularly the Internet, as a tool to achieve better government” (OECD, 2014: 6). This definition appears to be very simple but already links the use of ICTs to

non-technical outcomes, as it focuses on their use by the governments to somehow achieve “better government”, which is not defined any further<sup>8</sup>. On the other hand, the same document proposes a definition of “digital government”, which refers to:

The use of digital technologies, as an integrated part of governments’ modernisation strategies, to create public value. It relies on a digital government ecosystem comprised of government actors, non-governmental organisations, businesses, citizens’ associations and individuals which supports the production of and access to data, services and content through interactions with the government.

We can see how this definition too, talks about “digital technologies”, linking these to dynamics of production, access, and interaction regarding data, contents, and services. At the same time this definition also underlines other aspects, like the creation of public value, its framing as an *integral* part of “governments’ modernisation strategies” and the entanglement of different actors into an “ecosystem”. Thus, at least relying on these and similar definitions, the difference between the two terms lies in the fact that “e-government” seems to imply a less holistic and more descriptive and technical view of the use of ICTs in governmental environments, while “digital government” refers to the creation of a whole interacting ecosystem comprising governmental and non-governmental actors and the production and access to data, services, and content

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<sup>8</sup> Similarly, Hai (2007, 56) describes e-government as the: “utilization of Information Technology (IT), Information and Communication Technologies (ICTs), and other web-based telecommunication technologies to improve and/or enhance on the efficiency and effectiveness of service delivery in the public sector”. Here the generic term “better government” used in the OECD definition is strictly tied to an idea of improved efficiency and effectiveness.

as the outcome of a coherent institutional *strategy*. We may here recognize a similarity with the definitions seen above relating to the difference between *digitalization* and *digital transformation*, namely, the fact that digital government – like digital transformation - refers to *strategic* changes regarding the *whole* organization and its surrounding environment, while e-government, like digitalization, simply refers to the use of ICTs (without further description), but this time in a specific context – i.e. government.

In fact, there also seem to be time-related semantic differentiations to be made, as the terms “e-government” and “digital government” – even though, as we saw, often used interchangeably - seem to be relatable to different “phases” of digitalization processes in government, being the first used more often before 2015 (Henman, 2019; Barcevicius et al., 2019), also because, as Ranchordas (*forthcoming*: np) notices, the meaning seems to have “shifted from the use of technology solely for internal affairs”, often defined as *e-government* “to the partial or full automation of administrative decisions or communication with citizens” mostly defined as *digital government* or *e-governance*. Underlining this terminological differentiation and its semantic shifts can be useful in so far as it highlights how the inquired phenomenon seems to be continuously evolving at a fast pace and thus difficult to capture conceptually once and for all in an “universal” sense. In fact, and probably precisely because of these features, many scholars and non-academic researchers have tried to define different models of digitalization processes in government by recognizing (mostly four or

five) distinct evolutionary phases, incremental “steps” or benchmarks that are given diverse labels (like, for instance *Government 1.0; 2.0; 3.0* – e.g. Charalabidis et al., 2019); each of these phases, steps or benchmarks is normally connected to the use of different “generations” of technology and/or to the presence of diverse “external pressures”, stakeholders or “organizational skills” that we will examine in more detail later on (Janowsky 2015; Scholta et al., 2019; Bounabat, 2017). These efforts to identify more or less “discrete” stages revolve around “the basic idea [...] that descriptive stages can potentially be used in a prescriptive manner” (Klievick & Janssen, 2009: 276), i.e. also as “learning models” that help organizations to practically navigate the different evolutive stages (Nolan, 1979). Indeed, there are many outputs that try to configure themselves as practical guides with the intention to help governmental institutions to achieve digitalization, this is particularly true for reports and other documents produced by private companies and supranational organizations like the UN, the OECD and so on. However, as Gil-Garcia et al. (2018) notice, even in academic spheres research about digital government often seeks to provide practical recommendations (e.g. Fountain, 2004). Since the digital government research field is conceived as profoundly related to practice, some (e.g. Dawes, 2013) argue that the deep practical know-how accumulated by public policy-makers and government organizations should be “used” as a foundation that guides “research questions, possibilities, and the presentation of results” (Gil-Garcia et al., 2018: 641). Apart from being very practice-related, as an academic

research field digital government emerged from various disciplines, including - but not limited to – information science, computer science, management, information systems, public administration, communication, and political science (*ibidem*). In this sense, digital government refers to something that happens in practice, at the same time it is more and more configuring itself as a research field that, now, still seems to be fragmented and dispersed. Exactly for this reason, as Gil-Garcia et al. (2018) notice “there is clear potential for complementary and collaborative work”.

The fact diverse actors (institutions, scholars, private companies) and academic disciplines engage in conceptual and descriptive effort to define what digital government is and how it “evolves” over time shows that there is a growing and differentiated interest in the phenomenon, on the other hand, it shows that different conceptions of it co-exist and have to be further analysed and discerned if we want to gain a better idea of how to empirically approach digitalization in the public sector in a fruitful way. To do so, in the next sections we will analyse how institutional actors, private companies and academic literature approached digital government so far, further, we will look at different practical examples of how digitalization may manifest in the public sector. This seems to be reasonable because, like Bertot et al. (2016) notice, digital government takes place on multiple levels of government (from central state to local administrations) and involves actors from the private sector and civil society, configuring itself as a *non-linear* innovation process with vaguely

defined boundaries (Bertot et al., 2016). In other words, digital government (as the broader concept of digitalization itself) can mean nothing and everything at the same time, first, because it evolves rapidly in a non-univocal way, second because it happens on different levels in different contexts not delimited by any fixed and standardised border, third because its conceptualization is somehow ‘biased’ depending on the kind of actor (institutional, academic, corporate) and disciplinary approach that tries to depict it; in fact, “there is still not a clear and consistent understanding of the content of this concept among practitioners and academia” (Charalabidis et al., 2019). Therefore, analysing different definitions and interpretations of digital government, and trying to understand how it manifests in practice by looking at concrete examples, may be helpful in our aim of finding an adequate analytical approach.

#### *1.4 Digital government: contextualization, phases, models*

As we briefly saw above, the research field, as well as the practical implementation of what we refer to as *digital government* are both characterized by a notable heterogeneity, and in fact, as Cordella and Iannacci (2010: 64) notice: “to study, and more importantly, to deploy these policies is [...] a complex and multidisciplinary challenge that requires a political, technological, organisational, and social understanding of their complexity”. Some of the disciplines interested in digital government – e.g. information systems and computer science - focus more on the technical aspects of the phenomenon, while others – e.g. public administration and political science - address more

managerial and (in a broad sense) social issues (Luna-Reyes and Gil-Garcia, 2014; Henman, 2019). Concomitantly, many of these less technical approaches – and particularly public administration (as a discipline) - focus on quasi-deterministic effects and outcomes of digitalization rather than on the interplay between technology and “society” that takes place within the process itself (Bolgherini, 2007), further, most studies apply macro perspectives (Pors, 2015). Before taking a deeper look at how digitalization in the public sector has been addressed, measured, and conceptualized, it may be helpful to briefly look at the broader political and institutional contextualization of digital government in academic literature.

### *1.5 Contextualization*

During the last four decades, the “nature and mechanisms” of the modern state witnessed deep transformations (Henman, 2019), shifting from governing through bureaucratic hierarchies to more collaboratively networked and market-like forms of organization (Bell & Hindmoor, 2009; Calise and Musella, 2019) where “digitalization has come to be seen as a means to optimize existing work processes, make governmental institutions more efficient and replace manual forms of administrative labor [...]” (Schou & Hjelholt 2018: 6)<sup>9</sup>. In fact, digital government is often coupled with the ideal of efficiency (Danziger & Andersen, 2002; Hai, 2007, Cordella & Hesse, 2010) and linked to a broader institutional

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<sup>9</sup> We will later better contextualize the political frameworks that somehow fostered or encouraged the use of digital technologies in public administration, or at least, the ones the literature sets in connection with it.

setting where shrinking budgets (Henriksen, 2017) and a managerial government approach (Self, 2000) lie the foundations for “A common rationale (and assumption) [...] that digitizing government enables greater efficiency, cost savings, higher quality services, and greater government accountability and transparency” (Henman, 2019: 72). Indeed, different authors frame digital government as a strategy inspired by the values and rationales of New Public Management (NPM) (Hammer, 1990; Chadwick and May, 2003) where relying on the idea that “the operation of state power precedes any new technology and technological adoption is taken up in accordance with government agendas” (Henman, 2019: 85) specific technological solutions “become carriers of the e-Government policies’ goals and aims” (Cordella and Iannacci, 2010: 54). As Homburg (2004) notices, in fact both these policy streams (digital government and NPM) address similar problems, common to many governmental institutions, such as lack of accountability, underperformance, and diminished level of legitimacy; on the other hand, this apparent overlapping can be misleading since some authors point out that NPM involves disaggregation, competition, incentivization changes, fragmented administrative institutions working as separated silos resulting in an increased policy system institutional complexity, while digital government seems to be a central part of a post-NPM agenda driven by an interest for holistic and ‘joined-up’ approaches to policy-making that should be based on the reintegration of services, a customer-driven approach and an interplay of different governmental and non-governmental



actors collaborating for the delivery of context-aware and effective – not only efficient - solutions (Dunleavy et al, 2006; Bounabat, 2017; Cordella & Hesse, 2015; OECD, 2014; Janowsky 2015; Justensen & Plesner, 2018). In other words, if NPM institutions consider “IT merely one more resource, albeit a powerful and protean one, in the arsenal of politics-as usual” (Denziger and Andersen, 2002: 593), the supposed post-NPM agenda conceives the implementation of digital technologies as a completely *new* way of getting things done.

From this perspective, digital government may be conceived as a new governance paradigm (Dunleavy et al., 2006; Justesen and Plesner, 2018), while e-government can be framed as the earlier use of ICTs within an NPM paradigm to achieve more internal efficiency, in this sense the two terms seem to describe the difference between different ‘moments’ of digitalization in government, which, how Ranchordas (forthcoming: np) notices, is “evolving from the introduction of technology in government (e.g., the digitization of documents) to policy-driven electronic governance”. In fact, as Charalabidis et al. (2019: np) and many other scholars point out, there are “several definitions that have been formulated through years in order to describe e-government, as the notion is evolving”, thus not only highlighting the fact that any attempt to define digitalization in government can rapidly become obsolete, but also enforcing the widely diffused idea that the object itself – and not only the notion capturing it – is changing fast over time in some “evolutive” way. Here, once again, we may recognize some similarities with the terms “digitalization” and “digital

transformation” and their semantic differences: while the first phase of digital technologies use in government – like digitalization - was focused on the implementation of single ICT projects to improve internal administration and management capabilities that didn’t have any real ‘transformative’ outcome until the late 1990’s (Chadwick and May, 2003; Dunleavy et al, 2006), “the focus is now on ICT-enabled business transformation [...] about changing fundamentally the way government does what it does” (Weerakkody and Dhillon, 2008), i.e. not only digitizing internal administrative processes, but changing them by implementing completely new policies and solutions and involving new internal and external actors in the frame of a holistic organizational change and governance strategy often also defined as “transformative government” (or t-government”) (*ibidem*). Hence, digital government has often been related to the idea of Business process reengineering (BPR) (Henson, 2007; Weerakkody et al 2011), or conceived as a blend of previous e-government initiatives, BPR and business scope re-definition (Bannister et Connolly, 2011; Bounabat, 2017), all operations generally aimed at reducing expenditures while at the same time improving process quality (Jurisch, 2014). Indeed, different scholars criticise the idea that digital government is just a material reification of NPM policies, in contrary, they conceive digital government (or *digital era governance*, just another term to be added to the never-ending and ever-evolving terminology deployed to describe ICT use in the public sector) as a new reform wave, surely growing by basing on the ideas and institutionalised elements of NPM (Cordella

and Iannacci, 2010) – and may addressing the some overlapping issues (Homburg, 2004) - but oriented in a different direction, i.e. towards reintegration, collaboration and needs-based holism and away from competition, fragmentation and incentive-based changes (Dunleavy et al, 2006; Bounabiat, 2017; Plesner and Justesen, 2018; Cordella and Paletti, 2019).

As we can notice by looking at the terminology and context analysed in the previous sections, the issue of digital government – as a discipline and as a governmental practice – is continuously changing (e.g. Barcevicius et al., 2019). The terminological shifts we scrutinized seem to happen in correspondence with the broader societal and institutional changes pervading the public sector (although mostly limited to western societies), at the same time – as we already pointed out more than once – these shifts are often connected to the rapid evolving “affordances” (Gibson, 1979) offered by the development of diverse digital technologies and thus conceived as different discrete “stages”, “phases” or “generations” of digital government practices (e.g. Janikowski, 2015; Charalabidis et al., 2019). While a complete account of the existing models proposed to trace digital government evolution over time seems to be almost impossible – and would not benefit the scopes of this chapter – it still seems to be important to familiarize with this kind of conceptualizations, so widely adopted in academic and non-academic literature about digital government.

#### *1.6 Phases, Stages, Generations: tracing digital government over time*

As there seems to be some co-evolutionary relationship connecting technologies, organizations, and institutions (Luna-Reyes and Gil-Garcia, 2013) many authors approach digital government by trying to define discrete stages and phases of this co-evolutionary trajectory relying on a wide consensus about the incremental nature of this ‘transformation’ processes (Bounabiat, 2017). As we saw earlier, ICT use in the public sector has been addressed in at least two different ways over time: first, as a transformation of internal governmental workflows processes and second, as a broader transformation of the relationships that connect governments with other (external) social and political actors. These two macro-phases are often split up in more “subphases”, each of which is related to specific types and uses of digital technologies (see Chun et al., 2019). As, for instance, Charabadilis and colleagues (2019: np) state, in the broader technological and industrial context “we can observe evolution paths which are most probably closely related to the e-government one, we observe the emergence of different generations of them: Web 1.0, Web 2.0 and Web 3.0, and also Industry 1.0, 2.0, 3.0 and occasionally 4.0”. Basing on this idea, and on a review of the e-government literature, the authors propose to identify different generations of e-Government development, namely *eGov. 1.0*, *eGov 2.0* and *eGov 3.0*. By looking at this elaboration of the synoptic table proposed by the authors, we can notice how specific technologies and tools, methods and goals are connected to each of the identified “generations”:

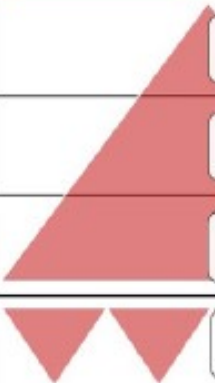
	<i>eGov 1.0</i>	<i>eGov2.0</i>	<i>eGov 3.0</i>
<b>Main Goal</b>	Better services	Openness & collaboration	Societal problem-solving citizen well-being, optimization of resources
<b>Main Method</b>	Interoperability for Connected Governance	Open & collaborative Governance	Smart Governance & data-intensive decision-policy making
<b>Key Tool</b>	Portal	Social media	Ubiquitous Sensors/Smart Devices/Apps/AI
<b>Key ICT Area</b>	Organizational Infrastructures	Social media and Open & big data	Artificial Intelligence & IoT

**Table 1.1:** Author's own elaboration of Table 2 of Charabadilis et al., 2019.

By looking at the columns we can notice how different “waves” of technological development (like for instance Web 1.0, Web 2.0 and Internet of Things) are respectively linked to different government and governance policies and also to specific values and ideals like “connectedness”, “openness” or “smart, data-intensive decision-policy making”. Further, the authors propose that each of the generations can be divided into two distinct phases, where “the first is oriented towards the support of existing practices, processes and services of government agencies, while the second is oriented towards the ICT-based transformation of them” (*ibidem: np*). In this conception the t-Government phase happens within each one of the broader stages, other authors do not apply this internal differentiation. What however remains, is an evolutive (be it incremental or disruptive – e.g. Barcevicius et al, 2019) conception of government

digitalization, as we can also recognize by looking at what Weerakkody and Dhillon (2008: np) notice for the UK, where after having built the technical infrastructure and successfully enabled “customer” (yes, not *citizen*, but *customer*) interface processes “government is now working towards reengineering and e-enabling back office processes and information systems to facilitate more joined-up and citizen centric e-government services [...]” that, as we already saw earlier, constitute “the transformational stage of e-government or T-Government”. In this conception, the transformative phase of digital government implementation must and can only be achieved after the construction of an adequate infrastructure and the provision of basic digital services (*ibidem*). There are however, at least 15 other different versions of such “stage” models (Debri and Bannister, 2015 - e.g. Scholta et al., 2019), being the first and most famous one the four-stage growth model proposed by Layne and Lee (2001), comprising a catalogue stage, a transaction stage, a vertical integration stage and a horizontal integration stage. More recently, these models shifted away from a merely technical conception of digitalization in government and started to address deeper organizational and institutional elements involved be the different “stages”. Janowsky (2015) for instance suggests that digital government development encompasses stages of digitization (technology in government), transformation (electronic government), engagement (electronic governance) and contextualization (policy-driven electronic governance); the author links each stage to specific pressures governments experience (e.g.

“modernisation”) and to specific digital technologies implemented to cope with such pressures, further, each stage is connected with a specific “application context” and identified by relying on three characterizing variables (that can only assume the two discrete states ‘yes’ and ‘no’): (1) internal government transformation (2) transformation affects external relationships and (3) transformation is context-specific. As we can notice in Figure 1, in the last stage – contextualization – technologies impact sectors and communities and lead to internal as well as external and context-specific transformations. The author corroborates his model by also looking at the literature production relatable to each of the phases identified, recognizing that recently research about digital government tends to be context-specific (national context; specific sector context – e.g. education, healthcare or agriculture; or policy-specific context – e.g. corruption prevention).

STAGE	APPLICATION CONTEXT	CHARACTERIZATION		
		Internal government transformation	Transformation affects external relationships	Transformation is context-specific
Digitization	 Technology in government	no	no	no
Transformation	Technology impacting government organization	yes	no	no
Engagement	Technology impacting government stakeholders	yes	yes	no
Contextualization	Technology impacting sectors and communities	yes	yes	yes

*Figure 1.1: digital government evolution model as in Janowski (2015)*

More generally speaking, according to Barcevicius et al. (2019) three to four different phases of literature production can be linked to the implementation of diverse “generations” of digital technologies in government over time and can be positioned chronologically as follows:

- (i) a first phase, ranging from the 1990s to the early 2000s, focused on the transition from paper based to IT based processes and thus on the construction of an IT infrastructure also involving Web 1.0 portals. Here the mode of operation remains pretty much the same, while the “medium” shifts from paper to digital;
- (ii) a second phase, starting around 2005, where the focus is about Web 2.0 technology that enables interaction between government and the public, central themes are openness, collaboration and participation. Governments provide data and web services mostly using social media and platforms (see also O’Reilly, 2011) as underlying infrastructure actively involving external actors – here e-government becomes e-governance;
- (iii) a third phase, beginning around 2015, where attention is posed on “smart” or “intelligent” government, involving technologies like (big) data-driven decision making, electronic process management, the use of hardware sensors and software interactions as an ubiquitous infrastructure relying on the Internet of Things (IoT), artificial intelligence (AI) and blockchain transactions. Here the changes relate to the way government “thinks” and “acts” but also to formal and substantial policy innovations, (see also Bertot et al., 2016; Justensen and Plesner, 2018).



More recently, the authors (Barcevicius et al., 2019) continue, a fourth wave of literature production focuses on an adaptive user-driven government basing on personalised, interactive, and easy to access relationships and transactions, here digital solutions are also linked to sustainability goals and prevention policies based on predictive analytics (e.g. Local Government Association UK, 2020; Castro and Lopes, 2021; Chalk, 2021). As already noticed above, this last literature wave seems to more and more address digitalization processes by using context-specific lenses and by acknowledging the presence of social and technological deterministic approaches (e.g. Gil-Garcia et al., 2014; Castelnovo and Sorrentino, 2018).

The models briefly seen above (Layne and Lee, 2001; Janowsky, 2015; Charabadilis et al., 2019) are just an example of the many three- four- or five-stage models about digital government evolution to be found in the academic and non-academic literature (for a broader overview see Debri and Bannister, 2015; Barcevicius et al., 2019). While there are a confusing amount of evolution models comprising a plethora of diverse definitions all subsuming some sort of evolutive trajectory, some scholars recognize that digital government does not inevitably evolve in a linear nor incremental manner (Bertot et al, 2016; Gil-Garcia et al, 2014) as “authorities, for example, tend to adopt certain e-government features at a later stage even if features of an earlier stage are not adopted at all” (Barcevicius et al., 2019: 11). In fact, these models have been criticized for different reasons, García-Sánchez et al. (2013) for instance, point

out that there is a diversity in development routes, which should be analysed through specific cases, similarly Tripathi and Gupta (2014) call for customized local models able to capture the specificities of the broader societal, political and cultural context, while according to Barcevicius et al. (2019: 16) some of the models are not very useful since they “are outdated for a number of digitally advanced countries, but also because of their failure to adequately explain the reality of e-government evolution at different stages”. Further critiques highlight how, although almost every model relies on an idea of evolution or transformation, most of the times there is no explanation for how shifts or changes from one stage to another take place, while as Debri and Bannister (2015) notice, most models are generic and merely descriptive in so far as they apply to an abstract idea of government in a wide sense – thus lacking of context specific features like role, function and structure of the single agencies to be digitalized; moreover the authors point out how most models are prescriptive and/or normative – often not adhering to reality also because they rely on the idea of governmental agencies merely *assimilating* (i.e. absorbing and applying) different technologies.

However, apart from development models there is a whole ecosystem of measuring, ranking and benchmarking activities related to digital government worldwide, many of which are carried out by supranational organizations and private consultancy companies (Henman, 2019). Sometimes also development models originating in academic fields comprise some sort of benchmarking

and/or prescriptive performance related ranking of digitalization in governmental institutions. For instance, this is the case for the model proposed by Layne and Lee (2001) as well as for the eGovernment Maturity Model (eGov-MM) proposed by Valdes et al. (2011). The latter focuses on four different dimensions, namely: e-government strategy, IT governance, process management, and organisation & people. Government performance for each of these dimensions is measured and ranked, leading to the inclusion into one of the four maturity levels described by the authors as: Initial, Developing, Defined, Managed (or Optimising). Performances for each domain are measured relying on an idea of “best practices” and depending on the ICT-based integration of the different dimensions. Here we can notice why Debri and Bannister (2015) talk about prescriptive, normative, abstract models basing on the idea of technological assimilation. As for instance Gil-Garcia et al. (2020: 5) state in relation to the model they propose, more often than not the aim is the “development of practical recommendations for the design, implementation, and evaluation of digital government policies and programmes”.

This is true also for many of the rankings, models and guidelines produced and published by different supranational organizations and private companies (e.g. Baum and Di Maio, 2000). Just to make a few examples, since 2001 the UN Department of Economic and Social Affairs engages in the implementation of a bi-annual e-Government Survey (regarding all 193 UN-countries) “designed to provide a snapshot of country trends and relative rankings of e-government”,

also tracking “progress of e-government development” by establishing the United Nations E-Government Development Index (EGDI) <sup>10</sup>. The EDGI assesses the development of e-government at national level, it is a composite index built on the combination of three diverse sub-indexes, these are: the Telecommunications Infrastructure Index (TII) the Human Capital Index (HCI), and the Online Service Index (OSI). Further, other two indexes are constructed within the bi-annual UN e-Government Survey, one is called E-Participation Index (EPI) measuring citizen involvement and service adoption, and another called Local Online Services Index (LOSI), assessing progress in local governmental institutions by measuring, for instance, the existence and development of municipalities e-government portals. Apart from this the UN also publishes a compendium<sup>11</sup> of “good practices” voluntarily submitted by the governments participating in the Survey. Similarly, Capgemini started producing eGovernment benchmarks for the European context since the early 2000s, the 2018 version (Capgemini et al., 2018: 5) relies on the assessment of different elements, these are: (1) ‘User-centricity’, i.e. “the extent to which a service is provided online, its mobile friendliness and its usability”; (2) ‘Transparency’, indicating “the extent to which governments are transparent about the process of service delivery, the responsibilities and performance of public organisations and the personal data processed in public services”; (3) ‘Cross-border mobility’,

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<sup>10</sup> <https://publicadministration.un.org/en/Research/UN-e-Government-Surveys>

<sup>11</sup> <https://publicadministration.un.org/en/Themes/Digital-Government/Good-Practices-for-Digital-Government>

measuring “the extent to which users of public services from another European country can use the online services”; and (4) ‘Key enablers’, measuring “the extent to which technical and organisational preconditions for eGovernment service provision are in place, such as electronic identification and authentic sources”. Another benchmarking model limited to European countries is provided by the European Commission’s annual Digital Economy and Society Index (DESI) which “monitors Europe’s overall digital performance and tracks the progress of EU countries in digital competitiveness [...] by providing data on the state of digitisation of each Member State, it helps them identify areas requiring priority investment and action” (European Commission, 2020: 10). As for the other indexes seen above, also DESI focuses on the combination of different sub-indexes, these are: (1) connectivity (fixed broadband take-up, fixed broadband coverage, mobile broadband and broadband prices), (2) Human capital (internet user skills and advanced skills), (3) Use of internet (citizens' use of internet services and online transactions), (4) Integration of digital technology and (5) Digital public services. Finally, the Organisation for Economic Co-operation and Development also produces its Digital Government Index (DGI), which “assesses governments’ adoption of strategic approaches in the use of data and digital technologies” relying on the idea that “measuring the «digital maturity» of governments can help public authorities develop sound digital government strategies and initiatives” (OECD, 2020a: 7). The DGI is measured in relation to the six dimensions identifying a “fully digital government” outlined

in the the OECD Digital Government Policy Framework (OECD, 2020b), these are (1) digital by design (2) government as a platform (3) data-driven public sector (4) open by default (5) user-driven (6) proactiveness. These dimensions and their measurement through the DGI also orient key policy recommendations as they are part of an effort to “translate the OECD Digital Government Policy Framework into a tool supporting concrete policy decisions” (OECD, 2020a: 6). In this sense, the OECD also provides 12 principles (See Fig. 2) to “support the development and implementation of digital government strategies that bring governments closer to citizens and businesses”, each of these principles is linked to self-assessment notes which “illustrate the type of policies and practices that governments undertake at different levels of maturity in the use of ICT” as well as to a list of concrete examples of good practices carried out by different member states<sup>12</sup>.

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<sup>12</sup> <https://www.oecd.org/governance/digital-government/toolkit/12principles/>

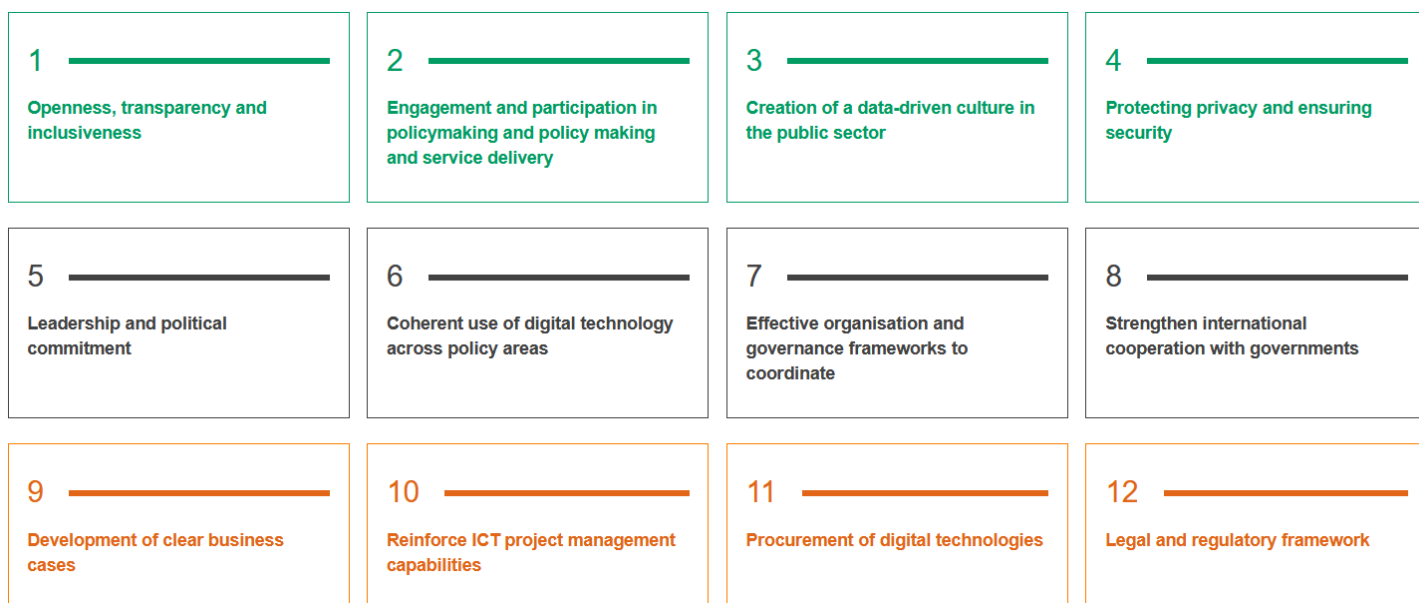


Figure 1.2: The 12 digital government principles provided by the OECD (source: see footnote 12)

Although there aren't "any empirical findings showing that the public sector has benefited from benchmarking e-government" (Skargren, 2020: 79), Rorissa et al. (2011: np) state that these kinds of ranking and benchmarking activities are widely used as they seemingly have three main "benefits": "(1) to measure retrospective achievement (which helps policymakers compare how their country or agency ranks in terms of e-Government); (2) to chart prospective direction/priorities (which policymakers can use to make strategic decisions and identify appropriate courses of action) and to measure e-Government progress/development; and (3) to make governments and their agencies accountable for the investments in e-Government". In fact, we can notice how these diverse indexes all try to account different elements of e-government development: technical infrastructure, competences and skills, web presence and citizen adoption, as well as legal, institutional, and regulatory frameworks, also

partially addressing local governmental institutions and giving “practical advice” through the collection and diffusion of so-called best practices and policy principles and recommendations. In relation to the academic development models analysed earlier, these evaluations, rankings and guidelines apparently seem to be more oriented towards the provision of practical advice and policy guidelines, however, they rely on a similar idea of incremental and or univocal development path and apply a somehow deterministic macro perspective that doesn’t address internal back-office re-organizations (Bogdanoska Jovanovska, 2016) and doesn’t necessarily fit the diverse local contexts and specific issues (Codagnone and Undheim, 2008) also because “assessment is based on a limited number of indicators” (Siskos et al., 2013) and often why and how some elements are measured, weighted and combined (while others not) is unclear (Marcus, 2020) as some “are based on measurable characteristics of the entities; others use one or more subjective measures; a few employ a combination of both” (Rorissa et al., 2011) while they all produce different outcomes and scores (Vintar and Nograšek, 2010) which doesn’t make them very reliable. Critiques refer also to the granularity and accuracy of information gathered, as for instance Rorissa et al. (2011) notice that many indicators “do not differentiate between static websites and highly integrated and interactive portals” and in fact many indexes remain somehow generic since (1) they apply the same framework to different international contexts and (2) “the majority of benchmarking studies have focused on national e-government” (Heeks, 2006: 10). Further, for Marcus



(2020: np) these kinds of ranking and benchmarking activities do not actually assess how digitalized governments really are, as he conceives them more as “box-ticking exercise with every box making it a bit more likely that digitalisation may take place in your country”, while for Bannister (2007: 185) they have limited practical meaning, are poorly designed and generally are “not a reliable tool for measuring real e-government progress”. Some authors also criticise the lack of a clear definition for benchmarking itself (Bogdanoska Jovanovska, 2016) and in response to these and other critiques some scholars have tried to give “methodological support on how to improve ways of benchmarking” (Skargren, 2020: 76).

As Kabbar (2020: np) notices these indexes and practical suggestions “need to be used carefully by both government officials and e-government promoters”, not only because of the methodological, conceptual and theoretical limitations they are built upon, but also because given their widespread use “it is always necessary to be aware of the risks of their politicization” (Bannister, 2007: 170). Bannister (*ibidem*: 186) takes it further as he inherently questions the “concept of piling such a complex range of operations, organizations, technology, services, politics and people into an overall score” also because (*ibidem*: 187) “there are many thousands of things in e-government neither Accenture nor anybody else can hope to measure”; he radically concludes his paper by stating that “all benchmarks should, like cigarettes, carry a large health warning”. Indeed there is a “widespread use of benchmarking results by policymakers,

practitioners, and funding agencies” (Rorissa et al., 2011: np), thus many governments funding activities (Janssen, Rotthier, & Snijkers, 2004) as well as policies and their development initiatives (Kunstelj & Vintar, 2004) are affected by these measurement’s outcomes; in this sense, there are also concerns about the fact that “ benchmark creates a large-scale process of government institutions copying each other in what is perceived as success, in pursuit of climbing the ranking-system, and actors imitating each other in this way risk hindering the introduction of new practice” (Skargren, 2020: 78).

### *1.7 Concluding remarks and alternative perspectives*

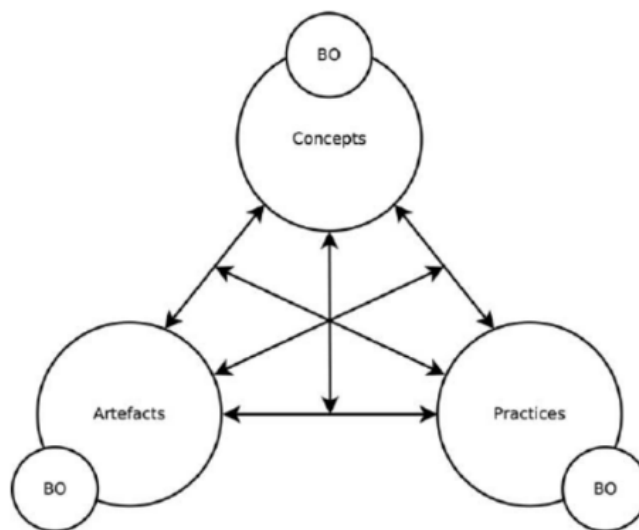
As we saw throughout the last paragraphs, there are indeed many critiques about academic *eGovernment/digital government* development models and rankings, benchmarks and practical advice provided by private companies and supranational institutions as both seem to be not adherent to concrete and contextualized practices and processes of eGovernment/digital government development while also being mostly theoretically, methodologically, and practically problematic (Skargren, 2020; Debri and Bannister, 2015). Further, there is some sort of confusion and evolution of the concepts regarding what digitalization (in government) means in the first place. In fact, it seems that “a better understanding of the complex relationships between information technologies, organizations, and institutions is still required” (Luna-Reyes and Gil-Garcia, 2014) while many research paths that could lead to this understanding remain unexplored because of the deterministic view of the

mainstream literature on digital transformation and of a lack of consideration for contextual factors (Castelnovo and Sorrentino, 2018). However, the definitions, conceptualizations, and representations about the use of ICTs in government analysed so far cannot be ignored and are very useful for a preliminary recognition about themes, concerns, issues, and technologies linked to the idea of digital government. We saw how many scholars link digital government to effectiveness and efficiency and to other ‘positive’ effects such as transparency, openness, citizen participation, cost savings and better-informed government action. Moreover, we noticed how ICTs can involve government, administration, governance), policy innovation and service or communication innovation (Barcevicius et al., 2019). These are all themes somehow differently addressed by the diverse definitions, models and rankings seen above, yet, on the other hand, these issues are not further analysed ‘in depth’ and seem to be mostly conceived as affected by technological or social factors in a deterministic manner (Gil-Garcia et al., 2014; Justensen and Plesner, 2018; Plesner and Husted, 2019) and studied from an external, distant perspective, as “there is little systematic empirical evidence about the way that public administrations are currently defining digital transformation in their day-to-day practices, how they are approaching digital transformation projects, and what the expected outcomes are” (Mergel et al., 2019).

However, there is indeed a literature that acknowledges digital government as a non-linear innovation process with vaguely defined boundaries (Bertot et al.,

2016) and there are a set of other perspectives and approaches on digital government trying to avoid the widely diffused deterministic and evolutionary stage models and evaluative rankings, as there are scholars focusing on contextual differences referring – but not limited - to the broader political, economic, social and cultural environment (Castelnovo and Sorrentino, 2018; Hofmann, 2019; Mac Síthigh and Siems, 2019); sectorial differences that account for how ICTs affect diverse governmental agencies that deal with different issues such as health, traffic, safety, education or social services on the national, local and municipal level (e.g. - Landri, 2018; Frennert, 2019; Mergel et al., 2019) back-end enactment, organizational implications and a deeper explanation of how technologies and institutions intertwine in practice (Fountain, 2004; Plesner and Justensen, 2018; Cordella and Iannacci, 2010) and the case-specific study of technologies implementation of different kinds, as for instance AI, IoT, portals, platforms and mobile technologies (García-Sánchez et al., 2013; Henman, 2018; Henman et al., 2021; Mossey et al, 2019). Apart from this there is a growing critical approach to digital government and to different issues and concerns surrounding digital government such as surveillance, discrimination, transparency, and other ethical and practical implications (e.g. – Plesner and Husted, 2019; Zuboff, 2018; O’Neill, 2016). These and other scholars also provide concrete and detailed examples of how digital transformation in the public sector unfolds and affects governments in practice.

The ostensive definitions, evolutive conceptualizations and measurement activities related to digitalization in government seen above seem to somehow foster imitative/competitive frameworks into which governments (allegedly) enact processes of institutional isomorphism (Codagnone et al., 2015; Skargren, 2020), as different actors try to construct, represent and communicate their definition of the – theoretical and practical - situation (Thomas and Znaniecky, 1918). Thus, one could say that digitalization in government seems to configure itself – at least in the approaches seen in the sections above - as some sort of “boundary object” (Star and Griesemer, 1989) that navigates the “institutional ecology” (Hughes, 1971) and “interests” different realms and actors (Latour, 2005). In fact, the concept of boundary objects has been fruitfully applied to study the implementation of specific technologies (Huvila et al., 2019). Digital government may not be one single boundary object as it doesn’t refer to one single technology/practice/discourse, but to the use of a heterogeneous set of technologies for various purposes in a specific context. In this sense, it seems interesting to explore how the way digital government is conceptualized as a one-fits-all solution relates to its practical, contextualized, situated empirical manifestations. Here, the interest may be focused on how digital government as a boundary object or set of boundary objects, a boundary infrastructure (Star, 2010), does or does not define the way it locally translates into materiality and practices (see fig. 3).



Schematic illustration of some of the uses of artifacts, practices, and concepts as boundary objects to explicate relations and influences. As indicated by the arrows in the diagram, boundary objects relate to the influences between these phenomena and to their relations to each other within an artifactual-practical-epistemological (conceptual) continuum in information science research.

*Figure 3 (source: Huvila et al., 2017: 1815)*

As we have seen, public sector digitalization is often addressed in deterministic, generic, ostensive, and normative ways, for instance, by deeming it as inevitable or by establishing linear connections between the deployment of digital technologies and the achievement of things such as ‘efficient’ or ‘transparent’ - and thus better - government. This, as we saw, leads to a widespread conceptualization of PA digitalization as a univocal and evolutionistic process, thus measurable, quantifiable and internationally comparable though evolutionary models, benchmarks, digitalization scores/indexes and similar ‘tools’.

On the other hand, the synthetic term ‘digital’ broadly refers to what are in practice a whole set of distinct material and immaterial technologies, thus somehow flattening their actual heterogeneity. Consequently, when we talk about digitalization processes, we should acknowledge the fact that these may refer to the introduction of *very diverse* technologies into organizational settings that can affect a whole plethora of actors, practices, processes and other elements in *variegated, context-related* and *undetermined* ways (Plesner & Husted, 2020).

While until today techno-optimistic and deterministic approaches remain hegemonic and there seems to be little empirical evidence about how digitalization in PA manifests in the specific contexts within which it is translated into practice, there indeed is a growing emergent literature stressing the social, organizational, contextual and relational aspects of PA digitalization processes, highlighting how this phenomenon encompasses different levels of government, also involves actors from the private sector and civil society, and takes the form of a non-linear innovation process with vaguely defined boundaries that includes the development of a whole *infrastructure of integrated* projects and services (Bertot et al., 2016).

An infrastructure should - by definition - incorporate characteristics such as ubiquity, reliability and broad accessibility; its construction, however, always includes choices and consequences that are not merely technical and which, like the infrastructure itself and the coordination and articulation work required for its operation, are likely to remain partly or entirely invisible (Woolgar and Cooper,

1999). Indeed, once active, infrastructures turn out to be transparent, in the sense that both their presence and their logic of operation appear as a-problematic and taken for granted (Star and Strauss, 1999). However, there are methods - such as 'infrastructural inversion' (Edwards 2010) or the highlighting of 'invisible work' (Star and Strauss, 1999) – that enable us to address and overcome the a-problematicity and taken for grantedness of infrastructures (and their logic of operation) by making the work, practices, material and immaterial resources participating in the infrastructure (or in its construction) visible.

In fact, by taking a closer look at situated digitalization processes with non-deterministic lenses, diverse scholars were able to highlight various dimensions of PA digitalization, framing it as something more than a merely technical endeavor and showing how it practically relates to the redefinition of things such as legislation processes, bureaucracy, accountability, public servants' work patterns and professional discretion (Stanforth, 2006, Justesen and Plesner, 2018; Plesner et al., 2018; Dubois, 2022). Part of this emergent literature also adopts analytical and methodological approaches developed over the last decades to address the relational, practical, and organizational aspects of (digital) technologies (and their adoption) not specifically relating to PA (Mattozzi, 2006; Pink et al., 2015; Light et al., 2018; Decuypere, 2021; Bruni and Esposito, 2019). Moreover, diverse scholars underline how PA digitalization processes differ between and within national and local contexts and are thus best studied by



accounting for situated and contextualized applications (Tripathi and Gupta, 2014; Janowsky, 2015).

With the intent to add a small contribution to this literature addressing public sector digitalization, through the present research we will *explore* some aspects of Italian PA digitalization by conceiving it as the construction of boundary infrastructure (Bowker and Star, 1999) having diversified relational, organizational, praxeological and material dimensions including those regarding less or more visible forms of work and the emergence of new social institutions (Goodin, 1996; Lawrence and Suddaby, 2006).

In this sense, the aim of this dissertation is to take a closer look at how Italian PA digitalization manifests in different sites and forms through interpretive flexibility and the interplay of discursive, material, and organizational dimensions diversely affecting the heterogeneous actors (local administrations, central state, citizen) and ‘worlds’ involved (Bowker and Star, 1999). Here, the idea is to look at how actors actually translate ideas about change into actions (Czarniawska and Sevón 2005) and to see how other actors are confronted with new practices related to this change in a way that “[...] might help us grasp the complexity of organizational life without either reducing it to simplistic models or replacing it with complication of the argument” (Czarniawska and Sevón 1996, 8). In doing so, we will try to address technology not as something that is simply adopted (or to which one is subject in deterministic ways), but rather as something that contextually emerges through processes of “heterogeneous

engineering” and “translation” (Michael, 2017). More specifically, we will look at how digitalization-related processes of translation and heterogeneous engineering taking place in Italian public administration relate to processes of institutionalization (Tolbert and Zucker, 1999). To couple the ANT concept of translation with the institutionalization of new practices, and particularly in chapter 4, we will rely on the idea of institutionalization as process of translation proposed by Lindgren and Czarniawska (2006), who define the concept of action-nets, which helps to focus on the relation among different actions into chains upon which stable actor-networks *may* emerge. The concept of action nets is “based on the assumption that organizing [...] requires that several different collective actions be connected according to a pattern that is institutionalized at a given time and in a given place” (ibidem: 293), and that the connection between those collective actions and their resulting institutionalization takes place through processes of heterogeneous engineering and translation. This conception of action nets helps us to focus on *how* specific set of actions are linked and translated into each other *before* they stabilize into networks or macro-actors and may appear as institutionalized. Through this approach, it will be hopefully possible to show how different actors make-up strategies and engage in activities intentionally aimed at institutionalizing specific practices, conceptions and technologies.

We will now leave space for a brief definition of the research methodology, context, and trajectory, useful to understand the choices that have been adopted for the enactment of the research that will be presented here.

## 2. Methodology and research context

Framing the methodology and the different research focuses that will be presented here by initially providing insights about the broader context seems an important thing to do, also because the research design was – at least initially – strongly influenced by the Covid-19 pandemic outbreak and the consequent ‘social distancing’ policies implemented by the Italian government to manage public health throughout the years 2020 and 2021 (Santeramo et al., 2021). In fact, due to both, national policies restricting territorial mobility and physical interpersonal encounters *and* uncertainty about the development of the pandemic situation, ‘field’ access opportunities have been negatively impacted, the possibility of planning research activities in advance was strongly reduced, and the research object itself was significantly influenced, as the use of digital technologies in PA grew in quantity and importance, for internal affairs, as well as for communication and interaction with citizen (Musella, 2021; MITD, 2022).

The goal guiding the inquiry since the beginning was to explore how PA digitalization unfolds *in practice* in the Italian context. Also inspired by the literature presented in the previous chapter, the initial idea was to address PA digitalization as a *situated* organizational process affecting heterogeneous aspects, rather than as a merely ‘one-fits-all’ technical endeavor with determined and foreseeable outcomes. To do so, the initial idea was to focus in depth on the digitalization processes of one local Italian PA - and more specifically the

‘highly digitalized’ metropolitan municipality of Bologna - through a case study approach, also with the aim to better understand what being ‘highly digitalized’ means in practice.

While the municipality of Bologna indeed remained the starting point - and one of the focuses - of the research, the data gathered in the first stages of the empirical research suggested that formal organizational boundaries of the municipality should have been overstepped to inquire sociotechnical assemblages and the underlying processes of heterogeneous engineering (Bruni and Gherardi, 2001) participating in PA digitalization.

In fact, the whole research design was deeply influenced by an ‘abductive’ approach (Star, 2007), i.e., a cognitive loop enacted to generate concepts and hypotheses from what has been observed and to test the salience of these same concepts and hypotheses in subsequent observations, also creatively informed by *subjective* and *contextual* elements depending on what is ‘ready-to-hand’ (Timmermanns and Tavory, 2012). This continuous creative conjecturing process was also adopted to ‘escape’ preconfigured conceptions, theories and ideas about PA digitalization, so to leave space for ‘surprises’ and unexpected empirical findings also guiding the research trajectory and leading to the inquiry of phenomena and objects initially not addressed by the research design (ibidem).

## *2.1 Research context*

The research presented here has been carried out between September 2020 and September 2022. The initial research design was developed between November 2019 and the outbreak of the Covid-19 pandemic during the spring of 2020. Thus, the initial research design, which had foreseen the ‘case study’ (Baskarada, 2014) of one Italian metropolitan municipality – Bologna – through techniques such as in-depth interviews and observations, had to be revisited and readapted<sup>13</sup>. Indeed, particularly during the first year, research design and data gathering were heavily influenced by Covid-19 pandemic related contextual factors reducing the opportunity to engage in ‘on field’ research activities and the possibility to plan these activities in advance (for instance, public offices were closed, travelling was prohibited or strongly restricted, PA employees were working from home and ‘social distancing’ policies were subject to unforeseeable and abrupt variations). In fact, gaining access to the field was very difficult, not only because public employees were teleworking, but also because the extraordinary situation led to high levels of stress (linked e.g., to unpredictable work-schedules) undermining people’s will and availability to be included into research activities such as observations and interviews. For these reasons, it was necessary to develop a set of methodological strategies to address PA digitalization processes and practices in a novel way, possibly without leaving home. Before taking a closer look at these strategies, we will now briefly explain

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<sup>13</sup> More precise information about the chosen municipality and the motivations leading to its choice will be given in the following paragraph.

why the initial idea was to focus on a municipality through a case study, and why it was specifically Bologna's.

### 2.1.1 Why Bologna?

The choice to explore PA digitalization through the qualitative case study of a specific municipality arose upon the idea that by focusing on a well-defined context (such as a local PA) it would have been possible to make the elements, practices and processes participating in PA digitalization more visible and to reconstruct the organizational, contextual and historical factors that led to its current 'form'/state/manifestation.

In fact, the choice to enact a case study was made because this approach may be helpful for *exploratory* research, insofar as is 1) helps to formulate hypotheses and research questions that can then be further inquired (also because it) 2) privileges the in-depth (detail, richness, within-case variance,...) analysis of the chosen unit, which helps to 3) gain a better understanding of context and process and of 4) the causes and links pertaining to a certain phenomenon, eventually leading to 5) a high level of conceptual validity (Flyvbjerg, 2011).

The choice to specifically focus on a municipality was based on the fact that in the Italian institutional setting municipalities<sup>14</sup>:

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<sup>14</sup> D.L. 78/2010 (<https://www.senato.it/service/PDF/PDFServer/BGT/01074686.pdf>)

- perform administrative and political functions such as the organization of public services of collective interest and the design and management of the local social services system (including the provision of related services to citizens);
- operate on a well-defined territorial scale;
- have a certain degree of institutional and political autonomy;
- are homogeneously omnipresent on a national scale.

In fact, since municipalities perform fundamental administrative functions and services, every citizen must somehow deal with them during their lifetime and we could say they are a very ‘typical’ form of PA with a high degree of citizen-proximity, “which constitute the front-office best known and most frequented by citizens” (Pacifici et al., 1999: 27, my own translation). Translated into numbers, Italy has a total of ca. 7.900 municipalities (called ‘Comuni’) ranging in population from the 2.617.175 inhabitants of Rome (biggest municipality) to the 34 inhabitants of Morterone (smallest municipality)<sup>15</sup>. Basing on diverse reports of the National Institute for Statistics (ISTAT, 2020; 2022) including diverse criteria (for instance, the presence of digital public services or the use of fast internet connections) the level of digitalization of Italian municipalities is highly fragmented, with a net difference between big (pop. > 250.000) and small municipalities, moreover there is also a difference between municipalities in the

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[https://dait.interno.gov.it/territorio-e-autonomie-locali/sut/elenco\\_cens\\_var\\_comuni\\_italiani.php](https://dait.interno.gov.it/territorio-e-autonomie-locali/sut/elenco_cens_var_comuni_italiani.php)



northern and southern part of the country, the former having a noticeable better digitalization ‘performance’ (FPA, 2020). The most populous Italian municipalities are simultaneously also defined as ‘metropolitan cities’, an administrative level that encompasses the broader territorial area surrounding the municipality, recently introduced to substitute the administrative level of the province (which has been abolished) - Bologna, with a pop. of ca. 390.000 is one of these metropolitan cities. The choice to specifically focus on Bologna (and not another municipality) relies on two main motivations:

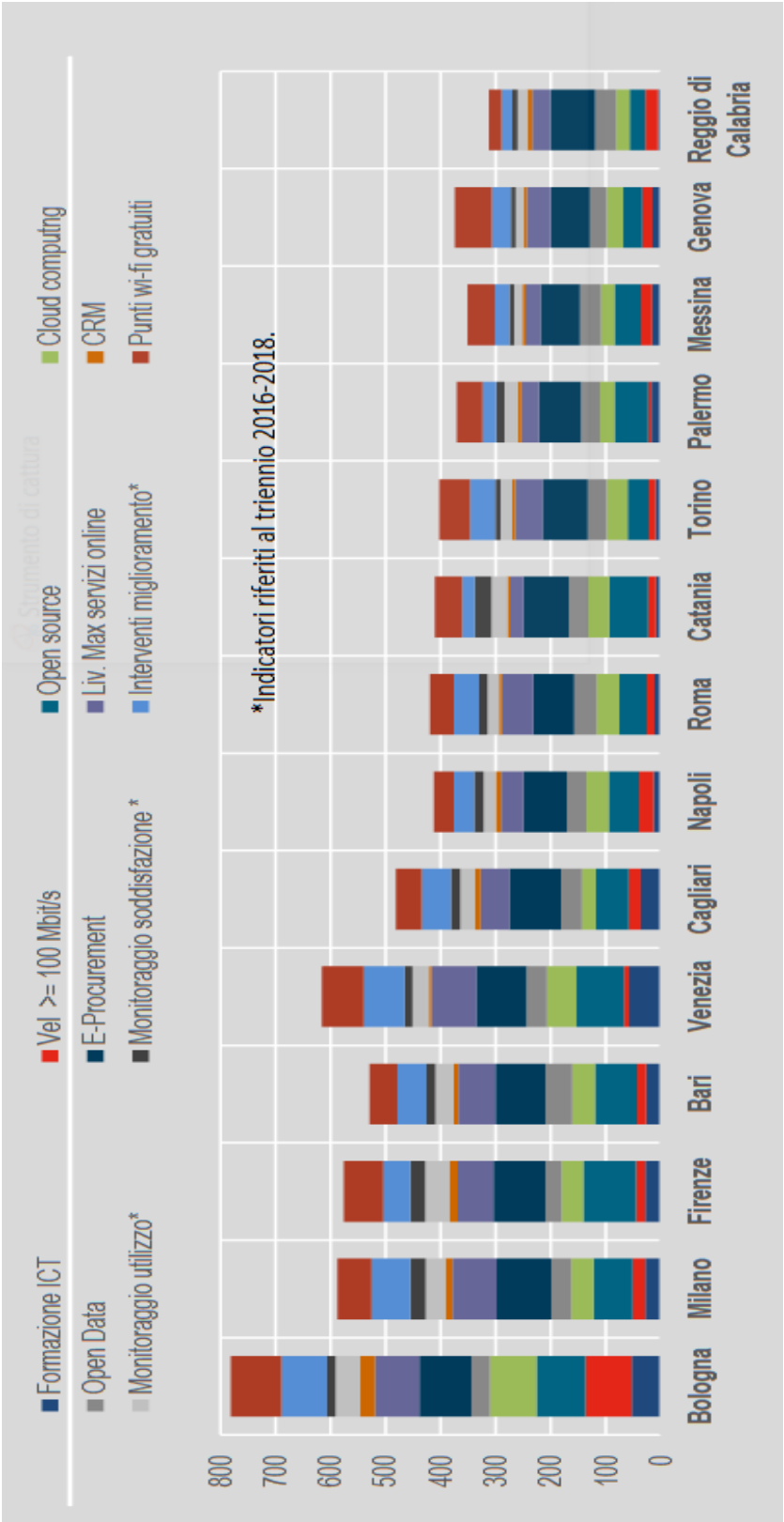
- first, basing on ISTAT data (2020) referring to 12 diverse indicators of local PA digitalization, Bologna is the most ‘digitalized’ metropolitan municipality in Italy (see Fig. X). As such, an in-depth study of Bologna’s municipality digitalization may tell us more about how PA digitalization manifests in practice and about which historical, organizational and contextual factors lead to what is seen today as ‘successful’ digitalization;
- second, the municipality of Bologna has a long tradition in giving specific attention to institutional communication and citizen relationship management, also through digital media (Favilli, 1996; Pacifici et al., 1999). In fact, Bologna was one of the first European municipalities to conceive the access to the web as a citizenship right and to develop and launch (in 1994) its digital civic network ‘Iperbole’ (i.e., a municipal web portal also including civil society organizations), handing out free e-mail addresses to citizens and acting as a public internet connection provider also defined already in 1999 by Pacifici et al.

(1999: 28) as “the embryo of the digital city”. Indeed, the importance of this case is also documented through the conceptual and empirical work of many – also prominent - scholars addressing ‘Iperbole’ as an early example of innovative local PA digitalization (see for instance, De Rosa, 1998; Castells, 1998; Tambini, 2002; Aurigi, 2016; Bory, 2019).

In this sense, the municipality of Bologna constitutes an ‘emblematic’ and historically rooted case of what is perceived as ‘successful’ Italian local PA digitalization, which seems to be a good unit of analysis upon which to enact a qualitative ‘case study’ to find out more about PA digitalization related practices and processes.

Over the next sections we will elaborate on the research trajectory leading to the research focuses and the data that will be presented and discussed throughout the three empirical chapters of this thesis. Given the explorative aims of this research, the qualitative methodology deployed, and the multi-situated aspects of PA digitalization that will be analyzed, this chapter is intended as a report about the research trajectory (Bruni, 2006) and the three diverse research focuses it led to. More specific contextual information, analytical concepts and research techniques adopted to address *each* of the research focuses will successively be discussed in more detail throughout analytical and methodological paragraphs included in each of the empirical accounts.

Figure 2.1 Usage of ICT in Italian metropolitan municipalities basing on 12 indicators. (source: ISTAT, 2020: 8)



### 2.1.2 Interfaces as ‘sensitizing devices’ for ethnographic field construction

One of the main aspects of PA digitalization is the development of a so called ‘online state’, i.e., a web-ecology of interconnected sites and portals building the ‘front door’ – and sometimes front office - of statal entities (Henman et al., 2021). In fact, one of the aspects already included in the *initial* research design was to focus on the Bologna municipality’s online presence, and specifically on the civic network platform ‘Iperbole’<sup>16</sup> and the smartphone app ‘Bologna Welfare’ it manages. Thus, when the Covid-19 pandemic broke out and the initial research design had to be modified for the sake of feasibility, focusing on the interfaces of these municipal portals seemed a reasonable way to start gathering useful ethnographic data. To do so, two main conceptual and methodological approaches have inspired the research: the so called ‘walkthrough’ method developed by Light et al. (2018) and the Interface-Usage-Design-Ecology (IUDE) toolbox proposed by Decuypere (2021). Both these methods led me to address these ‘public’ digital interfaces, as they envision interfaces as ‘cultural artifacts’ incorporating relations, visions, practices, and governance patterns, suggesting that interfaces can be critically de-scribed and qualitatively analyzed. Looking for instance at the way text, icons and other symbols are used, or looking at how (user) relations are configured, can be useful

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<sup>16</sup> Iperbole has undergone a strong ‘restructuration’ in recent years and is now defined as a ‘platform’, historically Bologna’s municipal website was defined as ‘civic network’ (Carbonaro and Panciotti, 2019).

to gain insights about the organization deploying the interface, about interface-related practices, and about the scopes and features of the interface itself.

In fact, using app and platform interfaces as an ‘entry point’ to explore and define the field enabled me to start uncovering some of the elements, discourses, practices, and actors participating in Italian PA digitalization processes. Moreover, interfaces turned out to be a very good source of inspiration to orient exploration trajectory and field construction (Amit, 2000), as they set up a set of relations that could then be further inquired by deploying other, more traditional, qualitative, and ethnographic techniques. In fact, ‘walking through’ an interface by adopting a critical gaze (to make the mundane elements and activity flows it incorporates more salient) may offer many insights, not only about the interface itself, but also about “activities it is supposed to provide, support or enable” or about “underlying political and economic interests” (Light et al., 2018: n.p.). Further, as the IUDE approach suggests, looking at what happens *on* interfaces can be interesting as it relates with what happens *with* them (their effective usage), *behind* them (the way they are designed, crafted, and managed) and *beyond* them (the way they are embedded in a broader ecology) (Decuyper, 2021).

Practically speaking, the analysis of the two interfaces enabled me to gather diverse kind of information, which was then used as a point of departure for further inquiry. To understand how these interfaces acted as sensitizing devices

enabling me to redefine the initial research design, a brief description of their functionalities will be now given.

Iperbole, historically the official website of the Bologna municipality, is an access portal for information about the city and its civil society, the municipality and its activities<sup>17</sup>. The site includes institutional communications (like news about public services, events, public building sites, public transportation etc.) and offers information about the city government organization (its political articulation, organizational structure, employees, public notices, statistics or ‘open data’, regulations and procedures). Apart from this, Iperbole now also acts as a ‘platform’, as citizen and businesses can access a ‘private area’ where diverse kinds of institutional interactions can take place. For instance, the private area grants access to ‘customized information’, enables DPS procedures (from request to delivery) and offers participative online spaces where citizen can propose and vote projects about so called ‘commons’. Similarly, the app ‘Bologna Welfare’, which – contrary to Iperbole - can only be accessed through mobile devices (i.e., smartphones or tablets), is an app deployed by the “Welfare and community wellness” department of the municipality. The app, which partially replicates the DPSs accessible through Iperbole (with a specific focus on welfare information and services), also “allows you to navigate the city welfare map”, offers an open ‘resource search function’ through which it is possible to locate (via the in-app map), vote, review, share and contact (via

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<sup>17</sup> <https://www.comune.bologna.it/home>

telephone number and e-mail address links) over 600 welfare ‘resources’ (such as municipal offices and ‘counters’, health centres, voluntary associations, social patronage offices, companies and cooperatives providing home-based, residential and semi-residential services, legal aid and anti-violence centres, etc. – see Fig. 2.2).

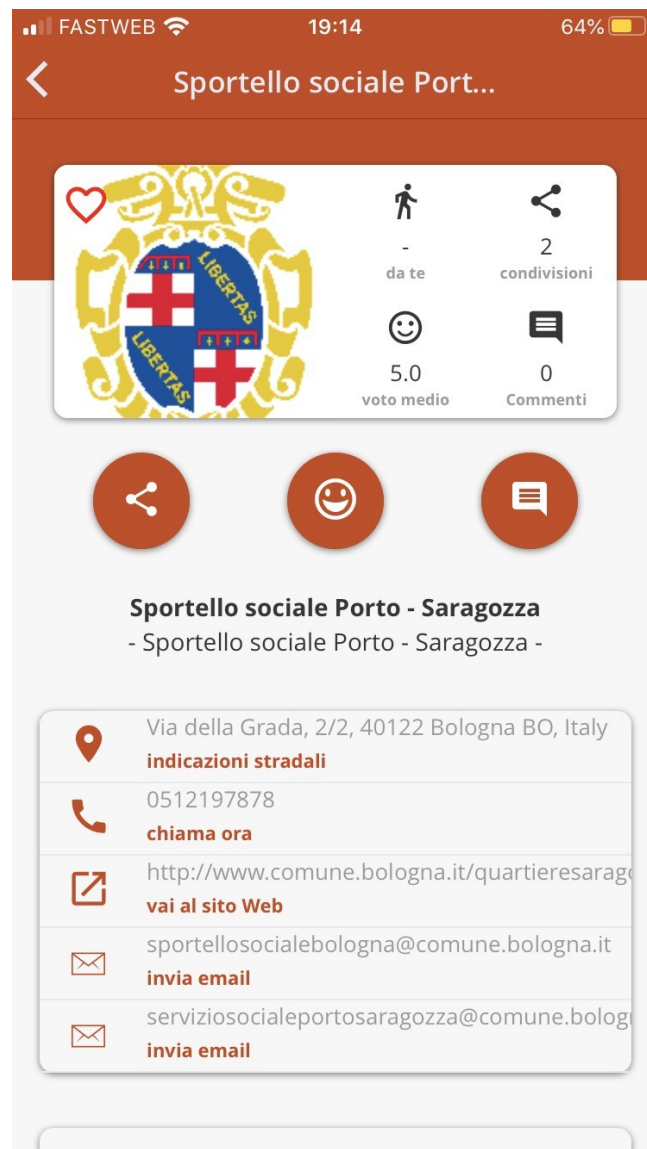


Figure 2.2 Screenshot of the contact page of one of the 'resources' linked in the app BW

Moreover, the app provides information about municipal welfare services (e.g., overnight shelters, parking spaces for disabled persons) and other information about how to request specific services, for instance, useful information about procedures of particular interest for migrant persons is provided in different languages (how to apply for a residence permit, how to register with the national health service, etc.). Apart from conveying information, the Bologna Welfare app also includes what is called a “virtual counter”, i.e., a ‘private area’ where citizen can request discounts and benefits, apply for economic support (such as large family and maternity allowances or economic contributions to supplement income) and access other welfare related DPS. As such, both, the app Bologna Welfare and the municipal platform Iperbole, include informative as well as ‘interactive’ and transactional features aimed on the one hand at delivering institutional communication and on the other hand at providing access points to digital public services (DPS) by establishing customized ‘private areas’ acting as online public counters.

Apart from enabling me to gather data about the contents, aesthetics and functionalities of the interfaces themselves, this approach was useful as it shed light on some of the elements, actors and relations participating in PA digitalization processes and practices and helped me orienting the next steps of the research by giving me hints about what was happening *with*, *beyond* and *behind* the interfaces.



### 2.1.3 Moving on: with, behind and beyond the interfaces

Interfaces are not only interesting *per se* as cultural artifacts and objects of inquiry, but also as methodological gateways, insofar as they reveal more about ideas, practices, actors, processes, and relationships of the organization deploying them, enabling us to find interesting exploration paths to follow and thus to formulate more specific research questions. In fact, interfaces somehow define a flat surface upon which diverse elements, processes and relationships meet, converge, and become visible, and can thus be studied with more ease. For instance, apart giving hints about the organizational dynamics leading to what we see on the screen, interfaces tell us a lot about what the organization expects to happen in front of the screen.

In the first place, on the Iperbole platform it was possible to gather contact information (such as institutional telephone number and e-mail address) of municipal managers and employees, which was very useful to create a list of potential interviewees to be contacted via e-mail. It would have been useless to call or to physically reach the offices, since public employees working from home, a situation that lasted until the 15<sup>th</sup> of October 2021<sup>18</sup>.

Further, through the Iperbole website, the app store descriptions, and the app itself it was possible to make more precise conjectures about what was happening *behind*, *beyond* and *with* the interfaces. For instance, the kind of

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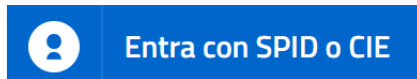
<sup>18</sup> <http://www.regioni.it/newsletter/n-4147/del-24-09-2021/pubbliche-amministrazioni-dal-15-ottobre-dipendenti-pubblici-tornano-in-presenza-23199/> (last access: 08/01/2023)

public services that had been digitalized and the fact that the app had been launched by the “Welfare and community wellness” department made me think that this department was somehow particularly active regarding digitalization. Similarly, I suggested that contacting the communication department would have been a good idea, as they surely were somehow involved in all the communicative aspects of the Iperbole platform and the app. In this sense, it had been possible to identify actors that surely would have known more not only about what was happening *behind* the interfaces, but also about what had happened before and during their creation.

Further, the fact that both interfaces did not only have informative purposes but were also intended to provide DPS led me to focus on what was happening *with* the interfaces and on their user configuration, i.e., how these define, enable and constrain users and their (inter)actions with public institutions. Indeed, by acting as a user and ‘walking through’ the interfaces, reading the Terms of Service, and trying to access the private areas, one specific element emerged as a key ‘actor’ that seemed worth of further inquiry, as it established what seemed to me as an obligatory passage point (Callon, 1984) for the access of the ‘private areas’ (and thus to DPS): forms of verified digital identity. In fact, as we can see in the image below (Fig 2.3), when trying to access the private area of Iperbole, a screen telling us to ‘access with SPID or electronic ID’ – both official forms of verified digital identity — appears. The same thing happens if we try to access Bologna Welfare’s private area.

## Accedi con SPID o Cie (Carta di identità elettronica)

Accedi a tutti i servizi e i vantaggi di Rete civica: entra con SPID o Cie (Carta di identità elettronica). Potrai tenere traccia dell'avanzamento delle tue domande e dello stato dei tuoi pagamenti, ricevere i documenti direttamente nella tua Area personale e partecipare alla comunità per condividere progetti e idee.



Non hai ancora SPID? Scopri [cos'è SPID](#) e [come ottenere SPID tramite Lepida ID](#).

Figure 2.3 Screen appearing on the Iperbole platform when users try to access the 'private area'

This element (digital identity verification) acts as a sort of barrier preventing anyone *not* having a SPID or CIE identity to access the private areas of the interfaces, practically making it a *necessary* prerequisite for citizen to access DPS and also establishing fundamental practices linked to DPS access and delivery: digital identity creation, management and usage. Thus, to better explore how new practices emerge in relation to the digitalization of public service delivery, I chose to further inquire what happens *with* these interfaces by focusing on SPID related citizen-user practices.

Moreover, digital identity became one of the main *foci* of attention because it also seemed to be a good access point to better understand what was happening *beyond* the interfaces. In fact, while Iperbole and Bologna Welfare are both digital interfaces deployed by a *local* public administration, SPID and CIE

identities are part of *national* digitalization policies. Further, some of the DPS offered by the Bologna municipality through the interfaces (mainly economic subventions and discounts/bonuses) were bound to thresholds determined upon a socioeconomic status indicator broadly used in Italy on the national level (ISEE). Normally citizen must attach their ISEE data when they fill a request requiring it, while when using Iperbole or Bologna Welfare DPS, citizen's ISEE is retrieved automatically. This was interesting because ISEE data is held by the National Institute of Social Security (INPS) and usually not directly available to local PAs. Both these 'hints' led me to focus on the fact that there must have been relation between local and national digitalization policies implying the presence of some sort of digitalization related *interorganizational* processes. Here, one emerging research question leading beyond the interface regards for instance the relation between local and national PA digitalization policies.

In this sense, details and elements present on the interface's 'surface' did not only act as a direct source of data and useful information (e.g., by displaying the e-mail addresses of municipal employees), but also as methodological 'sensitizing devices' useful to delineate a less abstract and more precise explorative research path about processes and practices linked to PA digitalization. If we conceive interfaces deployed by public organizations as artifacts through which PA digitalization policies are translated into practice, analyzing the elements and relations converging on their surface through a 'flat ontology' enables us to follow the actors (Latour, 2005) and to connect very

diverse aspects and levels of PA digitalization, such as user practices, local and national policies and (inter- and intra-) organizational dynamics. As such, interfaces could be thought of as ‘boundary objects’ (Star and Griesemer, 1989) inhabiting at the same time both the world of the organization deploying it and the world of people supposed to use it, thus telling us something more about both these worlds and about the relation between them.

For instance, by looking at the interfaces, it was possible to define potential practices to be observed or to identify possible interviewees (and their contact info), further, interfaces were also useful to set up a list of issues and aspects to be further discussed or observed (e.g., interorganizational relations, level of DPS automation, digital identity usage, etc.). Generally speaking, the interface analysis was useful to 1) identify elements participating in PA digitalization (digital identity, citizen-users, central state, municipal departments etc.) and 2) to make conjectures about their connections and thus 3) to develop methodological strategies to further inquire these elements and their connections.

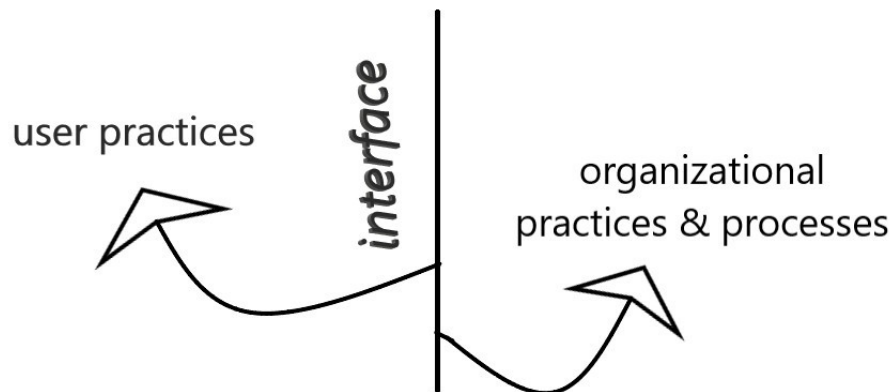
As we will see throughout the next paragraphs, this initial interface analysis led to the development of what eventually emerged as three distinct analytical research *foci* (taking here the shape of three empirical chapters) related to diverse processes, practices, and artifacts somehow connected to diverse aspects of Italian PA digitalization. By following and retracing the *actors* and *connections* initially made visible through the interface analysis, it has been possible to

escape ‘preconfigured field boundaries’ and to explore Italian PA digitalization by enacting a ‘multi-sited ethnography’ (Hine, 2007).

As such, interfaces revealed themselves as a very good starting point to construct the ethnographic field in a multi-situated way, as they enable to analytically and *empirically connect* what would otherwise appear as spatially and temporally fragmented ‘sites’. Indeed, as suggested by Marcus (1995: 105):

Multi-sited research is designed around chains, paths, threads, conjunctions, or juxtapositions of locations in which the ethnographer establishes some form of literal, physical presence, with an explicit, posited logic of association or connection among sites that in fact defines the argument of the ethnography.

In this sense, while the three empirical accounts that will be presented here pertain to diverse and dispersed empirical sites, research techniques and levels of analysis, they actually reveal diverse *interconnected* practices and processes participating in what we can broadly define as the field of Italian PA digitalization. Through the interface analysis it has been possible to retrace paths, conjunctions, and juxtapositions between elements and thus to explore, identify and follow some of the actors, practices and processes related to Italian PA digitalization in a multi-situated way, without forcing predefined boundaries and categorizations upon them - such as the analytical separation between micro and macro.



*Figure 2.4 Interfaces as sensitizing devices (author's own elaboration)*

Indeed, as visually represented in Fig. 2.4, by starting with an analysis of the interfaces' "flat" surfaces, it was possible to develop conjectures about both user practices and organizational processes and practices related to the interfaces and to develop strategies to subsequently inquire these by deploying other research techniques in some sort of 'rhyzoanalysis', exploring spatially and materially dispersed - although connected - paths revolving around diverse elements, practices and processes partly composing the assemblage of Italian PA digitalization (Leafgren, 2009; Cahill, 2018).

## *2.2 Three empirical accounts: organizational practices of Italian PA digitalization*

While the interface analysis described above has been very useful during the first phases of the empirical research, as it helped to reinvent the initial research design and to overcome field access difficulties related to physical confinement,

as well as to construct, connect and define the field(s), other research techniques such as interviews, document analysis, public discourse analysis and observations have been used in following phases of the research, also because the Covid-19 related restrictions gradually decreased over time, making physical co-presence (and thus ‘traditional’ ethnographic techniques) possible again.

In fact, the diverse exploration paths that had been broadly identified and connected through the initial interface analysis have then been pretty much simultaneously inquired during the following phases of the empirical research, leading to what eventually emerged as three distinct accounts about what happens behind, with and beyond the interfaces.

Indeed, while here three diverse accounts about Italian PA digitalization will be presented, the research paths beginning *on* the interfaces and leading to these separate accounts are chronologically and methodologically intertwined, making it difficult to clearly separate and adequately translate the abductive back-and-forth process and the different overlapping research phases into the linear structure of a text (for instance, issues pertaining to all three research focuses may emerge in the same document/interview/observation). Anyway, I will now briefly try to address some of the actions undertaken during the exploration process to provide at least a rough overall sketch of how the research trajectory developed over time. The first account, as initially planned, revolves around Bologna’s municipality digitalization and the historical, contextual and organizational dynamics related to it. The second account analyzes the tools,



strategies and actions deployed by some of the digitalization-related governmental agencies and their relationship with the coordination and standardization of local PA digitalization processes. The third account is a focus on the national digital identity system SPID and user practices relating to it.

While still locked down at home (in Naples, more than 500 km far away from Bologna), I started contacting Bologna municipal employees by using the email addresses found on the Iperbole platform to organize semi-structured interviews<sup>19</sup> ‘focused’ on PA digitalization (Merton and Kendall, 1946). The interviews all started with the same ‘opening question’ question, i.e., “from your point of view, what does mean to ‘digitalize PA’?” (in Italian: “dal suo punto di vista, cosa vuol dire ‘digitalizzare la PA’?”), with the intent to solicit the interviewees to narrate about their *subjective* experience of PA digitalization and also to keep a low degree of ‘directivity’ and a good degree of flexibility in order to pursue my explorative aims and also leave space for possible ‘surprises’ (Addeo and Montesperelli, 2007). In fact, while I had a list of ‘issues’ to be discussed during the interviews (also oriented around elements and themes that emerged by looking at the interfaces), after the ‘standardized’ initial question the interviewees had a high degree of autonomy in constructing their narrative, meaning for instance, that there was no fixed order in addressing the diverse issues and no need to touch all the issues listed - which indeed often emerged

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<sup>19</sup> All interviews have been audio-recorded and transcribed, some of the interviews, and specifically the initial ones, have been held on-line by using videoconference software such as Microsoft Teams or Google Meets, for more detailed information about the interviewees, see Chapter 3).

spontaneously and exceeded the ones I had (pre)fixed on my list (Montesperelli, 1998). Though these initial interviews, it was possible to deepen my understanding of local PA digitalization and to get in contact with further PA or municipal employees to be interviewed, but also to abductively confirm the assumptions based on what I had previously seen on the interfaces, e.g., about the centrality of the SPID digital identity and other broader interinstitutional dynamics involving central state laws and governmental agencies related to PA digitalization.

For this reason, while I was conducting the first interviews, I also started inquiring about the Public Service for Digital Identity (SPID) by reading official documents online (such as regulations and user manuals), analyzing the interactions on the official SPID Facebook page<sup>20</sup> and reconstructing the practices and procedures involved in the creation and management of a SPID identity (e.g., by producing and using a SPID identity on my own or by interviewing and observing people - such as friends and relatives – doing so). In later stages of the research, deeper and in-presence observations of SPID usage have been made at a ‘digital support’ counter organized to support DPS access for citizen unable to access them on their own. The idea to enact this kind of analysis relies upon the fact that digital identity verification through SPID (or CIE) is a mandatory passage point for *all* Italian DPS, thus potentially affecting

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<sup>20</sup> The SPID Facebook page is ‘official’ as it is managed by the national statal ‘Agency for Digital Italy’ (AgID).

the whole national population (ca. 59 million people<sup>21</sup>). To provide an idea of SPID's diffusion, up to now (December 2022), an overall of 33.324.270 SPID identities have been created<sup>22</sup>.

By looking at the data gathered through the first interviews with Bologna municipality employees and the initial SPID related research actions I also noticed how the Italian central state was trying to deploy policies, strategies and technologies aimed at supporting, orchestrating, and somehow homogenizing Italian PA digitalization. The interest for national PA digitalization policies – and most of all for its relationship with local PA digitalization - also grew because of my ‘everyday life’ perception (meaning a perception *not directly* related to the deployed research techniques) about the unprecedented use of digital technologies by the Italian government during the Covid-19 pandemic.

This was for instance noticeable by looking at the incentives to use the national DPS app ‘IO’ launched in April 2020 (e.g., by making it almost mandatory in order to get subventions such as the ‘Bonus vacanze’ or the ‘state cash back’<sup>23</sup>), the massive use of *digital* Covid-19 vaccine certificates (so called Green Passes<sup>24</sup>, also downloadable through the app ‘IO’), or the development of a *digital* and central<sup>25</sup> national registry (ANPR<sup>26</sup>) launched in November 2021

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<sup>21</sup> <https://www.istat.it/it/archivio/indicatori+demografici> (last access: 12/12/2022)

<sup>22</sup> <https://avanzamentodigitale.italia.it/it/progetto/spid> (last access: 12/12/2022)

<sup>23</sup> <https://io.italia.it/cashback/> (last access: 12/12/2022)

<sup>24</sup> See for instance, <https://www.forumpa.it/pa-digitale/green-pass-covid-19-che-cose-come-usarlo-e-come-fare-per-la-tutelare-i-nostri-dati/> (last access: 12/12/2022)

<sup>25</sup> In Italy population registries have been traditionally held by each of the 7.903 municipalities, since late 2021 these fragmented registries have been digitalized and unified into a national population registry (ANPR) accessible with SPID/CIE. (source:

(where citizens can request and download diverse official certificates completely online – e.g., birth certificate, etc.), all of which is also quantitatively mirrored by the monthly updated data about the growing number of existing SPID identities (see Fig. 2.5) or the number of downloads for the app ‘IO’ (ca. 32 Mio. As of today)<sup>27</sup>.

In fact, as we can see by looking at the graph in Fig. 2.5, there has been a significant increase in SPID identities starting just few months after a nationwide lockdown was enforced in March 2020, indirectly showing an evident increase in the use of DPS in Italy. Here SPID rapidly became a very broadly used tool, as, for instance, ca. 90% (ca. 120 Mio.) of all accesses to the app ‘IO’ have been made by using SPID<sup>28</sup> (meaning that only ca. 10% used the other form of digital identity verification – CIE)<sup>29</sup>.

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<https://innovazione.gov.it/notizie/articoli/tutti-i-comuni-italiani-nell-anagrafe-nazionale/> last access:08/01/2023)

<sup>26</sup> <https://www.anagrafenazionale.interno.it/> (last access: 12/12/2022)

<sup>27</sup> Source: <https://io.italia.it/dashboard/> (last access: 12/12/2022)

<sup>28</sup> Source: <https://io.italia.it/dashboard/> (last access: 12/12/2022)

<sup>29</sup> The choice to focus on SPID and not on CIE was also taken basing on the high number of existing SPID IDs and the fact that it is more broadly used in comparison to the CIE. The fact that SPID has a bigger diffusion and usage may be explained by the fact that a SPID identity is ‘virtual’ and can be autonomously produced by citizen at any given time by contacting private organizations acting as ‘Identity providers’, while the CIE is a ‘physical’ electronically-readable card issued by the Ministry of Internal Affairs and handed out by municipal offices once a citizen’s old paper ID expires, leading to a way more gradual diffusion. In addition to this, CIE can only be used to access DPS if one has a smartphone with NFC-reader (for further info see the chapter about SPID user practices).

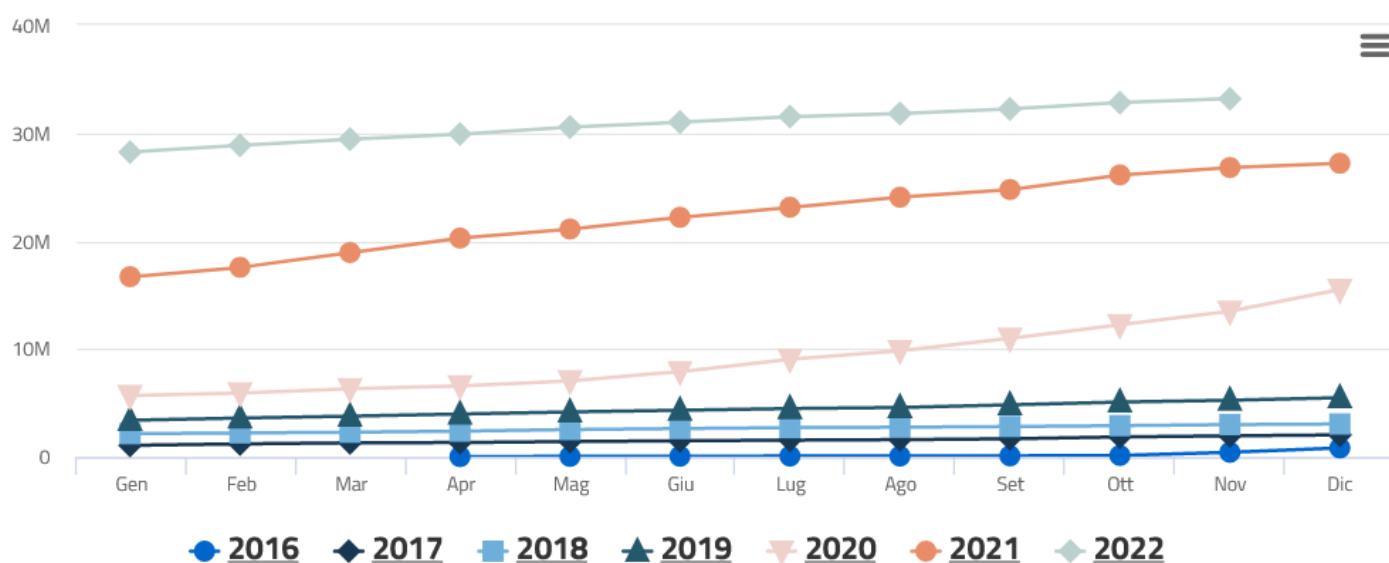


Figure 2.4 Cumulative number of generated SPID IDs, the Y-axis labels the sum of generated SPID IDs in Millions.

(source: <https://avanzamentodigitale.italia.it/it/progetto/spid>)

Moreover, another important (also Covid-19 related) contextual factor contributing to my interest in the national PA digitalization landscape is the so-called National Resilience and Recovery Plan (PNRR), debated at length and then definitively approved in July 2021. The PNRR, which financially mainly builds upon the post-covid “EU Next Generation” subvention Plan, foresees massive public investments among which ca. 7 billion € specifically dedicated to PA digitalization<sup>30</sup>, with aims, actors, strategies and foreseen actions eventually synthesized and described by the Ministry for Technological Innovation and Digital Transition in the document “Italia Digitale 2026” (MITD, 2022). Indeed, to explore central state digitalization policies and their relation with local PA I also started to take a closer look at digitalization-related national strategies, laws

<sup>30</sup> The integral PNRR document is accessible at the URL: <https://italiadomani.gov.it/it/home.html> (last access: 12/12/2022)

and other documents (such as the Code for Digital Administration, or the Three-year Plan for ICT in PA), for instance by reconstructing the actions and strategies of governmental agencies supporting digitalization – such as the Ministry for Technological Innovation and Digital Transition, the Agency for Digital Italy (Agenzia per l’Italia Digitale, AgID) or the Department for Digital Transformation (Dipartimento per la trasformazione digitale, DTD).

The above-mentioned document Italia Digitale 2026 declares the aim to achieve 70% of the Italian population using digital identity and 80% of digitalized public services by 2026 (MITD, 2022), furthermore, the document also sets other strategic aims/actions and defines governmental agencies’ role for their achievement, as can be clearly seen through this short excerpt of the document’s “challenges and opportunities for 2023-2026”:

“[...] 3. Strengthen the *design authority* over the country's digital architectures and the intervention capability to *standardize and interconnect* them. The MITD/DTD and the CITD<sup>31</sup> have prepared a *coherent design* for the digitalization of the Italian PA in order to achieve a *radical simplification and streamlining of the relationship between PA and citizen through digital means*. The key to fully realizing this plan is the *interconnection and interoperability of central and local systems* [...]. These necessary interventions require a capacity for rapid design and implementation, but also a *possibility of veto where certain interventions do not prove to be consistent with the agreed plan*. [...] 5. Consolidate and strengthen the *MITD/DTD staff in charge of orchestrating and supporting the implementation of the digital and technological strategy*.”

(MITD, 2022: 31, my own translation, italics added)

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<sup>31</sup> Comitato Interministeriale per la Transizione Digitale (Interministerial committee for digital transition).

Here, we can see how the MITD envisages ‘the relationship between PA and citizen through digital means’ as linked to ‘the interconnection and interoperability of central and local systems’ that must be achieved through a *stronger design authority* and intervention capability over the ‘country’s digital architecture, showing how PA digitalization is much more than just a ‘technical’ endeavor, and may relate to forms of institutional redefinition. Further, by analyzing this and other documents, the Department for Digital Transformation, “the administrative body responsible for the execution of the MITD strategy” (ibidem: 33) and AgID, which “has the task of ensuring that the digitization of the central and local public administration is consistent with the country's digital strategy” (ibidem: 34), emerge as central actors in the enactment and coordination of national PA digitalization strategies and thus in the relation between central state and local PA. In particular, the DTD seems to have an increasing importance in the implementation and coordination of PNRR related national digitalization strategies, as:

“to implement the Italia Digitale 2026 plan, the DTD has developed a new approach in the execution of the PNRR projects that accelerates and supports the digital transition of individual territorial authorities. This approach is based on:

- Simplifying the interaction between central government and local territories: in November 2021, the DTD launched the 'PA Digitale 2026' platform as the single access point for PAs to the funds made available by the PNRR for the digital transition. This platform publishes notices that make PNRR resources available to local PAs for digitalization in a simple and standardized way with disbursements pre-determined according to the characteristics of the PA entity. [...]

- Support for local PAs: in order to ensure widespread digitalization extended to all public administrations, the DTD has set up the Transformation Office, as provided for in the PNRR, i.e., a team partly central and partly deployed on the ground, with the task of supporting the digitisation of individual local PAs, also interfacing with IT suppliers”

(MITD, 2022: 6, author’s own translation)

The important role played by the DTD in relation to the distribution of PA digitalization related PNRR funds and its ‘new approach’ towards the orchestration of local PA digitalization processes led me to focus on some of the projects and portals it manages, such as Developers Italia, Designers Italia, Docs Italia and the above-mentioned platform PA Digitale 2026, which will be all discussed in more detail in chapter 4.

While the initial interest for digitalization related governmental agencies’ activities arose upon the interface analysis, some of the organizational processes and issues mentioned by local PA managers and employees during the first in-depth interviews, as well as by the information I gathered by analyzing the abovementioned portals and documents, it was possible to further delve into the national context of PA digitalization by participating in the 2021 and 2022 editions of the national event Forum PA (the former was held online in June 2021 and the latter in-presence in Rome from 14<sup>th</sup> to 17<sup>th</sup> June 2022), “the most important national event dedicated to the issue of PA modernization”<sup>32</sup>, where governmental agencies, local and central PA organizations and other

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<sup>32</sup> <https://www.forumpa.it/chi-siamo/>



stakeholders (such as IT suppliers, politicians and journalists) meet, engage in public presentations/discussions and fair-like activities all revolving around PA, in recent editions with a special attention for PA digitalization<sup>33</sup>.

During the 2021 Forum PA, held online, I analyzed numerous talks and speeches about PA digitalization made by politicians, public servants, IT experts and journalists, where it was possible to better identify ‘important’ policies, strategies and issues and also to explore the sociotechnical imaginaries (Jasanoff and Kim, 2013) related to Italian PA digitalization. For instance, here, among other things, it was possible to follow a presentation of Bologna’s new civic network platform development and design, held by the municipal “Digital agenda” department (Settore Agenda digitale - which, as we will see in the next chapter, plays an important role in local digitalization dynamics); to see how PA digitalization is discursively linked to ideas of efficiency, efficacy and transparency that ‘have to’ be achieved through specific laws, strategies and governmental actions; but also to see how PA digitalization constitutes a growing market opportunity (not to say an ‘El Dorado’) for IT suppliers, who follow their aims by networking with PA representatives and qualifying their products as suited for PAs (for instance by underlining how their products and services fulfill law requirements<sup>34</sup> etc. – Callon, 1999).

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<sup>33</sup> Complete list of the private and public organizations involved in ForumPA 2022: <https://www.forumpa.it/partner/?event=114572>

<sup>34</sup> See, for instance, <https://www.maggioli.com/it-it/soluzioni/software-pa> (last access: 09/01/2023)



Figure 2.5 A picture taken at the entrance of the 2022 Forum PA edition in Rome depicting some of the event's partners.

During the 2022 edition of Forum PA, which was held in presence, it was also possible to talk to various representatives of IT companies and statal agencies at their ‘stalls’ (like the ones companies have at fairs), among which also people collaborating with App IO, AgiD and the DTD – whose presence grew

significantly in relation to the 2021 edition. In fact, during the 2022 edition of Forum PA I specifically focused on the stand organized by the DTD (see fig. 8) - and tried to dig deeper into the actions they were implementing in relation to the Italia Digitale 2026 plan. Here, it was also possible to directly talk with some of the DTD's employees and to better understand its projects, tools and strategies, which I had also already partially analyzed online by looking at the DTD's portals and the PA Digitale 2026 platform, and by analyzing related official documents.



Figure 2.6 The event schedule for the DTD's stand at Forum PA 2022 (15th June 2022, author's own picture)

As shown in figure 2.7, the issues addressed by the DTD relate to citizen's experience (and accessibility of) DPS, the platform PA digitale 2026 (co-produced by the DTD and used to convey PNRR funds and standardize/harmonize local PA digitalization processes), digital identity (SPID and CIE), and other elements participating in what is defined as the "country's design system". Basing on these observations and on their connection with what happens *beyond* local PA interfaces, i.e., the broader national 'ecosystem' within which they are politically, technically, and organizationally embedded, I decided to reconstruct the DTD's strategies and to highlight how digital tools and organizational practices related to specific professional routines are deployed as agents in the orchestration and homogenization of local PA digitalization trajectories. Here, I was also inspired by previous research framing the Italian national PA digitalization policies through the concept of Government as a Platform (Cordella and Paletti, 2019). In fact, one of the DTD's aims and projects is to foster the diffusion and use of so called "enabling platforms" such a SPID, App 'IO', or PagoPA, all related to the digitalization and national standardization of recurrent PA related actions such as identity verification (SPID), public service delivery (App 'IO') or certified billing and transaction management (PagoPA). Other DTD strategies aim at supporting and facilitating the work of IT suppliers working with PAs through a set of portals and digital 'spaces' defining (with very specific provisions/requirements) how PA digitalization should occur and simultaneously offering 'open' repositories of

operational resources needed to adequately do so. As we will see through one of the chapters of this thesis (chapter 4), all these tools and actions are put in relation to each other through the digital platform Pa digitale 2026, which organizes the funding procedure in a way which obliges to adhere to the tools and definitions of the “country’s design system”, thus somehow intermediating the relation between local PAs and IT suppliers with the aim to centrally orchestrate and govern local PA digitalization processes. In fact, while the SPID ‘case’ highlights user practices (what happens *with* the interfaces) and the Bologna ‘case’ highlights historically and territorially situated PA digitalization processes (what happens *behind* and *before* the interfaces), here the intention was to highlight the practical ‘tools’ and the relational aspects associated with PA ‘platformization’, as well as its organizational aspects and connection with local PA digitalization processes (what happens *beyond* the local interfaces).

Finally, another fundamental part of the data gathering process that must be mentioned at this point was made at the beginning of 2022, when it was possible to organize a one month stay in the city of Bologna, a few months after public employees had come back to work in presence (which happened in mid-October 2021). Indeed, as already mentioned, before this period it was difficult to organize such a stay because of Covid-19-related restrictions and during the stay in February 2022 it was still possible to ‘feel’ Covid’s presence, for instance, by the fact that part of the interviewees was not very eager to meet in-person. However, during this time it was possible to make important steps to ‘open’ and

further connect the research field and gather data. At the very beginning of my stay, I had the opportunity to talk with local academics who were knowledgeable on the local political context and the municipalities' history; through their help, it has been possible to better define the context, as well as to reach a few key interviewees. Further, during the stay it was possible to explore diverse central and peripheral municipal offices, where it was possible to engage in many informal chats with people such as 'users' and gatekeepers, observe the 'furniture' (see fig 2.8) and gather informational material (such as flyers or posters about initiatives etc.). Through this exploration it has been possible to better understand the context, for instance, the territorial and organizational configuration of Bologna's municipality, the traditional importance of so-called municipal URPs (Uffici Relazione con il pubblico - Public relation offices) and their connection with Iperbole and other elements (e.g., DPS and SPID, see fig 2.8).

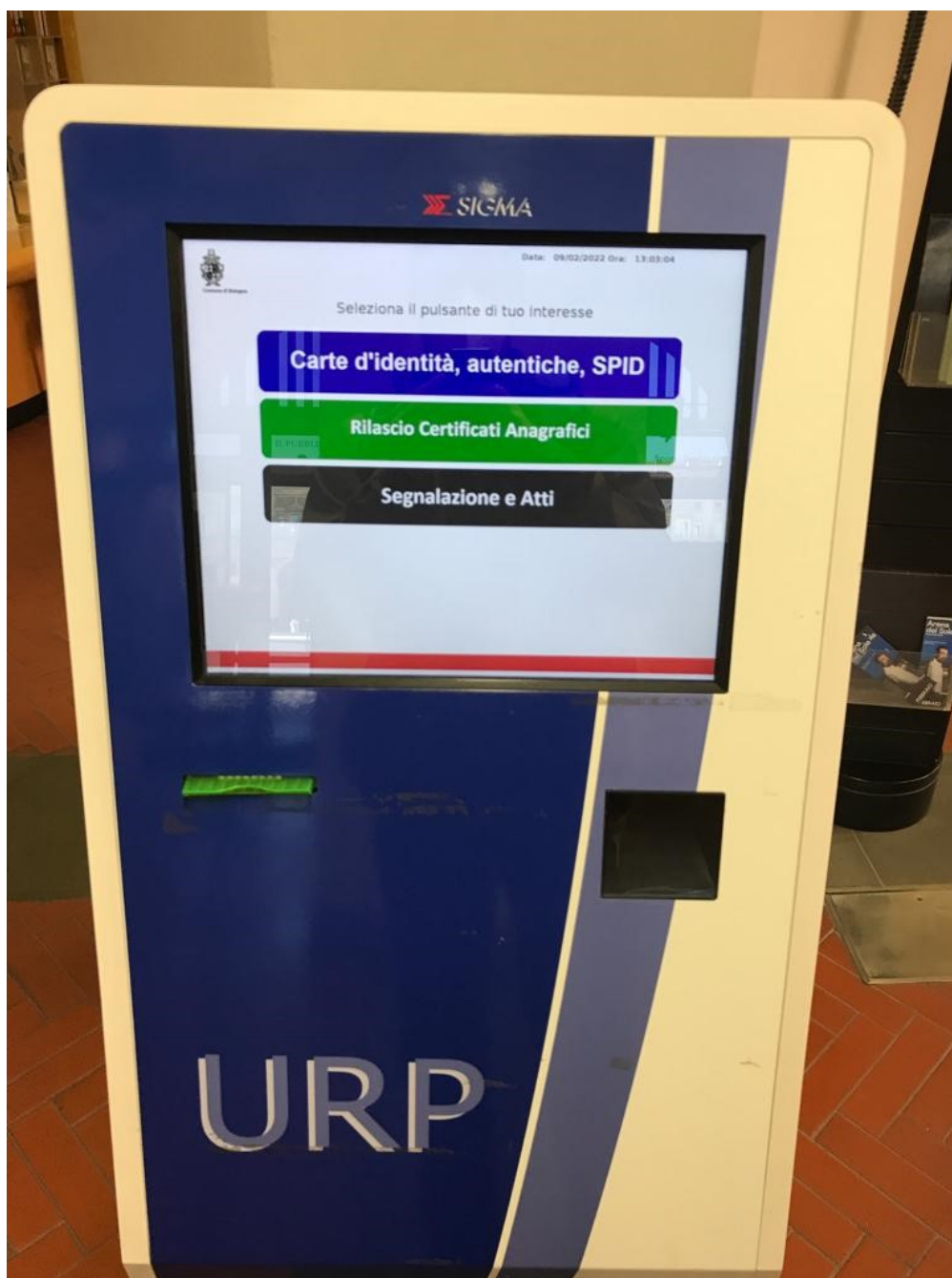


Figure 2.7 A digital kiosk in one of the Bologna municipal Public Relation Offices (URP). (source: author's own picture).

Further, it is through the informational material gathered in this way that I acknowledged the existence of the digital support counter where I could enact the observations about DPS and SPID user-practices (see fig. 2.9).



*Figure 2.8 The space where the digital support counter where the observations have been made was organized. (source: author's own picture)*

Moreover, during the time in Bologna it was possible to organize and perform diverse interviews with managers and employees of different departments: one IT ‘accessibility’ expert who collaborates with diverse governmental agencies, two former municipal managers respectively linked to the statistics and the communication department (and to the early digitalization of registry data and the birth of Iperbole), and the regional ‘minister’ (assessore) for ‘school, university, research and digital agenda’; all of which helped me to deepen my



knowledge about the current state of Bologna's digitalization, its 'history', and its relation with broader (regional and national) digitalization policies.

In conclusion, before leaving space for the three accounts that eventually emerged upon the analysis of the data and information gathered in the way described in the sections above, it must be said that obviously, given the explorative aims and 'rhizomatic/multi-situated' exploration path, the research presented here does not in any way move claims of generalizability nor of exhaustivity. Moreover, given, on the one hand the explorative approach and the quantity and heterogeneity of data gathered, and on the other hand the limited time and resources available for the implementation of this research, it was at some point necessary to clearly define the research focuses and thus decide which data to use/analyze and (subsequently) which data not to use. For instance, there would be enough data to write another chapter dealing with the sociotechnical imaginaries (Jasanoff and Kim, 2013) related to Italian PA digitalization, however, sadly there was not enough time to do so. In conclusion, by critically addressing Italian PA digitalization as a processual sociotechnical assemblage related to organizational issues and the emergence of new ways of doing things (e.g., social institutions), the three accounts that will be presented here all deal with interconnected practices and process *significantly* related to Italian PA digitalization with the aim to shed light on how (PA) digitalization encompasses many organizational, situational practical and political

reassemblages that cannot be reduced to a mere implementation of digital technologies.

From an analytical point of view, the three focuses all relate to the emergence of new ‘institutions’ (i.e. ways of doing things) strongly tied to digital technologies through the establishment of action-nets and the forms of institutional work they entail. More specifically, the first case, Bologna, deals with how new ways of doing things emerges from contextual elements and situated interest related to specific action-nets. Here we will see how early PA digitalization unfolds without national regulations or guidelines and how this leads to heterogeneous ways of digitalizing in different local contexts today. This heterogeneity leads us to the second case, i.e. the way some governmental agencies engage in forms of *institutional entrepreneurship* by establishing action-nets to coordinate, and with the aim to homogenize (if not standardize), local digitalization projects. Here we will see how digital technologies themselves may become actors in the enactment of *institutional work* aimed at changing the way things are done in the specific organizational field of Italian PA. The third case relates to how PA digitalization also affects practices and social institutions in the realm of citizen-state interaction. Here, by using the concepts of user configuration and user production and by looking at SPID as a technology-in-use, we will see how PA digitalization and forms of digital identity require an active involvement of citizens, who may incur in forms of exclusion linked to their impossibility to enact the required actions.

### 3. PA digitalization in the Italian context: the case of the Bologna municipality

In the previous chapter we saw how the research trajectory enacted to gather the data used for the scopes of this thesis originates in an initial interface analysis through which two interfaces managed today by the Bologna municipality – namely the web platform ‘Iperbole’ and the mobile app ‘Bologna Welfare’ (BW) – have been ‘de-constructed’ and critically scrutinized.

By departing from what happens *on* these interfaces, it was possible to start a multi-sited research path eventually leading to three distinct but connected accounts about what happens *with* the interfaces (SPID user-practices), *behind* - and I would add *before* - the interfaces (the situated historical local organizational processes participating in Bologna’s municipality digitalization) and *beyond* the interfaces (the way the Italian central state tries to define and to govern/orchestrate local PA digitalization processes).

In particular, throughout this chapter, we will look at how in Bologna’s case PA digitalization connects with a whole set of issues, professional networks and contextual factors not directly pertaining to the technical aspects of digital technologies, moreover, we will see how there is not just *one* PA digitalization, but rather different ‘strains’ of digitalization historically developing within and beyond the municipality on separate lanes, lanes that must be now put into

dialogue - among each other, as well as with national PA digitalization processes, policies and strategies (i.e., intra- and inter-organizationally).

This chapter is mainly descriptive and structured as follows: first, we will further elaborate the methodological aspects addressed in the previous chapter and explain in more detail the techniques specifically used to explore the case of Bologna. Then, we will look at the organizational, professional and contextual dynamics participating in the processes through which Bologna has built and shaped what appears today as its digital ‘front door’ (Henman et al., 2021), namely, at what happened behind the interfaces over the years and decades to let them appear as they are today. To do so, we will elaborate on what eventually emerged from the interviews as three diverse ‘strains’ of digitalization taking place within the municipal organization and strongly related to specific organizational dimensions and professional cultures: communicative digitalization, epistemological/statistical digitalization, and workflow/administrative digitalization. Further, we will see how over time these parallel strains of PA digitalization build on previous (non digital) assemblages and later converged through processes of translation and reciprocal adjustment requiring orchestration and organizational reassemblages, eventually also leading to what we are able to see today on the Iperbole and Bologna Welfare (BW) interfaces.

### *3.1 Methodological notes*

As described in the previous chapter, through the initial interface analysis it has been possible to identify diverse elements and actors participating in local PA digitalization processes, including connections with ‘higher’ statal entities and policies. In fact, apart from enabling me to gather useful data during the harshest time of Covid-19 related mobility restrictions, from a methodological point of view, the interfaces also acted as a gateway to the field and its construction (as it was possible to retrieve employee contact information), as well as ‘sensitizing devices’ helping me to identify issues and themes I would later use as a ‘guide’ during the in-depth interviews enacted. In fact, apart from the initial interface analysis and the observations and informal chats and ‘interviews’ enacted in the public areas of municipal offices, the main technique used to gather the data that will be presented in this chapter was the focused semi-structured in-depth interview (see Chapter 2 – Montespirelli, 1998; Merton and Kendall, 1946). Altogether, 13 formal interviews with 12 different persons have been enacted from November 2020 to July 2022, with a specific focus on municipal managers and employees pertaining to diverse departments (see table 1). Many of the interviews with Bologna municipal employees have been enacted online, while others have been made in-person during my one-month stay in Bologna in February 2022. During this time, it was also possible to meet and interview two professors at the University of Bologna who were knowledgeable of the historical, political and organizational processes regarding

Bologna's municipality, as well as its broader metropolitan and regional context. The interviews had an average duration of ca. 90 minutes, ranging from the 25 minutes of shortest interview to the 200 minutes of the longest. All interviews have been transcribed and later coded and analyzed by using thematic analysis (Dalla Porta, 2014; Castleberry and Nolen, 2018).

The different 'gazes' on the digitalization of Bologna's municipality gathered through these diverse interviews - and their reciprocal 'triangulation' (Carter et al., 2014) - enabled me to (at least partially) reconstruct the heterogeneous elements, practices, relations, and processes participating in the municipality's 'digital' history and present. Moreover, some of the interviewees also sent me public (but hardly retrievable) and internal/administrative documents regarding municipal digitalization processes, which, together with the documents I was able to find online and during my observations in municipal offices further helped me to reconstruct Bologna's local digitalization 'context'. Obviously, during observations and interviews field notes were taken, to make the resulting descriptions as 'thick' as possible for later analysis (Geertz, 1973).

Given the explorative aims of this research, the results presented here will be mainly 'descriptive', however, through these descriptions it will be hopefully possible to highlight how PA digitalization is deeply intertwined with variable organizational and contextual factors and can thus not be reduced to a univocal and homogeneous technical endeavor automatically resulting in more efficacy and efficiency and thus in better political and administrative action.

Department	Short interviewee description
Agenda digitale	<p>Manager, IT expert, also involved in the restyling of Iperbole</p> <p>Duration: 90 min.</p>
Agenda digitale	<p>Employee, IT expert, project manager</p> <p>Duration: 80 min.</p>
Communication Dept.	<p>Project manager, central municipal editorial staff</p> <p>Duration: 100 min.</p>
Communication Dept. + Agenda digitale	<p>Former project manager of communication (since late '80), Iperbole co-founder, head of the first agenda digitale project, later director of Agenda digitale sector, and now Fondazione Innovazione Urbana board member</p> <p>Duration: 200 min.</p>
Statistics Dept.	<p>Former head of the statistics dept., municipal employee since 1981</p>

	Duration: 70 min.
Fondazione innovazione urbana	Project manager  Duration: 60 min
Welfare and community wellness dept.	Head of the Information System Operative Unit, law and IT expert, worked in different municipal offices also as early workflow automation expert  2 interviews (one at the very beginning and one at the end of the research, also to 'validate' the data gathered)  Duration: 90 minutes (1 <sup>st</sup> interview)  65 minutes (2 <sup>nd</sup> interview)
One of the 6 'quartieri'	General director  Duration: 40 min.
One of the 6 'quartieri'	person in charge of the Information System  duration: 25 min.
Non municipal	Head of the association organizing the digital support counter  Duration: 60 min.



Non-municipal	IT accessibility expert, AgID collaborator  Duration: 90 min.
Non-municipal	Regional minister (assessore) for school, university, research, and digital agenda of the Region Emilia-Romagna  Duration: 70 min.

The intention of this account is to reconstruct a narrative about the organizational processes and other factors leading to the current state of what is considered as the ‘most digitalized’ Italian metropolitan city, to do so, a brief historical reconstruction of the elements participating in the different ‘strains’ of PA digitalization identified above will be provided, later, we will see how the convergence of these different strains led to the development of a ‘digital agenda’, first, as a participative process enacted to define a ‘shared digital territorial strategy to lay the foundations of a sustainable development through the use of ICT as a tool of technical and social innovation’<sup>35</sup>, and now as an ad hoc apical and transversal department of the municipal organizational structure in charge of coordinating, operatizing, translating and ‘governing’ municipal digitalization processes pertaining to the different specialized departments.

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<sup>35</sup> Document provided by one of the interviewees, specifically, the presentation “a digital agenda for Bologna” held at Forum PA 2012.

Indeed, the intent of this empirical account is to highlight the way PA digitalization pertains to actions, connections of actions, actants and processes of translation that “draw from and challenge the existing institutional order” (Corvellec and Eriksson-Zetterquist 2017: 369) and concur in the definition of action-nets eventually leading to the stabilization what is perceived as a ‘highly digitalized local PA’. Here, the results of the exploratory research enacted suggest that local PA digitalization may be conceived as a set of fragmented organizational practices (and action-nets) taking place within and beyond the municipal organization that must be at some point put into dialogue through processes of translation and mutual adaptation. The aim to retrace Bologna’s municipal digitalization through the connection of practices, processes and actants dispersed through time and space is inspired by the idea that looking at the process of ‘becoming’ of actors may be more interesting than looking at their ‘nature’ (Czarniawska, 2004). In other words, the idea is to frame processes of digitalization through an organizational stance, as processes of change that take place “when new actions create new translations that create new connections that create new action nets”, which then subsequently participate in the definition of the organization’s identity (Corvellec and Eriksson-Zetterquist, 2017: 369). In this sense, the following paragraphs will try to retrace and connect at least some of the practices and action-nets that led to the current state of Bologna as a ‘highly digitalized’ municipality. Obviously, the description of organizational practices related to Bologna’s municipal digitalization processes provided in the

next paragraphs does not pretend to offer an exhaustive overview of *all* digitalization related processes taking place within the organization, nonetheless, the aspects that will be discussed here allow us to frame PA digitalization as a non-linear and fragmented processes of local heterogeneous engineering involving much more than just the ‘passive’ adoption of ‘one-fits-all’ digital technologies. This becomes even clearer if we consider the fact that until lately there was an absence of systematic central state digitalization policies affecting municipal organizations, creating a situation where every local PA digitalized “on its own”.

We will start to address the digitalization processes taking place within the Bologna municipality by looking at the Iperbole project and its connection with the communication department of the municipality and other local actors. Here we will see how the Iperbole project unfolds upon previous policies and approaches characterizing the Bologna municipality, but also how it develops as an action-net that clearly transcends the municipality’s ‘formal’ organizational borders including ‘external’ actants, elements, ideas and organizations (such as the local university, the national legislation, the European Union or other non-Italian municipalities) that concur in the development of the digitalization-related practices and projects occurring within the municipal organization. In fact, we will see how throughout time, diverse non-overlapping action-nets revolving around specific aspects, practices and professionalities typical of public administration that transcend ‘organizational borders’ lead to the diverse strains

of digitalization taking place ‘within’ the municipal organization. Indeed, the independent origination and buildout of these diverse action-nets seems to happen according to the broader developments taking place in specific professional environments linked to diverse municipal organizing practices such as entertaining relationships with citizens, standardizing and coordinating workflows, planning policies, or managing demographic/statistical/registry data.

Even though Iperbole was not the chronologically first strain of digitalization developing within the organization – as we will see in the further paragraphs of this chapter – we will start our narration by looking at Iperbole and its birth and roots because it is the most ‘symbolical’ and the most visible moment in a *kairotic* conception of the municipal digitalization processes. In fact, the name Iperbole is still part of the city’s history and (digital) identity (see fig. 3.1 and 3.2) and is still used today to define the multi-purpose municipal platform, even though it started in the mid-1990s as a much broader political and ‘participative’ infrastructure-building project, that had at that time also drawn the attention of various – even prominent – scholars (see for instance, Castells, 1998). Iperbole acted as a cornerstone in the development of Bologna as a ‘digital city’ (Aurigi 2016), also because, it is through Iperbole’s growth as municipal platform (and particularly, *on* Iperbole’s interface) that the diverse digitalization practices taking separately place within the municipal organization partially converged and entered into dialogue over time. In this sense, Iperbole somehow emerges as an actor-network (pretending to be one actor), and thus as the outcome of

processes of translation involving “different and separate actants, emerging from an action-net under construction, [that] translate both themselves and one another into a unitary actor-network” (Porsander, 2005: 19).



*Figure 3.9 A screenshot of the left-hand part of the header of the municipal platform [www.comune.bologna.it](http://www.comune.bologna.it) as it appears in January 2023.*

### *3.2 PA digitalization as an emergent and open-ended process*

One of the criteria leading to the choice of Bologna’s municipality as the object of the present research refers to the longstanding tradition of the city’s civic network ‘Iperbole’, founded in 1994 and still in function today to define the municipal website and platform<sup>36</sup> (active since 1996). Through the existing literature and the data gathered, it has been possible to retrace Iperbole’s early days and current evolution, to define its role within the municipal strategies and to identify it as part of one of the ‘strains’ of digitalization taking place within

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<sup>36</sup> <https://www.comune.bologna.it/home>

the municipality according to broader action-nets some of the municipal managers and employees were part of. Moreover, through the Iperbole case and its position in the broader organizational context of the Bologna municipality, it is possible to highlight how PA digitalization is not a univocal and merely technical process, but rather a territorially, politically and organizationally (and thus relationally) rooted process that emerges upon the encounter of diverse situated contextual factors, also varying over time.

### 3.2.1 The Iperbole civic network

As we will see throughout this paragraph, I.PerBO.LE., as the name is an acronym standing for '*Internet PER BOlogna e L'Emilia-Romagna*' (Internet for Bologna and Emilia-Romagna), constitutes an early and very 'ideological' example of PA digitalization that roots in the city's political and academic environments and in other contextual factors, among which we can find the civic networking movement that arose in the USA during the early 1990' through diverse "attempts to use new media technology, particularly the Internet, to improve participation in local democratic processes" (Tambini, 1999: 305). As the name of the project synthesizes, the initial central aim was to provide free internet access and an e-mail address to citizens and civil society organizations<sup>37</sup>, at the time when the internet was a technology almost exclusively used by

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<sup>37</sup> In the early days of internet e-mail boxes were offered by private providers according to a fee, similarly, just the access to internet had a fixed cost of ca. 2 Mio Lire (1000€) per year, not including the cost one had to pay for the effective use of the connection, which depended upon the consumption (similarly to a phone call).

military and academic organizations. In line with previous political uses of communication technologies (see the case of Radio Alice, in Bory, 2019) and the open-source ‘hacker’ ethics connotating the early days of digital information technologies (Himanen, 2001), the underlying idea motivating the actors participating in the Iperbole project (and its ‘father’ Stefano Bonaga, municipal appointee for Innovation and Citizen Relations 1990-1995<sup>38</sup>) was that the Internet constituted a new democratic ‘space’ and that subsequently the access to this ‘space’ was linked to the fulfillment of emerging democratic social and citizenship rights (Varesi, 2014). In fact, as also described by Bory (2019), apart from providing free e-mail addresses for citizens and transforming Bologna’s municipality into the first local public internet provider in Italy, the initial Iperbole project had also other aims, among which establishing digital communication channels with municipal services, managing on-line discussion groups and newsgroups (internal and external, e.g., on Usenet<sup>39</sup>), offering direct and remote ‘electronic’ training for citizen and creating 6 public stations (PCs with internet connection, 4 available to all users and 2 reserved for users with motor and visual disabilities) for consulting online pages and for using electronic mail via web; moreover the project also provided Internet connections for public bodies (schools, associations and other non-profit organizations operating in the municipal provincial area) and, after 1996, when Iperbole also became an ‘open

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<sup>38</sup> <http://www.comune.bologna.it/storiaamministrativa/people/detail/36189>

<sup>39</sup> Usenet newsgroups are electronic discussion groups in which you can share information and opinions with people all over the world. In Usenet newsgroups, you can reply to articles you have read and publish ("post") your own articles for others to read.

node' of the Internet through a municipal web portal, it also offered web space on the municipal site and technical support for the "collective subjects of public interest" who intended to provide a 'service to the community' by providing information and resources on the Iperbole network interface (Dipartimento Comunicazione Comune di Bologna, 2005). In this sense, and in contrast with the small private network providers offering costly connections that characterized the early days of internet access, through the Iperbole project the Bologna municipality somehow developed an anti-program that "claimed the role of civic guarantor of the new rights emerging in the age of digital and 'electronic citizenship' " (source: private archive of a interviewee). As clearly emerges from the following excerpt, from an interview held with one of the persons involved in the initial set up of the project, this was something that had never happened before in Italy, and something that generated open conflict with the small private internet connection providers operating in Italy at that time (mid-90's – see also Varesi, 2014):

"I had to write the briefs for the lawyers defending us because we were being sued ... and there was no one else but me and the people around me ... to write things that had never been written before, at least in the Italian context. Because there were no points of reference except some white paper or report... not even directives... And the whole defense line was ... 'of course Internet is a market space... But it is also, and before being a market space, it is also part of the public sphere. And it is also a space of citizenship. It is a space related to exercising rights and the possibility to access it is the condition for exercising these rights' [...] However, we did in fact set up a new service. We started from the assumption that internet access was a citizenship right. We were very focused on access, but not only... But above all it was a strong political mandate. And you don't do these things if you are not protected. If you take a step and then they



drop you politically... it's no good, and so there was a strong and consistent political support that allowed you to do many things.”

(interview with Iperbole co-founder)

Here, we can clearly notice how the Iperbole project constituted a very original (at least in Italy) and non-neutral form of PA digitalization linked to specific forms of sociotechnical imagery (Jasanoff and Kim, 2013) that envisioned the dawning ‘Web’ as new democratic space and the public institutions as a proactive actor guaranteeing access to this space and thus to the fulfillment of citizenship rights. Moreover, through this excerpt we can also see how political stability and support (‘a strong mandate’<sup>40</sup>), but also the will to legally defend the program against its private competitors, played a key role for the enactment and development of the Iperbole project. In fact, if we take a few steps back, we can notice the importance of the relational aspects involved, as all of this had been possible not only because of the municipality’s political will, solidaristic left-wing tradition (Bory, 2019) and traditional openness towards the use of technologies (as we will see in the following paragraphs) but also because of the encounter of diverse territorially rooted organizations, such as the local University<sup>41</sup> and the Cineca<sup>42</sup>, concurring in the birth and management of the

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<sup>40</sup> Results of the municipal elections for the mandate 1990-1995 retrievable at: <http://www.comune.bologna.it/storiaamministrativa/terms/detail/35766>

<sup>41</sup> Indeed, the city of Bologna is also known as ‘La Rossa’ (the red one) and ‘La Dotta’ (the erudite one) respectively because of its left-wing political tradition and its longstanding University, founded in 1088 AD.

<sup>42</sup> The acronym CINECA refers to the Inter-University Consortium for the Management of the North-Eastern Italy Centre for Electronic Computing (*Consorzio interuniversitario per la gestione del Centro di calcolo elettronico dell'Italia nord-orientale*), founded in 1967, whose headquarters were and are in Casalecchio di Reno, a small city very close to Bologna.

Iperbole project, as also described in a memoir document written (and kindly sent to me) by one of the interviewees (former employee of the municipal communications department):

“The ‘invention of Iperbole’ is perhaps due to a moment of serendipity, to a fortunate coincidence of relationships, knowledges and political will of innovation [...] The Iperbole civic network project was born from the successful encounter between the political-strategic vision of a local public administration, the Municipality of Bologna, traditionally open to the use of technology in its services, the availability of the technological infrastructure to connect to the Internet, an opportunity offered by Cineca (the NETTuno service, connected directly to the ‘telematic highway’ with the Paris node, thus avoiding the bottlenecks of Italian regulations [...] ) and the specialized skills (logic, IT, design) put in field by the University of Bologna and Cineca itself. In fact, in ‘93 the ‘Internet’ was only attended by the academic and research community, a socio-technical elite, whereas much of the world outside of universities, even that of business, at least in Europe, had no idea what the Internet was.”

(source: private archive of an interviewee)

Here, the birth of the project is described as a ‘fortunate coincidence of relationships’ and as a ‘successful encounter’ of diverse organizations and their respective technical, political and human resources (the NETTuno service<sup>43</sup>, the specialized skills, the political will and vision of the municipality) concurring in the development of a free and open Internet outside both the academic sociotechnical elite and the market, i.e., in the creation of a public communication infrastructure with the aim of also “enhancing social autonomy in terms of self-organisation and self-information” (Bonaga, 2016: 54). An idea which was in open contrast with other – private – infrastructure building programs, such as the ‘Socrate’ network envisioned by the monopolistic Telecom Italia or other small network providers who envisioned the Internet as a

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<sup>43</sup> <https://www.cineca.it/chi-siamo/storia/la-nostra-storia-anno-anno>

nascent market space whose infrastructure should be privately built (Bory, 2019). This shows the importance of material infrastructure geographies, but also highlights the ideological and relational aspects of the project. In fact, if we take a closer look at the relational dynamics involved in the birth of Iperbole through the interview excerpt below, we can notice how the Iperbole project was indeed linked not only to a specific infrastructural, cultural and political ‘environment’, but also to the encounter of specific individuals and their respective professional cultures:

“But beyond the general idea of how the civic network was born... precisely that idea could only be born in an environment in which the relationship with the citizen was understood in a certain way. If not, it wouldn't even occur to you. Beyond even the strategic political gamble because it was also a political audacity... because the idea was political and cultural, it was philosophical, so... that is to say, the people who thought this up were flesh and blood people. One, unfortunately, passed away a few years ago: Professor Maurizio Matteuzzi, a professor at the University of Bologna and lecturer in Philosophy of language, who in the late 1980s, I would say, [...] also had his own small IT ‘start-up’, Omega Generation, which later participated in the Iperbole project, a kind of start-up with philosophy PhD students with this strong technological imprint... And then there were also those from a university institute that was already glorious then but which became more and more glorious which was called CIRSIFID which is the institute for legal informatics and with which we did amazing things.... [...] At a certain point in the early 1990s, Matteuzzi - and this provides an idea of how things came about - shared his office at the University with a professor who later became a municipal councillor, Stefano Bonaga. The whole thing was born as the possibility of accessing the net and then the municipality setting up an important policy that became a service with a counter, a service that later evolved to distribute internet access to citizens [...] let's say that the soul of Iperbole has always been communication, and the communication department. Because there was more of a cultural predisposition, an openness anyway... And the Iperbole counter with all its annexes was once inside the URP in Piazza Maggiore<sup>44</sup>. So it also had a symbolical strength... But many years have passed and things have changed over time”

(interview with Iperbole co-founder)

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<sup>44</sup> Piazza Maggiore is one of the most important squares of the city of Bologna, also historical address of the municipal headquarters.

Through this long excerpt we can notice the communicative ‘soul’ and the ‘symbolical strenght’ of the Iperbole project, as well as its relationship with the Bolognese academic environment (which we will see, also regards the other ‘strains’ of digitalization) and with the ‘cultural predisposition’ characterizing the municipal communications department and some of its previous policies and projects, such as the URPs cited in the last part of the excerpt above. This shows how PA digitalization may be shaped by local contextual and even individual factors, how it is related to professional cultures, and how it unfolds as an organizational process taking place in continuity with broader municipal policies and projects that also let things ‘change over time’. In fact, the birth and development of Iperbole is deeply intertwined with previous policies enacted by the communications department basing on its specific conception of institutional communication. Indeed, Iperbole was seen as an ‘expansion’ of the CityCard project (see fig X), which was a European Commission funded ‘Esprit’ project started in 1992 involving the Municipality of Bologna, other municipalities (Wansbeck, UK; Barcelona, Spain, and Lisbon, Portugal) and private IT and software companies, such as the *Omega Generation*<sup>45</sup> of Prof. Matteuzzi cited in the excerpt above.

The CityCard project, as explained by Matteuzzi himself, who was the project coordinator, initially “focused on relations between citizens and the public administration, on the facilitation of contacts and on the possibility of interaction

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<sup>45</sup> For more information about Omega Generation see: [https://staff.icar.cnr.it/spezzano/intercab/l2\\_partn.htm](https://staff.icar.cnr.it/spezzano/intercab/l2_partn.htm) (last access: 20/12/2022)

in natural language, because the basic technology we were interested in was natural language processing” (Matteuzzi, 2016: 53), and only later, when the Cineca activated its NETTuno service and the WWW was further developed, the project turned into what eventually became Iperbole, and was thus more specifically focused on the ‘democratic potential’ of the Internet and the possibilities it offered as an institutional public communication tool. However, apart from local factors and the influence of broader ideas, objects and practices travelling through the global sphere (Czarniawska and Sevón, 2005), another thing that we can notice through the excerpt above, is how the Iperbole project arose as the outcome of an action-net transcending municipal boundaries, aspect further highlighted by this piece of memoir written by one of Iperbole’s co-founders:

The half-breed composition – humanistic and techno-scientific – of the workgroup that grew around Iperbole produced a dream team with diversified skills, points of view and experiences (of professors, researchers, computer scientists, administrators and civil servants). This led to a challenging and pioneering administrative, professional and planning adventure, a sharing of fields of action, of transversal experimentation and service-applied research, of fund-raising in the context of European projects, and networks and partnerships of public/private collaboration [...]

(interviewee memoir)

Here, we can see how Iperbole emerges through local, national and international action-nets that concur in the shaping and definition of its ‘nature’, where, apart from the academic relations and the participation in European projects (there will be also other projects involving Iperbole – see, Comune di Bologna, 2005), also developments in political and institutional communication strategies play a major

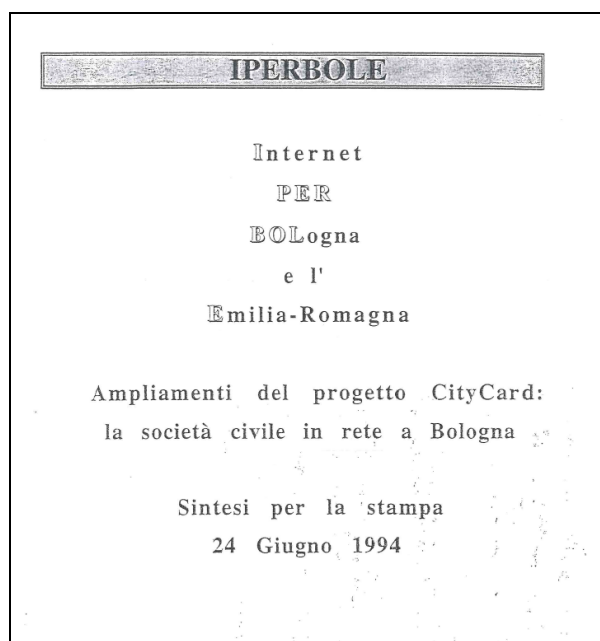
role. In fact, in the years around the birth of Iperbole as an expansion of the ‘CityCard’ project, the Bologna Municipality was also involved in a national project including diverse municipalities and regarding the definition of a new kind of public office (the URP, Uffici Relazioni con il Pubblico – Public Offices for Relationships with the Public – mentioned at the end of the last cited interview excerpt) aiming at ‘revolutionizing’ the communicative relation between institutions and citizens/beneficiaries through a centralization of institutional communication and interaction within *ad hoc* offices/counters, as also described in the following excerpt:

In those years, '93/94, Bologna was the leader of a national project with other cities in Italy, a project on multifunctional counters. And the model of the multifunctional counters was just that of becoming the central hub for all information concerning the ‘institutional territory’. Because there was an idea that was gaining ground... that it shouldn’t be the citizen who had to go to all the different parishes (the different public offices, N/A) but that he’d go to one point and find there a whole series of information, which was the fruit of an agreement between administrations... And here Sabino Cassese<sup>46</sup> was the soul of this project... And I coordinated the Bologna group [...]

(former head of the communication dept.)

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<sup>46</sup> Sabino Cassese (born 1935) is an Italian jurist, former Minister for the Civil Service in the Ciampi government (1993-1994) and later judge of the Constitutional Court (2005-2014).



*Figure 3.3 Scan of the cover of the press release for the presentation of the Iperbole project in June 1994, we can notice how the Iperbole project is here seen as the ‘extensions of the CityCard Project’ with the sub-title ‘civil society in the net in Bologna’. (Source: private archive of a interviewee)*

Indeed, the establishment by national law of these so-called URPs (art. 12, D.L. 29/1993) must be contextualized into a situation of growing national attention towards the culture of ‘administrative transparency’ and the ‘quality of public services and citizen-institution relationships’, already defined by previous national laws (L. 241/1990 and L. 142/1990)<sup>47</sup>. Through this organizational re-assemblage “all or some of the authority's services in contact with the public come together in the multifunctional counter [...] the competences of other offices within the authority are transferred to multi-purpose counters, taking the form of a single access point to the administration, where citizens can not only

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<sup>47</sup> For further information about the establishment of URPs see: <http://qualitapa.gov.it/sitoarcheologico/relazioni-con-i-cittadini/organizzare-uffici-e-servizi/ufficio-relazioni-con-il-pubblico/index.html> (last access: 20 /12/2022)

find information, but also initiate and complete some of the paperwork of their interest and need”<sup>48</sup>. In fact, this shift in the Italian landscape of public and institutional communication seems to originate through a network of local and national politicians and public managers (Pozzi and Pacifici, 2021; Pozzi, Pacifici and Rovinetti, 2007) among which we can also find local Bolognese politicians such as the already cited Stefano Bonaga, Walter Vitali (also mayor from 1993 to 1999 and later Senator of the Italian Republic) and most of all Alessandro Rovinetti, a politician and professional journalist deeply interested in the renovation of institutional communication strategies, who “gave a decisive impulse for the establishment of URPs” (Caliguri, 1998: 290):

“... it is interesting that public communication practices were practically 'born' in Bologna. It is not that it was not being done before... But the first institutional information centre dates back to '88. It was called the municipal information centre. And it pre-legislates all the... What today is the URP. But let's say that we anticipated the norm because Article 11 and Article 12 were somewhat written inside our municipal offices<sup>49</sup> - in that case it was my boss Rovinetti who then took it to... he was part of the national Public Communication Association...”

(Former head of the Agenda Digitale)

In this sense, the birth of URPs can be seen as the outcome of the emerging discipline of public or institutional communication, “a relatively recently emerged boundary discipline, strongly related to both the transformation of the political-institutional system and the communication system.” (Rolando, 2001:

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<sup>48</sup> <http://qualitapa.gov.it/sitoarcheologico/relazioni-con-i-cittadini/organizzare-uffici-e-servizi/sportello-polifunzionale/index.html> (last access: 22/12/2022)

<sup>49</sup> The interviewee refers to the national law establishing URPs (art. 11 and art. 12, D.L. 29/1993).



9). As such, the emergence of this ‘boundary discipline’ and the subsequent legal establishment of URPs seem to be in a strong relationship with how the Iperbole project originated and developed within the European CityCard project. In fact, as we can notice through the words contained in the following interview excerpt, the emergence of Iperbole – first as a civic network, and later as a municipal web portal – is clearly in continuity with the idea of reassembling public and institutional communication strategies while it is surprisingly extraneous to - if not in open conflict with, like we will better see later - the activities of the municipal electronic center:

“[...] why not, then, creating one of those counters as a virtual space, as a municipal web portal... also hosting information coming from the city’s civil society... and to give to people the possibility to access this counter by providing public internet and e-mail addresses...[...] *Iperbole was not born in the electronic centre of the municipality of Bologna, it could not have been born there in the mid-1990s or earlier. There was a traditional IT structure there... traditional type [...] very closed.*”

(Head of the communication dept., interview, italics added)

Here, Iperbole emerges as a communicational endeavor linked to the broader developments of public institutional communication within Italian PA and as something different from the more ‘traditional’ and ‘very closed’ municipal IT structures pertaining to the municipal CED (Centro elettronico dati – electronic data center), in fact, this open/closed contrast is also highlighted (as already mentioned in a previous interview excerpt) by the fact that the first physical Iperbole counter had been symbolically located in the central municipal URP in Piazza Maggiore, near to the historic headquarters of Bologna’s municipality in

the heart of the city center. Today – as an indicator of the symbolical value of the Iperbole project – it is still possible to read the (seemingly freshly renewed) writing “Iperbole counter – Internet” on one of the office’s windows (see fig 3.2).



*Figure 3.2 The location of the first Iperbole counter at the central URP in Piazza Maggiore, the writings on the window – symbolically still present today - say "Iperbole counter - Internet " (source: author's own photo, February 2022)*

In fact, the development of Iperbole seems to originate through the idea of ‘virtualizing’ the physical network of multi-purpose URP counters present on the Bolognese territory, as also clearly emerges in a passage of the memoirs written by one of the persons involved in the embryonal phase of the project:

In the case of Iperbole, the idea was to conjugate a - one would say today - ‘human/citizen centered’ approach, that already took place through a network of information counters and self-service workstations spread throughout the territory, with the use of new technologies to inform citizens, to interact with them on an equal footing (and also peer-to-peer!) within and through the net, to design new models of dialogical, also electronic, communication.

(interviewee memoir, head of communication dept.)

Here, we can see how Iperbole arises from the already existing territorial network of multipurpose-counters and thus within a broader public communication strategy aiming at reorganizing, centralizing, and improving the relationship between institutions and citizen. It is not much about digitalizing for the sake of digitalizing, but about exploiting the opportunities offered by the new digital technologies for institutional communication purposes. The ‘centralization’ refers to the convergence of diverse typologies and (territorially and administratively) dispersed sources of institutional information into URPs, while the polyfunctional counters vehiculating this information (the diverse URPs present on the municipal territory), which was also obtainable by calling a municipal call-center, were many and distributed throughout the city, and in this sense ‘decentralized’. Through the following – pretty long – excerpt, it becomes clear how the URPs acted as an ‘organizational infrastructure’ deeply

influencing the later evolution of Iperbole as a municipal web portal within which many diverse sources of information produced by municipal bodies and external organizations (sanitary districts, police, associations and ONGs, religious institutions, etc.) converged:

[...] to be fair from an organisational point of view the distributed editorial offices of the civic network (Iperbole, N/A) still active today are the transformation of the network of distributed editorial offices pertaining to the URP back office. Obviously without Internet. Because the URP had this database. To hand out the information, because there had been a bit of this computerization before Iperbole... They were consulting databases. Obviously internal databases. Those famous CED ones I was telling you about earlier ... some of them. And one of the first activities of the back office of the Public Relations Office was... there were counter operators but also people who built the information sheets, to use old-fashioned language. Which I mean it's a process that *mutatis mutandis* remains "the same" with Iperbole... it's not quite the same though... anyway there was this network of so-called information providers. So, let's say that model is a model... I would say from '92/93. Since shortly after Iperbole was born ... and it was necessary to make these two things converge... Let's say everything that was previously only internal, used to feed the URP's, had to be published on the outside as well. So the setting was already there. The setting with the network of - not editorial offices - but of editors and information providers... there were internal 'points' that fed the database already when it was not on the internet, but the update of information coming from external sources was burdensome. And what could the poor counter operators or call centre operators tell the users if they could not consult something that was constantly updated...?

(interview former head of communication dept.)

This account of the connection between the later function of Iperbole and the way the URPs' back-office and information production were organized tells us more about how organizational settings and the way actions are contextually performed can participate in the local translation of broader technical, professional and political action nets. Moreover, in the last part of the above

excerpt, we can notice how there was a difference between the obtainment of internally (municipally) produced and externally produced information, the latter being more 'burdensome'. And this is the thing that 'mutatis mutandis' will change with the development of Iperbole, which, in fact, apart from 'reproducing' a virtual version of the URPs, also facilitated the convergence of information from external sources by involving subjects and 'hosting' their websites on the civic network, which, again, was also in line with the city's political and participative tradition. This, as already seen above, was initially a very important aspect of Iperbole, a thing that later changed over time due to broader developments of the websphere:

"It was a communication portal with a vocation, if you like, to - and in fact it was always called the civic network - to involve subjects. And so, about... about associations, about other administrations... making them themselves become contributors in terms of content on the civic network..."

(former head of the communication dept.)

"... the idea of the Civil Network was to pull in all the civic bits and pieces, to the extent that individuals and organizations participating were called 'iperbolians' ... at the time the Internet did not belong to everyone... I arrived here not much later, at the end of the 90's and then until the beginning of the 2000's let's say until 2002 there were maybe 450 sites hosted. Then of course the Internet goes very fast, and times have changed ... blogs were born, the liberalization of the domains and then obviously everyone left..."

(employee, communication dept.)

In this sense, apart from the buildout of the physical net infrastructure the initial aim of the Iperbole as a web interface was a virtual version and extension of the URPs, with both informative and participative purposes. Moreover, the relational and participative aspect of Iperbole was also important as it was possible for the

promoters of the project to interest various local organizations that helped to legitimize the ‘usefulness’ and meaningfulness of the project in the eyes of the municipal administration:

“It is very important to create a system of alliances, of partners, of people who share ... that also allows you to legitimize yourself vis-à-vis the insiders, right? So, you don't stand there alone. Alone you are nobody. And above all when you start successfully involving the Curia, the Chamber of Commerce, all the associations and foundations. [...] That is, the priority value is all the relationships that have been activated, from those relationships within and during the course... if they had not been there perhaps it would not have been produced ... you must create let's say, also the administrative conditions for this to happen. On one hand there is the project, then there is the council of councillors (Giunta comunale, N/A) that must express itself, then there is the council (Consiglio comunale, N/A) that must express itself...”

(former head of communication dept.)

Here, we can see how the development of a ‘system of alliances’ which includes important elements of the city’s civil society interested in the project played an important role in the political legitimization process that led to approval of the civic network. Again, as we have already seen for the initial (infrastructural) development of the project itself, local relational aspects seem to play an important role for the emergence and shaping of local PA digitalization practices. In fact, relationships with ‘external’ (non-strictly municipal actors), albeit this time transnational, played an important role not only for the internal legitimization of the Iperbole project, but also for its further development throughout the years:

“then we started from '96... when other civic networks promoted by public administrations in Italy and around Europe were born... we started networking. And a wonderful experience was born that lasted a few years, that was more than enriching...”

it was called "European Alliance for Civic Networking" which then became "Global Alliance for Civic Networking" which continued until 2003 I would say 2004. And they were networks let's say of professionals of university people, but it was all a voluntary activity. It was very informal. And with this network came those from Australia, from... let's say the predominantly Anglo-Saxon, South American, French-speaking world, England a lot... So, associations, communities and universities experimenting together the way and the possible forms of inhabiting the web... It sounds a bit rhetorical, but that's how it was. It was exactly like that, public activism in a broad sense. And the exchange really was at the level of practical expertise... With the spirit of the network of the origins in short. And each of us had sponsors, all ethical... then there were research funds from people doing research, there were very fertile areas... unexplored areas. But the sponsors were always sponsors, not companies. So, they were always organizations, they were foundations... All this is to say that all this material, all these experiences, first me and then a small group and then also all those who worked with me... in short, we did a lot of European projects, there were European funds which helped to keep this experience always in dialogue with what was going on in the world, in Europe and in the world. The backgrounds were also very mixed, a lot of diversity... for example I was one of the few, if not for a long time the only, person from public administration... who was seen as an antagonist."

Through this excerpt we can notice how formal as well as informal mixed-background academic-professional networks with a reach far beyond the organizational 'borders' of the Bologna municipality played an important role in the development of the project from an ideological as well as from a praxeological point of view. Moreover, we can notice how, while civic networking projects have been 'institutionalized' over time (e.g., through European projects), public administration was seen as an 'antagonist' in the early development<sup>50</sup> of such transnational action-nets experimenting with the 'new' possibilities offered by the internet, as, also given the strong - traditionally state-

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<sup>50</sup> Bologna's Iperbole was the second municipal civic network founded in Europe, shortly after Amsterdam municipality's civic network Digitale Stadt, see also van den Besselaar and Beckers (2005).

suspicious - US influence on early civic networking, it was seen as a statal intrusion into an emerging 'space of freedom' (Sirianni and Friedland, 2001). As we will see soon, at its dawn, Iperbole was seen as an antagonist (when not as a threat) also within the municipality itself, in particular in the eyes of people and departments engaged in other action-nets regarding digitalization. However, the transnational connections into which the people collaborating on the Iperbole project were embedded, have not only been important for the circulation of ideas, knowledges, and technical skills, but also for more specifically organizational aspects, such as the project's financial sustainability and the way work is organized, which also had broader influences on the municipality:

"We were municipal employees with other non-municipal employees, but we had this drive for innovation, and we were constantly comparing ourselves and the others going all over Europe... We learnt a lot and we brought in... what for example? For me - as I experienced it - and this is personal, but we learnt how to work by projects. And this is a culture that you then also bring into the organization. You bring it into the organization... within the municipality of Bologna also a unit for European projects arose, that didn't exist before. And then they did projects on other things too, of course. But for many years, let's say, much of the innovation, especially digital innovation, but not only that, was done, I would not say with money from European projects alone, but within this perimeter that was not just a perimeter of the municipality, and neither of the central state."

(former head of communication dept.)

Indeed, as also listed in a document emitted by the communication department of the Bologna municipality (Comune di Bologna, 2005), apart from the initial 'birth' of the project within the 'CityCard' Esprit project, Iperbole was part of further european projects, among which 'Web4groups', 'Netizens', 'Leonardo - Exchange of skills', 'Demos', 'Eden', 'Swift', 'Usemegov', 'Brise'. Apart from



‘learning a lot’ about the ongoing ‘experimentations’ of civic uses of the Net, the European projects through which Iperbole bred, also led to the development of a broader ‘project-oriented’ approach within the municipal organization. Here it is interesting to see how collateral ‘outputs’ of endeavors pertaining to specific departments of the municipal organization led to the adoption of new work approaches (‘And this is a culture that you then also bring into the organization’). Through this participation in networks and projects, Iperbole developed ‘in dialogue with what was going on in the world’, with resources – immaterial, material, and financial – circulating around a ‘perimeter that was not just a perimeter of the municipality’. Here, we can see how European funding through international projects was one of the main financial motors of Iperbole’s birth and growth, as also this excerpt highlights:

“the money for Iperbole partly came from an investment by the municipality, not gigantic, but mostly... from that time to quite a bit into the 2000s, and not always to the same extent - in the beginning a lot however - the money came from European projects. Why? Because the idea was so innovative that it was financed within a European project called CityCard...”

Thus, also from an economic point of view Iperbole seems to emerge through actions and connections transcending the municipal organization, also beyond the local context, and as such, as a local ‘translation’ of broader trends and technical opportunities. Here we can see how local practices and processes of digitalization may emerge upon a mixture of (local and international) connections, as we have seen how diverse ongoing processes – the infrastructural

connections of CINECA, the development of the URPs, the development of civic networks in the US, the academic interests of prof. Matteuzzi, etc. – somehow participate in the birth, definition, and development of the project. Iperbole constitutes a very important part of Bologna's (digitalization) history, maybe because of the communicative 'nature' of the project, which makes it surely the most visible and identifiable aspect of the municipal digitalization trajectory.

However, as we already collaterally saw through the dynamics narrated until this point, Iperbole was not the first time the Bologna municipality was involved in projects dealing with IT technologies, as it was "traditionally open to the use of technology" and already had a 'electronic data centre' (an intermediate operational unit). Here it is important to notice how Iperbole partly relied on, and partly developed independently, and sometimes also in open contrast, with digital/electronic organizational dynamics already taking place within the municipality, highlighting how the birth and co-existence of these dynamics seems to be related to different aspects/practices/professional cultures part of the organization:

"Iperbole was not born in the electronic centre of the municipality of Bologna, it could not have been born there in the mid-1990s or earlier. There was a traditional IT structure there... traditional type. They were doing a different job. They had a computer culture that did not ... In the beginning let's say classical computer scientists did not understand the Net, they had a very protective and very elitist culture let's say, very closed. [...] the electronic centre perceived it [Iperbole, N/A] as a threat because they were very protective. Certainly, for cultural professional reasons, a kind of brotherhood and lodge - I don't know how to put it. And with a certain mistrust... because they had to preserve and protect their data and archives anyway, and so the access to the internet made life so

much more complicated for them. They had to set up more and more powerful firewalls ... vulnerable to the extent that the system and the method... And so let's say that all their technological equipment was outside the municipal network. And rightly so. Partly they didn't want us but partly it was better that way for us, too. They were outside the municipal network. They were just another DNS I would say.”

(former head of the communication dept.)

Here, we can see how Iperbole was born and initially developed professionally, culturally and even infrastructurally/materially outside the municipal Electronic centre, and partly in contrast/conflict with it. In fact, the (internal and external, i.e. for citizens etc.) connection to the World Wide Web foreseen by Iperbole was seen as a ‘threat’ to all the data and archives the municipality had developed in previous decades upon the action, connections and practices referring to other IT projects and professional cultures.

### 3.2.2 Demographic services and PA digitalization

Indeed, at this point, before looking at the more recent developments of Iperbole and the way it acted as a ‘converging surface’ for the other strains of municipal digitalization, it seems necessary to further elaborate on these other strains and on their distance or proximity (in one word, relation) to Iperbole, here introduced through the continuation of the last excerpt:

[...] Moreover, the CED, the electronic centre, of the municipality was very powerful because computerisation, that kind of computerization, was highly pushed. It has always been very pushed. I would say the computerisation and linking of neighbourhood registers and then decentralisation took place in the mid-1960s. Let's say that the process of decentralisation of neighbourhoods was accompanied and followed almost immediately afterwards by the decentralisation and the linking of the neighbourhood

registry office to the central 'brain'. They were no fools. Very little processing capacity then. We are talking about the 1970s. And in the 1970s, a bit later, the library systems also had the same approach. An old-fashioned center-star network, that was the model. And it was highly developed. The focus on the use of technologies and those technologies... the frames with terminals... but all this was an impenetrable municipal system. Then of course the municipality had connections with the prefecture, with the police, but Iperbole was outside of all that.

(former head of communication dept.)

Again, interestingly Iperbole is said to be 'outside' of all these electronic developments that took place long before its birth, which were seen as an 'impenetrable municipal system', mainly linked to the electronic center and the statistics department of the municipality. In fact, as we can notice through the word of the latter interviewee, these developments in the use of electronic (today one would say digital) technologies were connected to the management of registry data and to the administrative decentralization of the municipality into territorially dispersed 'neighbourhood' offices (Quartieri). This connection between demographic transformations, political-administrative organizational reassemblages, and the adoption of digital technologies also clearly emerges from the words of a former municipal manager, for a long-time head of the statistics department:

"So, the story starts in the beginning of the 1960s. At that time there were two councillors under the mayor Giuseppe Dozza, and their names were Paolo Fortunati and Atos Bellettini, and I tell you this because Athos Bellettini, a demographer with whom I graduated later in 1979, was the first in Italy to promote the 'automation' and hence, in modern terms, the digitalisation of the municipal registry office. So, let's say, in any case, that the history of data automation in the Municipality of Bologna starts at that time, and it is no coincidence that it starts with a tool such as the registry office, which is of general value not only for citizens with, let's say, administrative practices, but also for

the purposes of knowledge. And so Bellettini promoted this computerisation of the registry office with two objectives: a management objective ... of simplification for citizens, but also for the administration, the issuing of registry certificates and so on. Before this they were only paper based. But I also believe that his intentions were mainly for the purposes of knowledge because Bologna at that time, like other Italian cities, was undergoing a phase of very strong demographic growth with migratory flows, especially from the southern regions, and consequently it was in the administration's strong interest to learn about these transformations.”

(former head of the statistics dept.)

Here, again, we can notice how broader dynamics unrelated to digitalization, such as demographic growth and the deriving organizational-administrative restructuration are connected to the digitalization of municipal procedures and practices, in this case statistical documentation for the purpose of certificate production. However, another thing that clearly emerges from this excerpt, and that we already could notice by looking at the early development of Iperbole, is the relationship between the prestigious local university and the deeds happening within the municipality (e.g., for the case of Prof. Matteuzzi), how this excerpt (of the same interview above) further highlights:

And so, in the case of Bologna, this privileged position in the field of information technologies began to be built thanks also to the initiative and the presence of these authoritative figures in Italian statistics on the junta... there has always been a very strong link between the statistics faculty and the administration not only at a technical level ... Now figures like mine or Dr. XY (another current municipal manager) or others came from that faculty... or other faculties as well... In the years that followed, there was always a very strong relationship between professors who later joined the junta and, in many cases, had important roles.

Through this excerpt the connection between the municipal administration and the local faculty of statistics emerges very neatly, as also does the broader

relationship with the University, that educated many of the political and administrative figures (politicians, managers, functionaries, employees) participating in municipal affairs. In fact, going back to the former excerpt, we can notice how ‘the digitalization of the municipal registry office’ and the ‘the history of data automation’ arises not only upon the interest for new administrative solutions, but also ‘for the purposes of knowledge’. Knowledge that was interesting for both, the municipal administration, and the academics, as during those years (1950-1970) post-war Italy witnessed massive population migrations (foremost on the south-north axis) constituting an important object of political action (and planning) and statistical/demographic research (see also, Gaspari, 2013). For instance, the city of Bologna witnessed an impressive population increase during this time span, seeing the ~340.000 inhabitants counted through the 1951 census become ~445.000 (+30,6%) in the 1961 edition of the detection, and further increase to 490.000 (+10,3%) in 1971<sup>51</sup>. In this context of demographic growth and urban expansion, administrative and ‘democratic decentralization’ were part of a political strategy enacted by the municipality to better govern these phenomena (Comune di Bologna, 1963; Gaspari, 2013). In this perspective, the city was divided into administrative neighbourhoods (Quartieri), each of which having a local ‘civic centre’ offering administrative services (mainly certificate production) also, and this was the new

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<sup>51</sup> Data source: ISTAT – Comune di Bologna, also retrievable at: <https://www.tuttitalia.it/emilia-romagna/32-bologna/statistiche/censimenti-popolazione/> (last access: 22/12/2022)

thing, in the peripheral areas of the city (connected through the already mentioned centre-star architecture - Alailly-Mattar et al. 2022). Here, the political strategy adopted by the municipality is linked to the technical opportunities offered by early electronic data management systems, in fact, as also Gaspari notices, decentralization “favoured the solution of the technical administrative problems of demographic services, which provided particularly useful services to the population, a solution made possible by new technologies (the electronic computer connected to the districts with teletypewriters) thanks to which it was possible to open up a new relationship between citizens and public administration” (Gaspari 2013, 127). In fact, building upon this internal electronization of registry data later the municipality, and specifically the statistics department, started to collaborate with the national public statistics institute ISTAT in the collection, elaboration and storage of national census data, as emerges from this interview excerpt with one of the employees working in the dept. during those years:

“of course it was the first time in Italy a very important instrument such as the population register was digitised. Before they were all manual records. It's clear that even when I joined the administration in 1981 there were no personal computers yet, they weren't there yet and so we were working with terminals linked to a time archive it was all like... Here is the other great experience that we did in 1971 but in a more complete way in 1981 and in fact I was very young and I was one of the protagonists... we digitised locally and memorised everything on behalf of ISTAT... all the data of the general census... so we acted in agreement with ISTAT for the memorization of the data and this allowed two things: a more accurate control of the data locally and a faster and almost immediate storage and, above all, a wealth of information that remained available to the municipality in an analytical and widespread manner. There. And so we did a lot of work on this. We have always stored locally from '81, '91, 2001 and 2011 (the Italian general census at that time was enacted every 10 years, N/A)”

(former statistics dept. employee)

Here we see how the early electronization of the local registry in Bologna<sup>52</sup>, as well as the prominence of the statisticians working in the municipality, led to a pioneering endeavor of census ‘digitalization’ in collaboration with ISTAT, for knowledge and administrative reasons. Further, the digitalization of both, census data and the necessarily highly detailed topographic instruments (census tract maps) therefore needed, led to the definition of a territorial information system deputed to gather different kinds of data:

“And then gradually we started to develop the first nuclei of a territorial information system around the experiences of population censuses, also at the economic level. And in 1991, on our initiative, we digitised the map of the census sections and that was the embryo of a territorial information system that then developed over time in a very broad manner. As I said, economic... and in fact starting in the beginning of the 2000s we promoted, as the first in Italy, a digitized archive of the population income, also for statistical purposes. Very important archive: All municipalities have access to this archive for tax control purposes or even for management purposes, i.e. for municipality contribution controllers. But we have also promoted the use of these archives for knowledge purposes and administrative reasons”

(former head of the statistics dept.)

In fact, over the years, the data initially gathered for administrative and knowledge reasons started to also be used for other purposes, such as the income control procedures described above. Moreover, during the 90’s, a new managerial area linking the statistics dept. to the budget planning dept. was set up. Here the ‘statistical tradition’ of the municipality, its attention for inequality-

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<sup>52</sup> Only recently the Italian population registry has been centralized into the ANPR (anagrafe nazionale popolazione residente) for reasons of interoperability and coordination, this happens within a broader centralization of the PA digitalization strategies (see chapter 4).



related problems and the data infrastructures that had already been built up converged into a (today we would say) ‘data-driven’ budget planning:

So in short, let's say that I have told you this story to tell you that nothing comes about by chance and that we who have been able to operate in this field, I believe, in a positive manner, my colleagues and I, because we had a very high tradition behind us, which is what I listed at the beginning (the ties with the local university, N/A) ... And above all because the administration, in all its evolutions, has always assigned an important function to statistical functions and budget planning. It is no coincidence - and here, let's say, I was a bit of a protagonist - that in the mid-1990s this managerial area was set up, which for the first time organically held together the statistics function and the budget planning function. This was a bit of a key innovation in our administration. That is, to see statistics not just as an isolated documentation and study activity, but closely integrated into the planning processes. And this has allowed us to bring, let's say, the value of various types of data very closely into day-to-day management and, above all, planning decisions.

Apart from showing how things such as contextual factors and political approaches affect the way digital means are locally translated, this excerpt highlights how different elements converge and are translated into new ways of doing things. Moreover, the fact that this managerial area was emerging at the same time (the 90's) as the Iperbole project described earlier, shows us how different and separated (if not conflicting) digitalization projects may take place within the same municipal administration at the same time. As already mentioned, in this sense, PA digitalization seems to situatedly unfold in ‘strains’ not only upon contextual factors and pre-existing infrastructure, but also in relation to broader ‘innovations’ taking place within different professional cultures (e.g., statisticians, demographers, institutional communicators and so on).

### 3.2.3 Administrative digitalization

In fact, since the mid-80's and early 90's another strain of digitalization in the Bologna municipality is related to the social and health services (servizi sociosanitari). At that time, while regions oversaw the healthcare planning (and allocation of central state resources), municipalities were still in charge of the Unità Sanitarie Locali (USL, Local Health Units, today state-run and called ASL) and they were, like today, in charge of the social services management. As the government level closest to citizens, at that time municipalities appointed USL

management committees that represented local communities and spoke for them with the intention to closely monitor healthcare provision to citizens (Resca and Moruzzi 2019). In this environment, and specifically around 1986/87 the city of Bologna, by also building upon the previously set-up territorial information system and the administrative decentralization, developed an experimental system to offer new ways for citizens to access and book health-services called Centro Unico Prenotazione (CUP, Unique Booking Centre), with a similar logic as the URPs mentioned earlier in this chapter (Cipolla et al 2016). Here, with the fundamental support of Achille Adrigò (a sociologist and politician, also co-founder of the Political Science faculty of the Bologna University) and Mauro Moruzzi (also a sociologist and later head of the organization in charge of managing CUPs – CUP 2000 S.p.A.) a broad technologization of the CUP system was brought forward after the realization of the first CUP in 1989, by also

establishing the CUPCard, a chipcard upon which basic information about its holder was stored. This was useful in the construction of the necessary telematic system allowing to set up front-offices where citizen could book diverse and dispersed healthcare resources (hospitals, clinics, ALSs etc.). Shortly after, however, the municipal involvement in USL management came to an end, while the CUP project later became an institution diffused in whole Italy for every ASL or Hospital. However, the CUPcard was ‘recycled’ to offer a dispersed access to basic administrative certificates, a system of devices called DIMMI!<sup>53</sup> (similar to ATMs) was installed throughout the municipal territory (see fig 3.4). Here, with the use of the CUPCard, it was possible to request certificates, pay fines and get information. Interestingly the DIMMI! System was based upon a machine called Certimat developed in Verona, however only in Bologna the system actually came into being, and this because of the support of two local banks (Carisbo and Rolo Banca) which made the service available also within their private ATMs (Alunni, 2014). The existence of this project and of the CUP Card, also led to the participation of the European Project CITYCARD where the Iperbole Project found useful resources.

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<sup>53</sup> Citizens of Bologna also ironically call the DIMMI! (Tell me) machines DAMMI! (give me), referring to the fact that they are used to pay fines.



*Figure 3.4 One of the DIMMI! ATM machines still present today on the Bolognese territory*

The digitalization of healthcare front-offices, and the strong relation between healthcare and social services led to strong collaboration between ASL and municipality on the level of data exchange, first through a system of physical cables and later through web applications. Specifically, as emerged from diverse interviews, one important element in the Bolognese sociosanitary landscape was the use of a shared software for the treatment of beneficiary data. The software

Garsia developed by the private enterprise SoftTech. As stated on their website<sup>54</sup>, the Garsia software aims at:

“solving complex problems and support the articulated dynamics that underlie the processes of sharing information flows involving the numerous actors in the field of social and health services, such as municipalities, health companies, the third sector, ASPs, Provinces, Regions and private companies.”

The software, indeed, helped to cope with the organisational complexity and fragmentation of information between several actors, which requires in-depth knowledge of the processes and operating methods of each of the organizations involved. The fact that the statistical strain and the administrative strain converged through the URPs and CUPs, and that the sociosanitary system was working with a shared software was important, insofar as this was the foundation upon which later projects came into being:

“Because digitisation means... it meant, so at this point I can also use the past tense, it meant starting above all... starting with process management, with the flow of data within the same office and between offices. To start talking about data exchange and internal data flow, which is absolutely necessary to start talking about external data flow with citizens. And at the beginning we had connections between offices built upon physical cables, later we started working by using shared web applications.”

(manager, welfare area)

Here, we can see how the coordination of internal workflows and data exchange has been a fundamental step in the definition of a well-functioning sociosanitary administration. Through the next excerpt, however, we can notice how this is not something one can take for granted in the Italian context:

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<sup>54</sup> <https://www.softtech-engineering.com/prodotti-e-servizi/>

“...in the welfare area here in Bologna, I would say that we are in a fairly good position... but this is also because we started digitizing the management of offices and services before the external relationship... and this has meant coordinating and develop patterns of interoperability, and this is a fundamental element in the history of digitization in Italy, specifically on the welfare side, because welfare has not imposed models, univocal systems among all, and therefore they have left free space of action for the development of local welfare management systems... which does not always end well. It is a thing of Italy, things do not happen by chance. Italy has been administratively fragmented since the middle ages, since the times of “the communes and bell towers” (dei comuni e dei campanili, N/A), and this still persist today. France, which was always centralized, works with departments and taxation, has made other choices, and therefore... much more centralised from the beginning.”

(manager, welfare area)

“... and Integration, because I'll give you just one example: if I have my own management application that manages social and health services, I can't do anything with it if I want to achieve effectiveness and, above all, efficiency in data management. Even before talking about external data flows, it must be integrated with the protocol system, it must be integrated with the procedural system. And in Bologna we did a fairly good job on this... we started integrating internal applications from the very beginning”

(manager welfare area)

The early coordination of internal data flows and the use of shared software not only within the municipality's welfare sector, but also between different organizations participating in the local sociosanitary system (ASL, third sector, Hospitals, etc.), is here highlighted as a fundamental step to achieve the ‘high digitalization’ and the ‘fairly good position’ the Bologna welfare sector has achieved today. Apart from showing the importance of coordination between offices and internal dataflows, this excerpts show us how an absence of state-imposed systems leads to very variegated (virtuous or vicious) outcomes when it comes to PA digitalization in the Italian context. In fact, apart from the general fragmentation of the welfare system, for many years until recently the Italian central state did not enact policies aimed at standardizing or at least

homogenizing local PA digitalization paths. In this sense, the absence of strong guidelines by the state in the Italian context and the developments that took place within the municipality of Bologna shows how local factors, organizational set-ups, political approaches, professional cultures and the technical opportunities offered by digital technologies are locally translated into specific kinds of PA digitalization paths. In fact, as ISTAT data (2020) shows, Italian municipalities have very differentiated levels of digitalization, for instance in what regards the access of DPS, but also of internal ‘offica automation’. In this sense, Bologna makes up a very specific case where new ways of doing things emerged upon the intertwine of diverse factors and the emergence of action nets which, as we saw for the URPs and the CUPs, later became institutionalized at the national level. On the other hand, we also saw how digitalization projects may emerge as separate and sometimes conflicting endeavors (e.g., Iperbole vs. CED), but how they also build upon each other in unforeseeable ways. Moreover, the examples mentioned until now also show how digitalization may not take place just for the sake of digitalizing, but within broader political, ideological or administrative endeavors.

In fact, how the examples mentioned until now hopefully highlight, in the Bologna case different kinds of digitalization ‘spontaneously’ developed upon the entanglement of diverse elements, conditions, technological opportunities and interests. This separated strains surely contributed to the building of the foundation upon which Bologna reached its current position as a ‘highly

digitalized municipality’, however, in the next section, we will see how also organizational efforts have been necessary to let these diverse strains converge into a systematized infrastructure of digital technologies over time. Converge among each other locally, and with the national PA digitalization environment and guidelines emerging over time. Now, through very brief descriptions, we will also see how Bologna further acted as a pioneer of solutions later adopted on the national level, making it already integrated into the national digitalization policies and strategies emerging in recent years.

### *3.3 Local and national coordination of PA digitalization projects: digital agendas*

In the last section, we have seen how IT related projects within the Bolognese municipal PA configure as emergent and open-ended processes may also leading to outcomes different from those initially foreseen (e.g., the initial aim of Iperbole vs. the Iperbole platform today) (Czarniawska and Hernes, 2005). Even though the examples given make up just a part of the overall digitalization of the Bologna municipality, we were able to see how specific actors, contextual factors and technological opportunities merge into new ways of doing things. We were also able to see how digitalization may emerge in unconnected and sometimes even conflicting ‘strains’ tied to specific professional cultures and technologies, and their developments over time.



In this section, we will briefly describe further developments of the Bolognese municipality regarding digitalization and see how the coordination and mutual integration of the different strains becomes a central focus of the administration over time. Here, one big difference is the rise of Web 2.0 and the ‘democratization’ of digital devices and internet connections, which allowed for unprecedented uses of digital technologies, foremost in the realm of communication and remote interaction opportunities. In fact, the way these opportunities have been locally translated over time led to both, the convergence of the different strains seen above and subsequently the redefinition of the civic network Iperbole and its interface, upon which most of the strains converged.

Starting with the CUP experience in the late 80’s and early 90’s Bologna started to set up external organizations (run as private businesses but of public propriety) to support its digitalization in different sectors. The first example is the already mentioned CUP 2000 S.p.A, founded in 1996 together with ASLs and other healthcare organizations upon the strong impulse of Prof. Adrigò and Prof. Moruzzi (who both also had apical roles in the organization). CUP 2000 S.p.A. had been founded in 1996 as an organization to which the function to technologize the local healthcare system (later also the broader regional system) should be delegated. In the absence of ‘higher’ (statal) guidelines, this organization operated ‘freely’, which led to diverse difficulties, but also to the achievement of diverse new administrative solutions. In fact, over the years CUP 2000 led to the development of the WebCUP (operative since the year 2000) (a

complementary system to the physical CUP offices and the DIMMI! ATMs), through which it was possible to retrieve information, access health related documents and certificates (e.g. prescriptions) and book healthcare performances. In 2006 also the region Emilia-Romagna became a shareholder of the organization, leading to regionally integrated CUPs and healthcare services (also because of the important healthcare management role Regions have in Italy since the early 2000's) and later also to the definition of the Fascicolo Sanitario Elettronico (FSE, Electronic Health registry) in 2013, a more advanced and customized version of the WebCUP (which also enables the retrieval and access to medical reports and the online payment of medical services) and became a nation-wide tool in 2013 upon a law of the central state requiring every region to set up its own FSE.

Similarly to CUP 2000, another important organization to which digital-related issues have been delegated by the Bologna municipality is Lepida S.p.A., initially founded in 2008 by the region Emilia-Romagna (as single shareholder with a social capital of 120.000€) in order to achieve the homogeneous and unified planning, development and management of the telecommunication infrastructures of the entities connected to the regional network, to guarantee the provision of the IT services included in the network architecture, but also for an orderly evolution towards new generation networks and software. Shortly after, in 2009, municipality of Bologna also became a shareholder of Lepida, which thus became its in-house society for the development, adaptation and validation

of software, for the construction and management of public web infrastructure to connect municipal offices and other public organizations (today Lepida also manages Bolognas free public Wi-Fi hubs), but also for the management and storage of public data in datacenters. Over time, Lepida became a very big organization, with more than 440 public bodies as shareholders and a social capital of more than 65 Mio. €, ranging over the whole Emilia-Romagna region. One of the most important tools developed and managed by Lepida has been the digital identity system FEDERA. This system allowed for the digital identification of citizens in a centralized way, allowing them to access many public services offered by public bodies in Emilia-Romagna (also on the Iperbole website) in a digital way with a single set of credentials. FEDERA can be seen as a precursor to the current national digital identity verification system SPID (see chapter 5) and in fact, FEDERA does not work anymore as of today, while Lepida is now part of the SPID system as an identity provider.

Through Lepida and CUP 2000 we can see how PA relies on external (but publicly owned) organizations to support PA digitalization projects but also how local digitalization schemes slowly become integrated (at least on the regional level), with some of them becoming nation-wide adopted systems upon the initiative of the central state (e.g., CUP, URP, FEDERA, etc.). Recently (2019) CUP 2000 also became part of Lepida. For many of the interviewees the reason behind the choice to externalize IT services relies on the difficulties of hiring IT

professionals through public call procedures, also because of the impossibility to guarantee a salary in line with those of the private sector.

Lepida and CUP 2000 played an important role in the support of hardware-, software- and infrastructure-development and the regional integration of public IT services and also for the further development of the municipal digitalization trajectory. However, in addition to these external companies, since the late 2000's the city of Bologna also started to enact internal administrative redefinitions in order to integrate the already existing projects and infrastructures pertaining to the different strains seen in the last section. Moreover, with the growth of other PA IT systems and the emergence of national guidelines, laws and tools, the integration of local PA IT projects and infrastructures with those of other public bodies and with the central state became more and more a necessity.

Here, the most important step made by the Bologna municipality was the definition of a digital agenda, first as a participative process aimed at defining a strategy on how to further develop and coordinate local IT projects in 2012. Here, the administration made 100.000€ in fundings available to realize projects in line with the digital agenda. Only later (since 2014), Agenda digitale took the shape of an office (settore) of the municipality in charge of supervising IT development, integrating local projects with national tools, laws and guidelines. At this point, Agenda digitale became an important part within the metropolitan

operational plan, also getting PON funding<sup>55</sup>. The first digital agenda document from 2012 was articulated on three main lines of action: 1) internet as a right (infrastructural interventions aimed at ensuring maximum connectivity, the integration of public administration services and a programme of actions dedicated to digital inclusion), 2) citizenship involvement (the expansion of the collaborative dimensions of the civic network, through the introduction of new participation services and their territorial and thematic extension) and 3) environmental sustainability and extensive use of ICT in key areas of social and economic life, later integrated with aspects regarding administrative transparency and the production of open data. The definition and enactment of the initial digital agenda and a further participative process named Iperbole 2020 also led to the redefinition of the Iperbole civic network website, with important steps taken in the direction of digital public service provision (for which the FEDERA system was used and the digitalized registry data was necessary) and of a semantic and linguistic redefinition of the information retrievable on the website for which great attention was given to the use of simple website layout and architecture and the use of broadly and easily understandable language, as clearly stated by one of the communication dept. employess working within this redefinition:

“much attention has been given not only to technical accessibility but also to aspects of usability, understood as comprehensibility... and this is another very relevant aspect. As we well know, public administration has its own way of speaking and writing content

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<sup>55</sup>[https://www.comune.bologna.it/ponmetro/wp-content/uploads/2022/02/PO\\_2021\\_14\\_dicembre\\_2021.pdf](https://www.comune.bologna.it/ponmetro/wp-content/uploads/2022/02/PO_2021_14_dicembre_2021.pdf)

that is often a bit complicated and difficult to understand... much bureaucratic jargon and so on...”

In fact, as stated by the communication dept. employees interviewed, this redefinition did not only rely on the existing organizational information structure – with a network of dispersed editors producing information from different municipal sectors converging into one database (as for the information sheets used in the URPs) – but also on the construction of ontologies, dictionaries and writing guidelines for editors. Moreover, all the content previously available on the website had to be literally translated to become more understandable. This meant translating information mostly written in legal-bureaucratic language into information easily understandable by most potential users and to set up manuals (e.g., controlled dictionary) and other guidelines, foremost in the migration from the old website to the new platform in 2020:

“And we (Communication dept., N/A) have to approve any content that comes onto the platform from the dispersed editors... we need a consistency of content, of style, of language and all these things here. And we rely on a manual we produced... what to do a what not to do when you insert a link, if you put a word in all caps, and sometimes the sheets and articles really need to be rewritten when it's completely new content, others just have to be updated, so it's quicker. Let's say that the big job was done during the migration from the old platform to the new one, it was a complete a rewrite. That was a really big job.”

Here we see how digitalization may connects with kinds of (invisible) work one would not directly think of when talking about PA digitalization. On the other hand, on the technical level it was also important to develop a simple interface in order to not confuse users, for instance by defining a clean and simple page set-up, by introducing an internal search engine and by working with information

and services organized upon life-moments rather than upon internal administrative divisions in charge of the service. Here the website itself also emerges out of a process of local translation of a platform previously used by the Veneto Regional administration, as one of the informative system employees explain:

“We then got to know this experience that the Veneto Region had been carrying out since 2010/2011. So now they have already arrived at the third version of this platform that they call myportal. Which is a project adopted by the Veneto region with the aim, however, of providing a platform for use by the PA bodies in their territory in order - for them too, the initial focus was on websites - to ensure that there was a standardisation process for the information websites of the entities in their territory. Then later they too added the component of the personal area and then of DPS, forms services, and so when we saw it there was proximity from a functional point of view, interest in the technical architecture... the multi-entity architecture oriented to a use of several entities and so we started from there as a re-use and then we obviously also invested a lot to customise and extend it from different points of view in terms of functionality and we started to return to the Veneto region of the components that we made.”

(Digital Agenda, manager)

Moreover, to offer DPS on the website it was necessary to integrate local data (e.g., registry data) as well as to connect with other – also national - public bodies to retrieve data from their databases. For instance, many forms of welfare in Italy require citizen to produce and hand in a socioeconomic index score called ISEE, which, once produced, is managed, stored and verified by the national social security body INPS. In order to allow citizen to request DPS on the Iperbole website, it was necessary to connect to the INPS database as to know if the requesting citizen was eligible for the requested service. Through these examples we see how what appears on the Iperbole interface emerges out of articulation and coordination work – sometimes invisible - aimed at integrating different strains of digitalization (communicative, statistical,

administrative, infrastructural, technical) within the Bologna municipality and out of it (e.g., INPS, but later also SPID). Here, the role of the digital agenda was of fundamental importance, and its formalization as a municipal office also led to the collaboration of different IT related offices and employees, as we can notice from this excerpt:

“I was at the communications department, and I was also in charge of the strategic digital agenda and when the new office was organized the name somehow came with me... and also pieces of the communication dept., so we were collaborating with the information system operative unit, and they were very technical, none of them was a communication professional, and so a fertile environment grew and it was very fun... and it was like a circle closing... if we think about the initial conflicts between Iperbole and the CED”

(former head of Agenda Digitale)

So, while starting as a strategic agenda, later the role of the digital agenda sector also became to mediate between diverse aspects of digitalization processes and to enhance their coordination and connection with other internal dept., but also with national PA bodies. Over the years, this set up grew in number and became more and more apical (see fig 3.4), also building upon a ‘conscience’ that digitalization was becoming an all-embracing phenomenon that needed to be governed centrally somehow:

“In some ways it (the digital agenda, N/A) has always been quite apical. Now it is even more so, and one should see this as a realisation that digitisation is no longer 'office automation' but something that completely overrides the administration and, above all, connects it with both higher authorities and the citizen. Because connectivity has always been 'the theme', but now it has become an everyday-life necessity ...”

(information system unit employee)

In fact, Agenda digitale grew more and more in importance, not only because of the definition of internal cooperation schemes and procedures (how we will



better see later), but also because it became a ‘fertile interdisciplinary environment’ where already existing projects and infrastructure have been reassembled and translated into something new, also upon the necessities and ideas brought forward by specific offices.

For instance, during the mid 2010’s the statistics dept. proposed to use a centralized data representation software in order to better visualize data pertaining to different sectors (housing, schooling, social services,...) and their databases with the aim of using it in cross-referenced ways for policy planning, which obviously relied on the fact that these sectorial databases had been previously digitalized and made interoperable (e.g., using the same metadata schemes):

“Let’s say that the specificity of the Bolognese experience is twofold. On the one hand, there is an advanced technical level with both software skills and communication skills, on the other, a very strong political will to use these data and skills to define the essential lines of administrative action... with some effort we have arrived today at having a tool called tableau reader, managed by digital agenda as an external contact with the company Visualistics (the owner of the Tableau software, N/A). It is a non-managerial database, a statistical database that... into which we download, again in internal application cooperation, all the data on housing, schools and social services integrated with the registry office, ISEE and the data imported from the municipal tax department... and by visualizing all together we think that better choices can be made, leading to more precise and pertinent policy responses”

(information system unit employee)

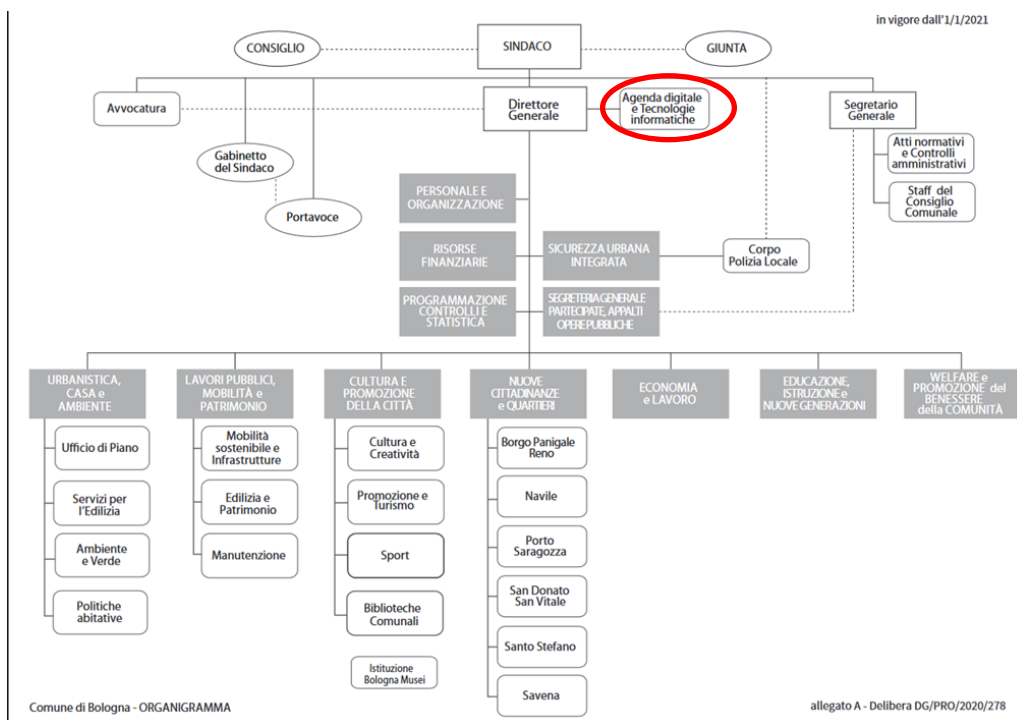
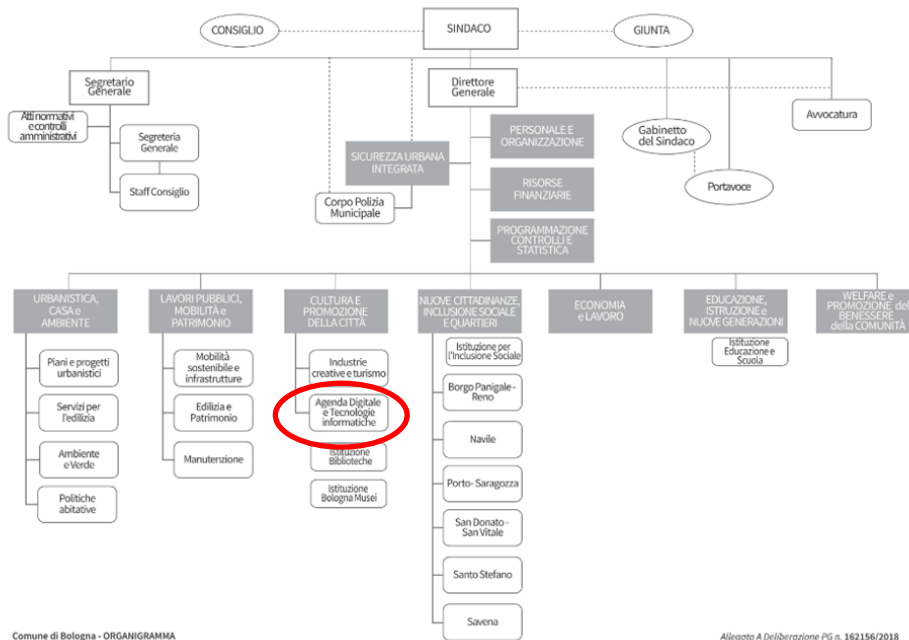


Figure 3.10 The organizational structure of the Bologna municipality in 2018 and 2020 (Agenda digitale in red added by the author, source: [comune.bologna.it](http://comune.bologna.it))

Here we can see how the local specificities and the political will, together with the coordination efforts made by Agenda digitale in connecting and translating these specificities into each other lead to new ways of doing things, also upon the reassemblage of previously existing projects and infrastructures (e.g., the sectorial databases, the data gathered by the information system, etc.). Specifically, the systematization of previously dispersed and non-interoperable databases, and the possibility to visualize data in a shared software for each of the municipal offices, led to new ways of planning and implementing policies within and among offices. Further, the same software is also used in data communication and representation towards citizen, as it is the tool used on the Iperbole website to show municipal data (open-data)<sup>56</sup>. This is just one example of how previously separated endeavors start to dialogue and connect. We can also see how Agenda digitale does not only connect and coordinate internal processes, but also as an intermediary of relationships with external actors (IT suppliers, citizen, etc.). In fact, as stated by one of the current managers of the Agenda digitale sector, the intermediation effort brought forward by the office is of fundamental importance for the development of integrated and coordinated digitalization projects, as these two excerpts of interviews with Agenda digitale employees clearly highlight:

“We digitalize processes, we let data and information flow, we create an infrastructure, an architecture that lets the various systems speak to each other... because here we have

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<sup>56</sup> <https://www.forumpa.it/open-government/data-visualization-con-tableau-lesperienza-dellufficio-statistica-del-comune-di-bologna/>

diverse systems, new, old... and they need dialogue, also with other organizations' systems... for instance INPS"

(Agenda Digitale, employee)

"The underlying idea is to unify processes that were previously diffused and decentralized... Agenda Digitale plays a huge role in this, we're not just computer scientists and communicators, we also have project-managers, they translate the needs and requirements of the various municipal sectors into computer language for the external developers (IT suppliers, N/A)... without them it would be impossible [...] so we are facilitators, we help very different worlds to communicate. Imagine the developer or systemist talking directly to the financial dept. (laughs sincerely, N/A)... the result would be a 'Blob'... you need people who know the direction, the philosophy, someone who holds the stakes and has a general vision."

(Agenda Digitale,  
manager)

Through these excerpts the organizing and intermediating role of the Agenda digitale becomes clear, as it lets not only new and old systems enter into dialogue, but also internal needs and technical specifications. As also stated by the interviewee, this kind of work is necessary in order to achieve coordination between internally dispersed and decentralized digitalization endeavors, as well as with external (software or hardware) suppliers and with national digitalization trajectories and tools (INPS database, SPID, etc.). In this sense, the current situation of Bologna as a highly digitalized municipality seems to build upon the existence of very early and experimental projects using digital technologies within its specific offices and professional cultures, but also, and probably mainly, upon an organizational effort aimed at systematizing, orchestrating and integrating these projects internally and externally in order for them to become

stable actor-networks taking the shape of what we see on the BW and Iperbole interfaces today.

### *3.4 Concluding remarks*

The cases highlighted in this chapter obviously only make up a part of the past and present digitalization related practices and projects within the Bologna municipality<sup>57</sup>. However, looking at these examples can tell us much about how local PA digitalization came into being in the Italian context. Indeed, by looking at the digitalization history of the Bologna municipality we may notice several specificities. In the first place, it seems important to acknowledge the fact that in the Bologna case digitalization takes place in a fragmented and dispersed way within different municipal offices in different times and with different scopes. In addition to this, early digitalization often does not take place for the sake of digitalizing per se, but as part of broader municipal strategies and reassemblages that also pursue ideological or political values (e.g., Internet as a right in the early stages of Iperbole). Moreover, and maybe most importantly, digitalization seems not to be an outcome of the *adoption* of digital technologies, but rather as an emergent and open-ended process relying on local translations of technical opportunities, discourses and ideas, also fostered and influenced by contextual factors (e.g., the local university, the CINECA, etc.) and pre-existing organizational specificities (Czarniawska and Sevón 2005). In this sense, what

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<sup>57</sup> For instance, one important organization supporting local PA digitalization co-founded by the Bologna municipality and the local university – foremost as a support for collaborative and participative aspects of the digital agenda - is Fondazione Innovazione Urbana (previously also called Urban Center).

today flatly and unproblematically appears *on* the Bologna municipality public interfaces (e.g., Iperbole and Bologna Welfare) is the result of trajectories and nets of practices and actions taking place *behind* and *before* them. In fact, as the examples mentioned throughout this chapter hopefully highlight, digitalization (and the efficiency often related to it) is not the immediate outcome of a passive introduction of already existing technologies, but rather something that emerges upon an attentive organizational effort aimed at translating both, global practices into local context and different local elements, practices and projects into each other. As some of the examples given show, this kind of translations entails the reassemblage and mutual adaption of heterogeneous elements (procedures, organizational structures, law requirements, technologies, etc.), which requires forms of intermediation and articulation work (e.g., the literal translation of web content) that mostly remain invisible (Star and Strauss, 1999). Indeed, while early digitalization was seemingly taking place in different unconnected ‘strains’ dealing with innovations in their specific professional environments (communication, administration, statistics, etc.), later on PA digitalization has started to become all-encompassing, requiring dialogue among the diverse strains and projects. As such, PA digitalization seems to take the shape of a broad infrastructure-building endeavor where different technologies and elements (e.g., datacenters, data visualization software, interfaces, bureaucratic procedures, digital devices, legal requirements, internet connection, etc.) are

connected with the aim to achieve features such as ubiquity, reliability, accessibility and transparency.

Moreover, the Bologna case also highlights some of the specificities of the Italian PA digitalization context. As we have seen, most of the early digitalization projects (e.g., those related to CUPs, to URPs, or to Iperbole) took place ‘spontaneously’ upon the initiative of local actors and contextual elements in the absence of a national state coordinated digitalization strategy. Indeed, as also highlighted by the words of one interviewee defining Italy as “the land of communes and bell towers” (hinting to its historical administrative fragmentation), the Italian state has a low degree of centralization if compared to other national contexts (e.g., France), leading to nationally inhomogeneous situations for what regards issues and services for which local PAs are in charge (e.g., social services and the population registry). This, for a long time, has not differed in what regards digitalization, and, in fact, as ISTAT (2020 – see also chapter 2) data shows, still today there is a net territorial inhomogeneity in the results achieved (e.g., the number of municipal DPS available) on the municipal level. This inhomogeneity mainly builds on the difference between big and small municipalities, but also on the historical differences between the northern and the southern part of the country.

As we have seen, Bologna makes up a specific case, since here diverse factors led to the development of experimental practices and administrative solutions that became locally institutionalized and were later adopted on the national level,

as is the case for URPs, for CUPs, and for digital identification procedures (see FEDERA and SPID). Moreover, we have seen how the local integration of projects over time is seen as a fundamental step in order to actually achieve accessible and efficient digital solutions and how external organizations – such as IT providers or the University – participate in digitalization trajectory. However, over time, the contextual specificity and the heterogeneity of digitalization trajectories taking place (or not taking place) at the local level throughout Italy led the central state to the definition of a national digital agenda and the birth of *ad hoc* governmental agencies, as for instance, Agenzia per l'Italia Digitale. Initially the central state's effort remained fragmented and mostly relied upon recommendations and guidelines rather than mandatory legal requirements and funding. However, since the mid-to-late 2010's, and in particular after the Covid-19 pandemic (see chapter 2), the central state started to define more stringent and integrated digitalization policies for local (e.g., schools, municipalities) and central (e.g., ministries) PAs. Through this national strategy and the enactment of subsequent policies and actions, the state intends to give a legal framework for digitalization processes, for instance through the definition of a Digital Administration Codex, by bestowing important economic funding (also relying on the post-Covid EU recovery funds), as well as by supporting the use of nationally homogeneous digital administrative tools (e.g., for public data exchange, digital identification, etc.). For local PAs, as we have seen also for the Bologna case, this meant integrating already existing local



practices, tools and procedures with the ones defined and fostered by the central state.

In the next chapter, we will look in more detail at how the central state and its agencies engage in efforts aimed at homogenizing and coordinating the digitalization processes taking place within the 10.000+ organizations making up italian PA. More specifically, we will see how some of the central state agencies set up networks of actions and tools through which they define relationships aimed at systematizing and operatizing the central state digitalization policies so that other PAs can translate them into practice.



Figure 3.5 The Iperbole website interface in 1996, notice the link to the “Network of Uffici Relazioni con il Pubblico (URPs)” on the bottom right-hand part of the screenshot (source: Internet Web Archive).



Figure 3.6 The Iperbole website interface around the year 2000 (source: Internet Web Archive).

#### *4. Crafting action nets through digital platforms: technological agency and institutional work in public administration digitalization processes*

In this chapter, we will try to show how digital technologies such as websites and platforms may participate in processes of institutional redefinition intentionally supported by organizational actors engaging in institutional work and institutional entrepreneurship (Lawrence and Suddaby, 2006). More specifically, we will try to show how some of the Italian governmental agencies (AgID and DTD) try to coordinate and homogenize the dispersed and fragmented digitalization processes taking place throughout the thousands of organizations that make up Italian Public Administration by setting up a set of ‘desired actions and outcomes’.

##### *4.1 Introduction: between OS and STS*

The relationship between Management and Organization Studies (MOS) and Science & Technology Studies (STS) has long been characterized as complex and somewhat unconventional. While the interaction between technology and organization, although seen in a deterministic way, was a prominent concern in early classical MOS (see e.g., Taylor 1967; Woodward 1958), diverse scholars have denounced how the issue gradually faded from the disciplinary discourse in the latter part of the 20th century and further, also calling for more attention to sociomateriality and non-deterministic perspectives (Orlikowski and Scott 2008;

Carlile et al. 2013). Conversely, despite the absence of *systematic* interdisciplinary collaborations and only fragmented explicit desires to address MOS (e.g., Callon 1990; Law 1997), STS scholars have subtly but significantly contributed to MOS over time (see Latour and Woolgar 1979, Law 1994), for instance, by bringing artifacts and narrative back into the discourse, by pointing out to the usefulness of ‘symmetrical’ ethnographic fieldwork, or by generally shifting the focus from formal organization to *organizing* (Czarniaszka, 2009). Moreover, also intradisciplinary shifts, such as the practice turn in MOS (Nicolini, 2009) or the infrastructural turn in STS (Star, 1999) contributed to the development of more conscious and manifest contaminations between the disciplines.

In fact, over the last twenty years there have been publications in both fields based on reciprocal recognition and on the aim to dwell interdisciplinary gaps by explicitly positioning themselves at the boundary-lands of MOS and STS (e.g., Robichaud and Cooren 2013; Czarniawska and Hernes, 2005; Woolgar et al. 2009; Latour 2013). For instance, one subfield of MOS in touch with STS is (neo-)institutional theory, where diverse scholars have called for a use and retailoring of Actor-Network Theory (ANT) concepts – most notably ‘translation’ - to account for agency and technology-related institutional dynamics occurring within organization(s) and organizational fields (Lindberg and Czarniawska 2006, Gautier and Bonneveux 2021).

Moreover, recent contaminations between STS and MOS may also be attributed to the growing digitalization of organizational contexts, as also advocated by Plesner and Husted (2019), who stand for a merging of organizational and sociomaterial stances to address the practices and processes related to *digital organizing*. To this regard, digital platforms make up a significant aspect of contemporary digital organizing, as they enable the organization of human and non-human resources dispersed in space and time through ‘algorithmic management’ (Stark and Pais, 2020) and have been defined as “the distinguishing organizational form of the early decades of the twenty-first century” (ibidem: 47). The use of digital platforms in private and (more recently) public organizations has in fact gathered the attention of many scholars from technical as well as humanistic disciplines, also leading to the emergence of so called ‘platform studies’ (Apperley and Parikka 2018). Indeed, platformization confronts us with new questions about both, the organizational aspects of technology and the technological aspects of organizing, also leading to renewed contaminations between MOS and STS (Bruni and Esposito, 2019; Alaimo and Kallinikos 2021; Bruni and Tirabeni 2022).

Inspired by this literature and by the current use of platforms as organizational tools, this chapter will explore the combination of neo-institutional and ANT concepts to address an empirical case regarding the use of digital technologies in processes of institutional work. In particular, the empirical material presented

here relates to a large-scale project of state-driven digitalization within Italian public administration. Here diverse central state agencies – and specifically the Department for Digital Transformation (DTD) – are currently trying to incentivize homogeneous digitalization processes in dispersed statal organizations (such as municipalities, schools or ministries) by leveraging normative, economic, legislative and technological resources, including an *ad hoc* digital platform, named *PA2026*. One of the main aims of DTD's endeavor is to induce digitalization processes with isomorphic outcomes, i.e., characterized by commonalities in form and function (Powell and DiMaggio 1983).

By framing these statal agencies as institutional entrepreneurs active in the highly institutionalized organizational field of public administration and by deconstructing their strategies through the ANT concepts of de-scription and translation, the *PA2026* case presented here will enable us to look at the use of digital platforms in state-internal relationships, as well as at the roles played by these tools in institutional work. Through a description of the resources, relationships and procedures established and connected by the DTD through the *PA2026* platform, we will see how digital technologies may participate in some forms of institutional work and how this relates to aims of inducing *isomorphic* change.

To address the empirical case, we will now proceed to a deeper elaboration of the concepts that will be used for the analysis and that have partly already been

mentioned here. Subsequently, a short description of the empirical context will be provided, before passing to the actual analysis and discussion of the data.

#### *4.2 Neoinstitutional theory: Organizational fields, institutional work and agency*

In this section we will look at the concepts that will be used to address the empirical case presented here. First, we will define some of the fundamental concepts of neoinstitutional theory, and some of the analytical and theoretical shifts this approach has undergone throughout the decades. Later, we will see how this approach has been, and may be further coupled, with some concepts deriving from ANT to better understand the role played by technology, and more specifically by platforms, in the definition of organizational fields.

##### **4.2.1 Foundational concepts and developments in neoinstitutional theory**

Neoinstitutional theory is interested in how organizations deal with their *institutional context* and with wider environmental pressures (Wooten and Hoffmann 2017), it focuses on the inter-organizational level, and, at least initially, it favored analyses of macro- and meso-structures to those of micro-dynamics (DiMaggio and Powell, 1991). According to neoinstitutionalism, organizations exist within organizational fields, conceivable as recognized areas of institutional life, or as “a community of organizations that partakes of a



common meaning system and whose participants interact more frequently and fatefully with one another than with actors outside the field” (Scott 1995: 56), although there are many different definitions (Zietsma et al 2017). Here organization’s behavior, and their idea of what ‘appropriate action’ is, is said to be led by taken-for-granted institutions, i.e., “the cultural-cognitive, normative and regulative structures that provide[d] stability and collective meaning to social behavior (Wooten and Hoffman 2017)”. Basing on these premises, neoinstitutionalism sees the adoption of *institutionalized* practices, structures, and processes as a something organizations do to deal with uncertainty and to gain legitimacy in the eye of other organizations operating in the field, with some fields (e.g., policy-making or the public sector) being more highly institutionalized than others (Meyer and Rowan 1977). As an outcome of this process and of a conformation to *coercive*, *normative* and *mimetic* pressures in the field, more and more organizations adopt the same institutions, eventually leading to what is defined as *isomorphism*, i.e. a commonality in shape and function (Powell and DiMaggio 1983). In addition to these ‘forces’, Benders et al. (2006) also add technical isomorphic pressures, i.e., pressures defined by the logic and features incorporated in specific technologies apparently leading to their institutionalization and standard adoption in specific fields. Isomorphism is a central concept in neoinstitutional theory, and together with the ideas of organizational fields and of the *diffusion* of institutions, it seeks to explain

stability, equilibrium and similarities among organizations in the long-run, without giving much attention to change and heterogeneity.

By conceiving organizations “as atoms subject to the law of big numbers” (Hirsch and Lounsbury 1997, 80) to whom little agency is granted - and thus as mere respondents to external field pressures or ‘shocks’ - early neoinstitutional theory framed change as an environmentally determined process driven by mimesis and the strive for organizational legitimacy, persistence, and survival. In this endeavor, organizations do not act ‘freely’, and are instead thought to choose among a “narrowly defined set of legitimate options” (Wooten and Hoffmann 2017, 55) defining an ‘iron cage’. In fact, over the years, many scholars criticized this passive theorization of organizational action and its lack of curiosity for driving interests or practical intentional action at the individual and organizational micro-level (Hirsch and Lounsbury 1997, DiMaggio and Powell 1991). For instance, while diffusion was deemed as the main mechanism through which *institutionalization* takes place (i.e., how institutions spread within organizational fields), for a long time almost no attention was granted to the work required to let diffusion happen (Lawrence and Suddaby, 2006).

Basing on these and other criticisms different scholars started to focus on institutional change and agency and to emphasize how specific actors or organizations may play a role in the definition, maintenance and transformation of institutions and organizational fields, also in relation to specific situated interests (DiMaggio 1988, Lawrence and Suddaby, 2006). To highlight these

processes, and to frame organizations as reflexive and goal-oriented actors, terms such as *institutional entrepreneurship* (Hardy and Maguire, 2008) and *institutional work* have been developed over the years (Lawrence and Suddaby, 2006). Institutional entrepreneurship primarily examines how organized actors strategically implement practical approaches to influence institutional contexts based on their interests, by “leverag[ing] resources to create new institutions or to transform existing ones” (Maguire, Hardy & Lawrence, 2004: 657). As stated by Hardy and Maguire (2017: 270), strategic interventions made by institutional entrepreneurs base on the mobilization and recombination of “[...] materials, symbols and people in novel and event artful ways” and may be synthesized into three main issues: “[...] the mobilization of resources, the construction of rationales for institutional change, and the forging of new inter-actor relations to bring about collective action”. Institutional work encompasses a broader concept, it expands beyond institutional entrepreneurship to include other (‘non-entrepreneurial’) organizations and actors engaging in purposive action within fields, while it also emphasizes the work aimed at the *maintenance* of institutions (Lawrence and Suddaby 2006). Through these concepts, fields and institutions become something that arises from the strategic or tactical engagement of actors and, and a more interactive, conflictual, and agential interpretation of institutional stability, change, variety and similarity emerges (Wooten and Hoffman 2017).

Fields are now conceptualized on a less ephemeral level as issue-based fields (Hoffmann 1999) or strategic action fields (Fliegstein e McAdams, 2012) where social skills, interaction and contention play a role and organizations purposefully engage in practical and discursive activities aimed at defining their broader environment, for instance through field configuring events such as award ceremonies or conferences (Lampel and Meyer, 2008). In this sense, interest shifted from how organizations conform to certain coercive, normative, or mimetic external pressures to how these external pressures may be intentionally crafted by certain organizations or strategically avoided by the organizations subject to them. This changed the focus from meso-dynamics to situated practice, leaving space for more nuanced visions of agency and its relation to institutions, institutionalization de-institutionalization and field change.

By systematizing the concept of institutional work, Lawrence and Suddaby (2006) recognize different activities respectively related to the creation, maintenance, disruption and transformation of institutions. For instance, institutional work aimed at *creating* institutions entails actions such as advocating, defining, theorizing, and constructing identities; while work which aims at *maintaining* institutions includes policing, deterring, valorizing, demonizing, ‘enabling work’ and mythologizing and work aimed at transforming institutions implies disconnecting sanctions and undermining assumptions and beliefs. More generally speaking, institutional work also entails what Zietsma and Lawrence (2010) define as ‘practice work’ and ‘boundary work’ –

respectively, work aimed at creating, maintaining and disrupting practices and affecting their recognition as legitimate within a field; and work that aims to shape, create or disrupt field boundaries or to set up coordination across boundaries (intended as the demarcation between individuals or groups - Bowker and Star, 1999).

With this renewed focus on agency, situated interest, variety, change and process (rather than on outcomes, stability and forms of reification) and the broader 'practice turn' in social sciences (Cetina et al. 2005), neoinstitutional scholars started to show interest in the study of micro-relational practices to explore the concrete actions and strategies through which institutional work takes place. In doing so, neoinstitutionalists started to probe new analytical and methodological approaches. For instance, Lawrence and Suddaby (2006: 247) suggest the use of approaches that highlight different aspects of institutional work and may help to 'open up the blackbox of diffusion' by bringing "the practical, creative work necessary to make diffusion happen" to the foreground. More specifically, the authors point out to how discourse analysis may be used to address verbal and textual elements of institutional work, or to how semiotics may lead to a better understanding of the use of symbolic elements and the construction of meaning.

### ***4.3 Neoinstitutional theory and ANT: non-humans and institutional work***

As neoinstitutional theory shifts towards this level of analysis, we can start to see how ANT may also could shed light on various aspects of institutionalization and institutional work. Indeed, Lawrence and Suddaby (2006: 240) explicitly mention how “Actor Network Theory holds considerable promise for extending our understanding of institutional work”. In this regard, the authors underline different ways through which ANT could do so: first, ANT shifts the focus from outcomes to the ongoing ‘controversies’ and struggles from which these apparently ‘reified’ outcomes emerge; second, it enables a broader understanding of agency by focusing on micro-relations between human and also non-human actors; third, it provides a conception of power as a distributed relational feature emerging from collective interaction, rather than as a predetermined or given feature of specific actors. Indeed, the insight to use ANT to better account for organizational practices and processes taking place on the ‘micro-level’ was also gained by many other MOS scholars in- and outside neoinstitutional theory.

For instance, the ANT conception of *translation* has been mobilized by different scholars to avoid the overly mechanistic view of institutionalization proposed by the idea of diffusion (Czarniawska and Sevón 2005; Sahlin-Andersson 1996), while another ANT concept – *inscription* – has been used to highlight how certain technologies, and in particular IT, may incorporate specific sequences of action, norms and values that contribute to the definition of programmes of

action and the pursuit of specific interests (Holmström and Robey 2005). Translation describes the movement and concomitant transformation of heterogeneous elements and the resulting emergence of actor-networks (i.e., a temporarily stable assemblage of human and non-human actants), which come into being through the creation of connections and the achievement of “convergences and homologies by relating things that were previously different” (Callon 1981: 211). Translation relies on the ideas of generalized symmetry and free association, which reject the conceptions of predefined distinctions about social, technological and natural elements and their capability to affect the state of affairs in a given situation (Michael 2017). In fact, translation can be defined as a process of ‘heterogeneous engineering’ whereby starting with a *problematization* of the situation, human and non-human actors are *enrolled*, *mobilized* and *aligned* to follow specific interest and may overcome the initial situation (Law, 1987). In relation to the concept of inscription, this means that specific technologies may be enrolled and mobilized as actants within processes of translation to reach (or at least try to reach) specific actor-network configurations.

The idea of institutionalization as translation has also been synthesized by Lindgren and Czarniawska (2006) through the concept of action nets, which focuses on the connection of different actions into chains through which stable actor-networks *may* emerge. The idea of action nets is “based on the assumption that organizing [...] requires that several different collective actions be

connected according to a pattern that is institutionalized at a given time and in a given place” (ibidem: 293), and that the connection between those collective actions and their resulting institutionalization takes place through translation. In this sense, the concept of action net helps us to focus on *how* specific set of actions are linked and translated into each other *before* they stabilize into networks or macro-actors and appear as institutionalized. Here, specific objects and procedures may act as stabilizers of the connections between actions and actors and lead to the emergence of durable networks. As non-humans may be mobilized within processes of translation, and as they may contribute to the definition of specific scripts of action through inscription, the idea of action nets also helps us to explore the role non-humans play in the emergence and stabilization of institutions.

As the concepts above make explicit, by combining the meso-focus of neoinstitutional concepts with ANT’s ‘symmetrical’ vocabulary and its sensitivity for situated practice, relational aspects, and distributed agency, it may be possible to shed light on underexplored aspects of institutional work. For instance, if we connect the ideas of inscription and translation to the role of institutional entrepreneurs, we may be able to better grasp how specific organizational actors mobilize technology and other non-human actants to create, maintain or transform institutions, practices and boundaries within organizational fields.



#### *4.4 Digital technologies and other non-humans as institutional actants*

Basing on the concepts presented in the above section, in this chapter we will look at an empirical case of institutional entrepreneurship where non-humans, and more specifically digital technologies, seem to play a fundamental organizing role. By de-scribing the technologies and connections participating in the action net through which a specific set of organizations engages in attempts to homogeneously redefine a highly institutionalized organizational field, we will see how institutionalization may be supported by technological means inscribed with certain normative, legislative and technical standards (Brunsson et al. 2012). In fact, through the inscription of technologies, designers can configure, i.e., define, enable, and constrain users and their likely future actions (Woolgar, 1990) and in this sense, technologies participate in the definition and connection of the actions and the actors within an action net. Thus, by de-scribing these technologies and the way they try to configure their users, we may be able to better account for technological agency within processes of institutional work and for how inscribed standards relate to the aim of producing isomorphizing pressures. However, as attempts of configuration through inscription can be escaped, and as translation requires the alignment of the mobilized actants and entails the possibility of failure, here we will not address the successful or unsuccessful outcomes of institutional entrepreneurship, but

rather look at the mechanisms the ‘entrepreneurs’ can deploy to support it through the use of technologies.

As mentioned in the introduction, the case of institutional entrepreneurship we will look at the deployment of diverse kinds of resources, among which a digital platform. The architecture of digital platforms entails a continuous relation, coordination and collaboration between a “programmable, stable core system” with low variability, and diverse “modular, variable complementary components” (Baldwin and Woodward 2009). Through platform architecture, it is possible to sequentially connect actions, actors and resources dispersed through time and space in different ways, and to co-opt them into one’s own interests (Stark and Pais, 2021). While there is a vast literature describing the use of digital platforms in organizational contexts, the outcomes this may induce and the way this reconfigures relations, procedures and practices (e.g., Kornberger et al. 2017), by adopting an ANT point of view, here we will focus on how platforms ostensibly define “set of relations” while at the same time providing (or defining) the appropriate resources needed to perform and translate these relations into practice (van Dijck 2013, Bruni and Esposito 2019). In this sense, as we hopefully will see through the case described here, platforms seem to provide a neat example of the role technologies and non-human agency can hold in the definition of action nets and the enactment of institutional work. In particular, by drawing on the ANT conception of actors as “any entity able to associate texts, humans, non-humans and money” (Callon 1991, 140), we will

look at how platforms may become actants within endeavors of institutional work.

#### *4.5 Analyzing public administration digitalization as a process of institutional entrepreneurship*

We will explore the relationship between institutionalization, institutional work, inscription and translation by considering the case of the Department for Digital Transformation (DTD) of the Italian national government. Here, the effort of operatizing central state public administration digitalization policies with the aim of obtaining “coherent, simple, inclusive - and thus efficient - digitalization”<sup>58</sup> throughout the whole Italian public administration connects with diverse organizational strategies and practices carried out through - and supported by - digital technologies. Through the strategies and the *modus operandi* adopted by the DTD it will be possible to highlight both, empirical and theoretical aspects of institutional work.

##### 4.5.1 Context

Also because of the Covid-19 outbreak and the consequent ‘social distancing’ policies, in the last few years Italian public administration (PA) has witnessed a ‘new wave’ of digitalization, characterized by an increase in the usage of digital technologies in PA and massive public investments in PA digital technologies, services and infrastructures – funded as part of the ‘National Resilience and

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<sup>58</sup> Interview with a DTD employee

Recovery Plan' (PNRR) with ca. 6,7 billion €<sup>59</sup> (Musella 2021). Due to the low level of Italian PA digitalization in comparison to EU 'standards' and its fragmented and unequal distribution throughout the national territories and levels of government (ISTAT 2022), the financial investments of the central government are backed by diverse statal agencies (such as the DTD or the Agenzia per l'Italia Digitale - AgID) whose aim is to ensure the coordination and enactment of the national Digital Agenda<sup>60</sup> and other national digital transformation plans, programmes, policies and objectives<sup>61</sup> part of the Ministry's for Innovation, Technology and Digital Transition (MITD) strategy, now also known as a Three-year plan for ICT in PA called "Italia Digitale 2026"<sup>62</sup>. Of particular interest here, one of the 'Challenges and Opportunities 2023-2026' mentioned by the plan refers to "strengthen the design authority over the country's digital architectures and the intervention capability to standardize and interconnect them" (MITD 2022, 31). In this sense, the DTD and the other statal organizations mentioned above can be framed as institutional entrepreneurs that work to achieve the *capillary* and *homogeneous* adoption of standardized technologies and digitalization practices throughout Italian PA. Something like a desire for isomorphism, and more specifically for technical isomorphism (Benders et al. 2006).

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<sup>59</sup> <https://italiadomani.gov.it/it/home.html>

<sup>60</sup> <https://www.agid.gov.it/it/agenzia/chi-siamo>

<sup>61</sup> <https://innovazione.gov.it/dipartimento/la-struttura/>

<sup>62</sup> <https://innovazione.gov.it/italia-digitale-2026/>

Among the aims of central government's strategies lie the enhancement of digital public services (DPS), the definition of unitary data classification and interoperability schemes, and the diffusion of so called 'enabling platforms'. While AgID is focused on the production of guidelines and normative frameworks (such as the Code for Digital Administration, CAD), the DTD – as we will see throughout the next sections - is more focused on the 'technical', strategical and operational dimensions of the enactment of national PA digitalization objectives, by "favoring the diffusion of simple, inclusive and efficient digital services [...]and] proposing technological solutions"<sup>63</sup>. Moreover, while since its birth in 2019 the DTD is involved in diverse projects and activities<sup>64</sup> relating to the national digital agenda, since 2021 it also started working on the development and enactment of the digital platform *PA Digitale 2026* (from now on, *PA2026*), a tool deployed to convey the above-mentioned PNRR funds to central and local PA organizations (such as municipalities, ministries, schools, etc.) in order to achieve a digital PA by 2026. In the empirical part of this chapter, we will first shortly describe the above-mentioned 'enabling platforms', then move to the DTD's main 'projects and activities', and later focus on how these elements are connected through the platform *PA2026*.

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<sup>63</sup> <https://innovazione.gov.it/dipartimento/cosa-facciamo/>

<sup>64</sup> <https://innovazione.gov.it/progetti/>

#### 4.5.2 Methodology

As already stated in the methodological section of this dissertation, the data used for the scopes of this chapter has been gathered between September 2020 and September 2022 within explorative doctoral research about Italian PA digitalization. Starting from an ethnographic case study centered on the digitalization of one Italian metropolitan municipality, the field trajectory led to diverse research focuses, among which the emerging relationships between local PAs and central state digitalization agencies. The interest for the DTD's activities arose upon some of the issues mentioned by local PA managers and employees during in-depth interviews, as well as by the presence of the DTD during the 2021 and 2022 editions of Forum PA. Forum PA can be considered as a field-configuring event (Lampel and Meyer, 2008), as it is “the most important national event dedicated to the issue of PA modernization”<sup>65</sup>, where PA organizations and other stakeholders (such as IT suppliers) meet, engage in public discussions and fair-like activities.

To follow the DTD's activities and strategies, diverse traditional and ‘newer’ qualitative techniques have been deployed with the aim to grasp the ‘actor’s point of view’ (Becker 1996) and de-scribe its actions and strategies. Among the techniques used there are: document analysis (of official DTD documents, laws and informative materials), observations of the DTD's activities at *ForumPA* and

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<sup>65</sup> <https://www.forumpa.it/chi-siamo/>

an analysis of talks, presentations and discussions held by the organization's spokespersons during the event. Further, during the 2022 edition of *ForumPA* it was possible to meet some of AgID's and DTD's employees and managers and engage in two formal (recorded and transcribed) and three informal (where dense fieldnotes were taken) in depth-interviews regarding the department's visions, strategies, and practices.

This set of 'traditional' ethnographic techniques has been coupled with more recent qualitative methods aimed at reconstructing and describing the DTD's online presence and activities (e.g., its official websites and its YouTube channel). By conducting walktroughs (Light et al. 2018) of the PA2026 platform<sup>66</sup> and the diverse web portals, tools and online communities managed by the DTD it has been possible to de-scribe how artifacts, conceptions of practices and specific forms of knowledge can be mobilized by institutional entrepreneurs through translation.

#### *4.6 AgID and the DTD as institutional entrepreneurs: the platformization of Italian PA*

By illustrating some of the data gathered, in what follows we will look at how the digitalization process of Italian PA unfolds as a process of institutionalization within which - on behalf of the national government - AgID, and even more the

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<sup>66</sup> As PA2026 is accessible only by specific PA employees it has not been possible to access the platform as a 'user'. However, through the interviews and other data analyzed - such as the videos uploaded by the DTD on its YouTube Channel (where the platform's theoretical and practical step-by-step functioning are showed and explained) and other information present on the PA2026 website - it has been possible to reconstruct the platform's features and functioning.

DTD, enact ‘institutional entrepreneurship’ by deploying and orchestrating a network of artifacts, theories, practices and texts where digital platforms and similar digital tools play key organizing roles. In fact, by reprising O’Reilly’s (2011) conceptualization, some authors (Cordella and Paletti 2019) defined the Italian government’s digitalization strategy as an example of “Government as a Platform”, where “a bundle of platforms” is orchestrated by the state to create and deliver ‘public value’. Also inspired by literature highlighting the fundamental role played by orchestrators and orchestration practices (i.e. connecting, facilitating and governing) in vast, heterogeneous, and dispersed ‘networks’ where organizational change occurs (Reypens et al. 2021), we will underline how platforms and other artifacts may *themselves* act through the inscription of norms, the definition of roles, procedures and values, the distribution of agency, and the ostensive definition of organizational practices.

#### 4.6.1 Enabling platforms, or “the country’s operating system”

So called ‘enabling platforms’, also defined by AgID and the DTD as “the country’s operating system”<sup>67</sup>, play a fundamental role in the current Italian PA digitalization strategies, as their aim is to act as cornerstones to “improve the services offered to citizens and businesses by simplifying administrative action”<sup>68</sup>. ‘Enabling platforms’ digitally redefine and nationally standardize very common actions and procedures across the organizational field of public

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<sup>67</sup> <https://developers.italia.it/it/piattaforme.html>

<sup>68</sup> Objective 3.1 of the Three Years Plan for ICT in PA.



administration, such as: identity verification, public data management, public service delivery and money-flow management. So common, we could define them as social institutions. The DTD doesn't directly manage 'enabling platforms', but their 'diffusion' is one of its main projects. These software are defined as 'enabling platforms', as they allow individuals to log in and to perform the foreseen actions (i.e., identification) however, we will not consider them strictly as platforms, but rather as *ostensive* definitions of practices, which at the same time enable their *performance*. Here four main enabling platforms will be briefly described:

**SPID** (*Public Digital Identity Service*) – launched in 2016 – is used as nation-wide identity verification system citizen and juridic persons must use to access DPS. PAs must grant access to their digital services through SPID. As of today, ca. 33 Mio. SPID identities<sup>69</sup> have been produced and more than 12.000 PA organizations' DPS are accessible through SPID.

**PDND** (*National Digital Data Platform*), intends to enable the interoperability of PAs' databases by making "information exchange simple and secure through a standardized process"<sup>70</sup>. Through PDND's API catalogue (API guidelines are defined by AgID) PAs can make their data available and use the data made available by other PAs. PDND has been launched in October 2022.

**PagoPA** (*PayPA*), is "an electronic payment system designed to make any payment to the Public Administration simpler, safer and more transparent. Through the participating Payment Service Providers, the platform enables citizens and businesses to make payments to public bodies, both online and offline, in a standardized manner"<sup>71</sup>. On the other hand, PagoPA, now mandatory, "enables public administrations to manage collections in a centralized and efficient manner, offering automatic reporting and

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<sup>69</sup> <https://avanzamentodigitale.italia.it/it/progetto/spid>

<sup>70</sup> <https://www.interop.pagopa.it/>

<sup>71</sup> <https://www.pagopa.it/it/prodotti-e-servizi/piattaforma-pagopa>

reconciliation systems [...]”<sup>72</sup>. Since its launch in 2016, the system managed 678.860.705 transactions<sup>73</sup>.

**AppIO** (*I’app*), “the Public Services app” available since April 2020, is a “single access point for simple and secure interaction with local and national public services, directly from your smartphone”<sup>74</sup>. Local and central PAs must offer their DPS *also* through ‘IO’. ‘IO’ aims at reconfiguring the PA-citizen relationship, e.g., PAs can send push notifications to citizen (like “ID expiring soon”), citizen can request services, make payments, or download documents. Still a beta version, IO has been downloaded almost 32 Mio. times, it includes 91.631 services offered by 7.214 different PAs<sup>75</sup>.

The adoption of these and other national ‘enabling platforms’ by *all* Italian PA organizations is prescribed by law (and when not, strongly recommended by the CAD). The ‘diffusion’ of these and other ‘enabling platforms’ falls among the DTD’s aim to “deploy standardized digital public services to accelerate the digitalization process of PA”. In fact, as briefly illustrated by the examples given above, these ‘platforms’ configure standardized procedures strongly intertwined with technological artifacts embodying ostensive definitions of organizational practices and institutions (how to identify citizen, how to collect payments, where and how to offer DPS, how to exchange public data, etc.) to be performed by PA organizations. Moreover, these ‘platforms’ are in some way connected, if not complementary, for instance: SPID is required to access AppIO, and AppIO enables payments through PagoPA. Beyond being connected among each other, they are also part of a broader ‘network of procedures and artifacts’ deployed to digitally redefine the organizational field of Italian PA. In fact, through the next sections, will see how their diffusion’ is operatively supported by - and aligned

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<sup>72</sup> *ibidem*

<sup>73</sup> <https://www.pagopa.gov.it/it/dashboard/>

<sup>74</sup> <https://io.italia.it/>

<sup>75</sup> *ibidem*

with - a set of other theories, texts, procedures, and artifacts mobilized within the DTD's and AgID's efforts in institutional work.

#### *4.7 The “country’s design system”*

Developers Italia (DevIt) and Designers Italia (DesIt), also defined as “the country’s design system” are two projects (and at the same time two web portals) enacted by AgID and the DTD to follow the aim of “enabling citizens to benefit from DPS that are already tested, more secure, integrated with the enabling platforms and more consistent with each other”. Here, we will see what these projects consist of, how they relate to ‘enabling platforms’ and to the PA2026 platform that will be addressed later.

The DTD consists of one ‘Office for the Technological Direction’ and one Administrative Office, further, since 2022 the DTD also has one PNRR Mission Unit and a ‘Transformation Office’ for “the technical coordination of PNRR activities [...] also supporting central and peripheral PAs through the platform PA2026” (MITD 2022, 33). What characterizes the DTD is that most of its employees aren’t lawyers or bureaucrats, but product and service designers, UI/UX designers, data scientists, IT developers and innovation/digital skills experts (PNRR target number of such ‘experts’ for end of 2022 was 250). This is important to notice, as the dissemination of professional knowledge and

professional practices seems to be an important part of the department's activities, foremost in achieving its aim of “a cultural leap in PA”<sup>76</sup>.

Indeed, DesIt and DevIt strongly represent the DTD's professional communities, since the former is defined as “the benchmark for the designers of DPS of the Italian PA”<sup>77</sup>, while the latter is defined as “the benchmark for public administration software”<sup>78</sup> and at the same time as “the community dedicated to the development of free software to support Italian DPS”<sup>79</sup>. By looking at the links present on Designers Italia's website banner (Fig. 4.1), we can already notice how these two projects strongly relate to each other and to other initiatives (Forum, Docs and GitHub – all linked on the upper right hand side of Fig. 4.1 and Fig. 4.2) enacted to support the current *Three-Year Plan for ICT in PA* (linked on the left as ‘piano triennale’). In fact, if e.g., we move to DocsItalia (Fig. 4.2), the URL address changes, but the banner, the font and the colors stay the same, giving us the impression to have stayed in the same ‘ambience’.

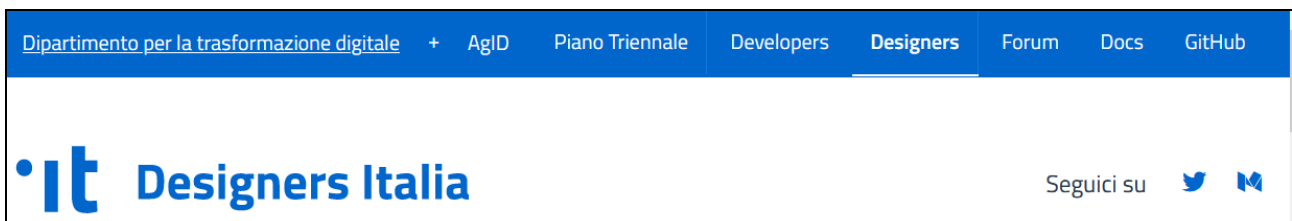


Figure 4.11 The banner of Designers Italia's website <https://designers.italia.it/>.

<sup>76</sup> The DTD also promotes its professional culture and ‘technical solutions’ by participating in events and conferences such as ForumPA, the “Milano Digital Week”, or the “Accessibility Days”, here however we will focus on their online presence.

<sup>77</sup> <https://designers.italia.it/>

<sup>78</sup> <https://developers.italia.it/>

<sup>79</sup> <https://innovazione.gov.it/progetti/>

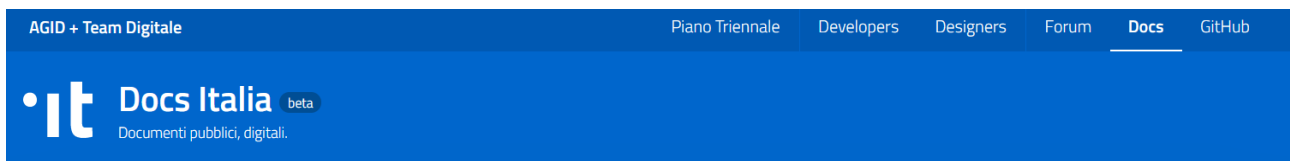


Figure 4.12 The banner of Doc Italia's website <https://docs.italia.it/>.

#### 4.7.1 Designers Italia and Developers Italia, or how (we want you) to do what we want you to do

DesIT's primary aim is to “spread the culture of design in public administration to achieve simple, accessible, fair and inclusive DPS for all citizens”<sup>80</sup>. To do so, it provides “work tools” for local and central PAs, promotes collaboration between technicians and functionaries, as well as the exchange of experiences, best practices, and solutions. The “work tools” provided encompass operative guidelines for the design of PA's DPS; operational tools available to PAs and suppliers to support development of services; discussion and technical support environments, as well as design templates<sup>81</sup>. Here the main aspects refer to the normative definition of *usability* and *accessibility*<sup>82</sup> regarding PA's digital websites and services and their conformity to certain standards and criteria.

As stated on the DTD's website, in DesIT “the main effort was to combine a regulatory approach with an equally indispensable set of practical tools and a community to support the use of these tools”<sup>83</sup>. The site offers a handbook of technical rules and criteria to be followed for the design and implementation of

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<sup>80</sup> <https://innovazione.gov.it/progetti/designers-italia/>

<sup>81</sup> *ibidem*

<sup>82</sup> Accessibility refers to websites, tools, and technologies designed and developed in an inclusive way, for instance by taking disabilities and situational limitations (bad connection, old devices, sunlight) into account. For more information visit:

<https://www.w3.org/WAI/fundamentals/accessibility-intro/>

<sup>83</sup> <https://innovazione.gov.it/progetti/designers-italia/>

public administration digital sites and services and other theoretical and practical resources to perform the regulatory framework and translate into practice. For instance, the website proposes a design thinking UX/UI (user experience/user interface) ‘kit’ to orient the development of ‘user centered’ PA digital interfaces and services which encompasses five phases: (1) organize, (2) understand, (3) plan/design, (4) make, (5) validate. Each of the phases is accompanied by a description of what should be done and what tools should be used: ‘make’, for instance, includes tools to develop interfaces; and ‘validate’ offers guidelines to implement usability trials and web analytics tools. Further, DesIT provides website templates for schools and municipalities already inscribed with the technical guidelines defined by law (e.g., which colors, categories and fonts must be used). For instance, the template for “the website and digital services of Italian municipalities” encompasses “all the resources to easily realize simple and accessible digital experiences for citizens”<sup>84</sup>: a HTML template and its source codes are provided; ontology, taxonomy, architecture, and vocabulary of the municipal websites are defined; five different archetypes of ‘service flow’ for municipal DPS are categorized (e.g., ‘request bonuses and benefits’ or ‘request permits or authorizations’).

Similarly, DevIT also offers resources for PA and IT suppliers: open-source software and libraries, code examples, documentation and support environments. DevIT is more specifically focused on IT development and includes catalogues

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<sup>84</sup> <https://designers.italia.it/modello/comuni/>

of APIs and national enabling platforms, as well as a search engine to find all certified reusable open-source software already provided by PAs. As stated on their website “if you are a PA, or a supplier working with the PA, here you can find useful resources and community for the development of your digital services”. For instance, “in DevIT you will find the libraries, SDKs, documentation, code samples, resources and test environments you need to integrate the enabling platforms into your service”<sup>85</sup>. In addition to this, DevIT encourages anyone who is a “programmer, code geek or budding nerd” to participate in its community “made up of public administrators, developers, technicians, students and citizens” that “promotes collaborative processes and tools that allow the best PA practices to emerge organically from below [...] offers the opportunity to make use of a large pool of IT solutions, thus reducing deployment time, costs and development risks thanks to the adoption of already tested and functioning solutions [...] to increase the level of interoperability with other PAs and to adapt efficiently to current regulations”<sup>86</sup>.

The ‘discussion and technical support environments’ linked to these two projects are mainly<sup>87</sup> Docs Italia, Forum Italia, and GitHub Italia, also managed by the DTD. Docs Italia – defined as ‘the platform for PA’s technical and administrative documents’ – is an open document repository managed by an interdisciplinary team of developers, designers and tech writers experienced in

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<sup>85</sup> <https://developers.italia.it/it/come-lo-uso>

<sup>86</sup> <https://innovazione.gov.it/progetti/developers-italia/>

<sup>87</sup> The DTD also manages a ‘Slack’ channel.

documenting projects through guidelines, FAQs, and technical-administrative documentation; among other things, here technical and legal documentation about ANPR's, SPID's, PagoPA's or DesIT's conformity criteria for municipal websites and DPS can be found, as well as a document describing Docs Italia itself<sup>88</sup>. Forum Italia is a typical forum where different issues and sub-issues revolving around PA digitalization are discussed and archived (e.g., issue: SPID, sub-issue: Node error 76). Finally, GitHubItalia is a GitHub<sup>89</sup> repository where all the codes, icons, templates, and other IT components referring to DevIT and DesIT are stored and freely accessible. For instance, here the UI design-kit with “official components and templates for the Italia design system” can be found (Fig. 3). These three projects are defined as ‘operative tools for the digital transformation of PA’, and while both DesIT and DevIT encourage to participate in these ‘open’ communities, every uploaded resource must be validated by the DTD first.

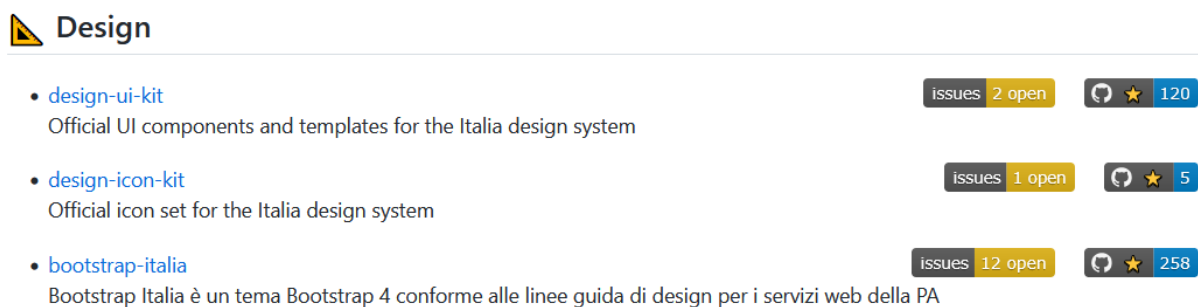


Figure 4.3. A screenshot of <https://github.com/italia>

<sup>88</sup> Some of the documents are linked on Docs Italia and lead to Google Docs or Google Sheets documents.

<sup>89</sup> GitHub, Inc. is an Internet hosting service for software development and version control commonly used to host open source software development projects.



Through these initiatives, the DTD generates online repository and interaction spaces where documents and handbooks can be consulted, artifacts already inscribed with the guidelines and regulations defined by the CAD can be found *and* practices (such as design thinking or open-sourcing) are defined. In fact, as mentioned at the end of the last paragraph, while these are distinct projects, altogether they constitute – also aesthetically - a single ‘ambience’. Apart from acting themselves as an ostensive definition (“this is how a PA website should look like” – see Fig 1 & 2), through these web portals a network of artifacts, texts and practices are mobilized to define how ‘things should be done’ - as also highlighted by one of the DTD’s head designers during a public discussion:

“what we do is to offer something similar to an IKEA instruction manual... where to find every piece, when to use it, how to use it and in what order... especially for suppliers... you can't expect small PAs with six or seven employees to have interaction designers or computer technicians able to define taxonomies and ontologies for content type or stuff like that... we want to provide for those design phases for which small PAs have no resources”. (DTD employee during ForumPA 2022)

#### 4.7.2 Inscription, normativity mimicry and standardized packages

As we saw, this happens through processes of inscription (e.g., controlled vocabulary, templates) and ‘generification’ (e.g., definition of five generally applicable service flow archetypes, standardized ‘enabling platforms’ – Pollock et al. 2016), but also by providing work tools and procedures linked to specific professional cultures previously extraneous to PA that may be imitated. Moreover, beyond encouraging mimicry and defining practices and artifacts of how digitalized PAs should *be*, through the “design system” the DTD also

defines practices about how digitalization itself should *happen* (where to search for information, where to search for components, ... ), thus actively defining both, desired outcomes and the process leading to those outcomes. As such, DevIt and DesIt contribute to normative and legislative definitions of how PA digitalization should occur, while also providing a whole set of technical guidelines and resources necessary to perform what the DTD values as ‘good PA digitalization’.

By using a concept developed by Fujimura (1992: 176), this process of institutional work seems to revolve around the deployment of ‘standardized packages’ that act as a “gray box which combines several boundary objects [...] with standardized methods” thus facilitating “collective work by members of different social worlds *and* fact stabilization”. As such, the country’s “design system” seems to be deployed with the intent to configure, i.e., define, enable, and constrain (Woolgar 1990), PA organizations’ performance of the digital redefinition of PA. The rationale lying behind such a strategy is well described by the words of another DTD employee, underlining how “there is an incredible discrepancy arising upon the heterogeneity of commercial IT solutions and the fragmentation of PA into 22.000 different organizations”. Through these words, we can see how similarity is something that must be actively achieved by departing from heterogeneity, and that this can be supported by the mobilization of digital technologies as instances of institutionalization. By looking at the *PA2026* platform and by taking money into account, it will become clearer how

this is part of a broader organizational strategy aimed at achieving what we could define as ‘technical isomorphism’.

#### *4.8 The platform PA2026*

The PA2026 platform, online since November 2021, is an *ad hoc* tool designed by the DTD and deployed by the central state as “single access point to the resources envisaged by the PNRR for the digital transformation of PA”, as well as to “simplify the interaction between central state and territories” (MITD 2022, 6). As such, PA2026 conveys the 6,7 billion € PNRR PA digitalization funds to central and local PA organizations, and it is the *only* way to access these resources. In this section, we will briefly look at how - building upon the country’s ‘operating system’ and ‘design system’ - PA2026 establishes an action net that PAs’ must perform to successfully apply for funding.

Here are some brief data to give an idea about the scale of PA2026, as of April 2023 (Butti 2023): 83% of the of the ca. 13.000 Italian PA organizations have a profile on PA2026; the platform has gathered 57.000 applications for funding and managed the allocation of 2.1 billion €; currently 50.000 projects are managed through the platform.

##### *4.8.1 How PA2026 defines digitalization*

By looking at PA 2026 it is possible to notice how the DTD tries to *coerce* PAs to adhere to its normative definitions of digitalization, by enrolling them into a

preconfigured set of relationships. As written by the DTD on its Medium blog, “The DTD has an obligation to set a good example of what it must mean to design public services by always putting the *user* at the center”<sup>90</sup>. Indeed, as explained in an informative video<sup>91</sup> created by the DTD to explain the platform’s functioning to potential users, through PA2026 “a guided procedure will help you your PA to apply for public tender notices”. The platform “publishes notices to make PNRR resources available for PAs in a simple and standardized way, with disbursements pre-determined according to the characteristics of the PA” (MITD 2022, 6). Each of these specific *notices* (‘avvisi’) refers to a different *measure* (‘misura’) of the PNRR, thus organizing PA digitalization by the interconnection of separate *projects*; for instance, Avviso Misura 1.4.3 specifically refers to “PagoPA platform Adoption for municipalities” (Fig. 4.4).

Among the most conspicuously funded measures there are ‘enabling platforms’ – e.g., AppIO and PagoPA adoption (580 Mio. €), SPID/CIE adoption (255 Mio. €) – and Citizen experience of DPS (813 Mio. €). As shown in Fig. 4.4, every notice has an application deadline (in this case 20/01/2023) and a predetermined amount of total funds (here, 80 Mio. €) distributed to eligible PA depending on definite criteria (here, number of inhabitants). On the lower right-hand side of the screenshot, we can notice a blue button: “access to apply”. In fact, unsurprisingly, the public notice ambience of the platform (where available

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<sup>90</sup> <https://medium.com/blog-per-la-trasformazione-digitale/pa-digitale-2026-lutente-al-centro-della-progettazione-59eeda5b4e40>

<sup>91</sup> <https://padigitale2026.gov.it/come-partecipare/candida-pa>

funds are shown) is openly accessible to make it interesting for PAs, while to apply PAs must go through a process of enrollment: the creation of a profile.

#### 1.4.3 Adozione pagoPA

### Avviso Misura 1.4.3 "Adozione piattaforma pagoPA" Comuni Settembre 2022

FONDI ANCORA DISPONIBILI

**80 milioni di euro**

32 milioni di euro disponibili per le regioni del Sud

48 milioni di euro disponibili per le altre regioni

su 80 milioni di euro stanziati

[ACCEDI PER CANDIDARTI](#)

STATO AVVISO

Aperto

SCADENZA AVVISO

20/01/2023

*Figure 4.4. A screenshot of the PA2026 platform*

#### 4.8.2 Configuring PA organizations as platform users

To create a profile, the PA2026 platform requires a PA's legal representative to access the platform by using a SPID identity, to submit an institutional e-mail address, and to enter or to correct information regarding the organization on the PA digital domicile Index (IPA). Once the profile is created and verified through certified e-mail (PEC), the PA's legal representative can access a dedicated 'desk' area on PA2026 where a 'data and service classification questionnaire' must be filled. After this, through a guided procedure, the PA can compose application documents for suitable notices appearing on PA2026, which must be

then electronically signed and submitted via the platform. Altogether, these steps seem to configure (see also chapter 5 for further clarifications about the concept) applying organizations, as they oblige them to have some prerequisites (SPID, electronic signature, etc.) and to undergo certain actions (questionnaire, IPA update, guided documentation generation) just in order to *apply* for funds. Effectively *getting* the funds requires a lot more.

#### 4.8.3 Defining relations and practices through digital means, or the platformization of state-internal relationships

Since every application refers to notices funding a project aimed at very *specific* desired outcomes (e.g., SPID adoption *is not* the same notice as DPS accessibility), every application is identified with a Unique Project Code (CUP) that must be created by the applying PA through another platform. PAs must then entry their CUP in PA2026, where for every CUP the *engaged suppliers* (and a relative ‘Do no Significant Harm’ documentation) must be communicated within a *certain time*. Once this has happened, the PA has a predetermined amount of time to reach the predefined project objectives. In fact, the disbursement of funds *does not* require any timely reporting of expenses but *does* require the achievement of the objectives set out in the notice, which is not the ‘normal’ accounting practice applied to the disbursement of public funds in Italian PA. The validation of the achievement of specific predefined objectives also depends upon the adherence to conformity criteria (varying according to the notice) strictly defined by the DTD. In fact, to obtain economic resources, PAs

must first achieve the objectives and then upload an application for the disbursement of the funding on PA2026, also certifying the achievement of the objectives set out in the application.

Each project then undergoes automated or human “technical compliance checks” that can result in positive (all criteria are fulfilled), partially positive (criteria are not fulfilled *but* there is still time) or negative (one or more criteria are not fulfilled *and* time is out) judgments defining if the funds are transferred or not. For instance, measure notice 1.4.1 “Citizen experience of Interface and DPS for municipalities” (funded with 356 million € for 7904 suitable PAs) is audited depending on 38 criteria and 10 recommendations, all very specific, e.g., success for criterion 1.1, is defined as:

“All headings and all paragraphs of the pages of the website in Italian language must exclusively use the Titillium Web, Lora and Roboto Mono fonts, *and* the site must present the data attributes indicated in the Template Adherence Evaluation App Documentation for this criterion.”

(Conformity criteria for municipal websites on DocsItalia)

Through this specific criterion we can also better understand how PA2026 builds normative networks (a type of institutional work) by relying on the “design system” described previously: the fonts listed are part of DesIT’s ‘website and DPS template for municipalities’, the conformity criteria, as well as other legal and technical documentation can be found on DocsItalia, and the Template Adherence Evaluation App itself can be found on GitHubItalia. This is true for many other notices/measures also regarding the implementation of ‘enabling

platforms’, as for instance the kit, guidelines and documentation to include SPID into DPS can be found on DevIT, GitHubItalia and DocsItalia, too.

In this sense, the “design system” acts as a repository of information, artifacts and procedures enabling work by encouraging mimicry, as it has to be used for the righteous fulfillment of the ‘relationship goals’ defined by PA2026. As such, both the “design system” and the PA2026 platform, participate in the institutionalization of the kind of PA digitalization envisioned by the DTD by supporting and enacting various forms of institutional work. In fact, while the “design system” portals and repositories support diverse types of institutional work such as ‘defining’, incentivizing ‘mimicry’, ‘enabling work’, ‘advocating’, ‘educating’, and ‘constructing identities’, the way PA2026 organizes, systematizes and guides organizations’ practical translations of the “design system” connects to other forms of institutional work, such as ‘constructing normative networks’, ‘changing normative associations’, ‘policing’, ‘detering, valorizing and demonizing’ (all defined in Lawrence and Suddaby 2006).

In this sense, apart from configuring and isomorphizing the grammars of action which PAs must perform to get digitalization funding, PA2026 somehow also tries to define and intermediate the relationship between PAs and their (internal or external) IT developers and suppliers by inducing them to adopt certain practices and specific technologies. This happens by explicitly prescribing the use of the inscribed standardized packages developed through the “design



system”, but also by setting up a funding system based on the fulfillment of normatively and coercively defined objectives, rather than on the documentation of expenses. Indeed, the fact that through PA2026 funding is defined upon the achievement of certain objectives strongly linked to the fulfillment of mostly ‘technical’ requirements, seems a way through which the DTD tries to encourage PAs to ‘oblige’ IT suppliers to take its “design system” into account while developing IT products and services for PA. This vision can be also read ‘between the lines’ of this excerpt, part of an interview with a DTD employee:

“No-one doubts about the fact that public buildings should have ramps for wheelchairs, PAs know it’s a legal requirement, but they also know it’s ethically correct ... While for digital products... nobody asks their IT suppliers if the interface or service they delivered is accessible... in fact it should be a common practice! You know, accessible or non-accessible, it costs pretty much the same, it’s just a matter of taking the right things into account from the beginning... of being used to do certain things... many PA employees see digitalization as a mere bureaucratic compliance or legal fulfillment, while they should really think in terms of functionality and user-centricity”

(DTD designer, interview)

Through these words, we can notice how the DTD links the enactment of certain practices and procedures (here, asking the supplier this or that question) to certain desired outcomes (here, accessible and usable products that fulfill certain standards) that lead to what is defined as ‘successful’ PA digitalization and the institutionalization of the ‘right’ practices and boundaries. As we saw, this also happens by inscribing certain norms, values, professional cultures and procedures into the artifacts of the “design system”. These are subsequently put in relation to each other and to laws and

fundings through PA2026's intermediation, forming an action net. In this sense, PA2026, 'enabling platforms' and the "design system" themselves do not only enact institutional work by defining relations among each other and by providing facilitating examples and resources related to how 'successful' digitalization should be like, but also by prescribing obligations and intermediating the relationship between local PAs, IT suppliers, citizen, and governmental funding. In fact, the tools deployed by the DTD, and specifically the PA2026 platform, seem to establish a set of co-definitions and co-restrictions between regulations, practices, professional cultures, and technical artifacts aimed at pre-scribing and exemplifying how to translate digitalization reforms into practice and thus digitalize PA institutions in a legitimate way.

#### *4.9 Concluding remarks*

Throughout the last sections, we have seen how the DTD tries to enact, coordinate and operatize the digitalization strategies defined by the central state by inscribing definitions, norms, organizational relationships, and professional routines into technical means such as platforms and other digital artifacts. By looking at how the DTD enacts translation by interesting and enrolling different kind of resources and actors, it was possible to underline how non-humans can be actively mobilized within processes institutionalization and institutional work. In this sense, the action net mobilized by the DTD and systematized through the PA2026 platform

seems to define rules of ‘technical isomorphism’ (Benders et al. 2006) aimed at aligning PAs and IT suppliers to achieve digital homogeneity throughout PA organizations. Rather than as an ‘immediate’ effect of the adoption of technologies, here (technical) isomorphism emerges as an intentional organizational strategy linked to envisioned desirable outcomes on the field level (such as efficiency, interoperability, simplicity or accessibility) and pursued through various forms of institutional work.

In fact, what the DTD seems to do to pursue this goal, is to exemplify normative definitions of digitalization through standardized packages inscribed with professional knowledge (“we know how it should be done”) and to facilitate mimetic processes by generating repositories (“if you are uncertain, here you can imitate”). Eventually, by incentivizing digitalization through massive economic resources, and by establishing PA2026 as an obligatory passage point to get these resources (“this is the only legitimate mean to get funding”), the DTD and the central state then aim to impose their standardized packages and institutions upon all Italian PAs by *coercion*.

Furthermore, while this has not been the main aim of this chapter, the analysis of this case also exemplifies how platforms are currently becoming part of highly institutionalized settings such as state fields and public administration, and how they here act as organizing devices and centres of calculation on behalf of specific resourceful organizations.

While the data presented here doesn't allow to address questions relating to the success or failure of DTD's organizational strategy (i.e., if the relations it defines really lead to isomorphism) nor about the way PA organizations effectively translate the DTD's visions into action, it surely enables us to address isomorphism as an organizational strategy willingly pursued to induce institutional redefinition, instead as of a consequence deriving from field structuration. Furthermore, this case also suggests that technologies do play a role in institutional entrepreneurship and institutional work, and that their role can be addressed by conjunctly mobilizing neoinstitutional's and ANT's analytical sensitivities and concepts.

Indeed, by applying STS concepts to de-scribe the actions and the strategies of the DTD, it has been possible to make visible how digital platforms and other tools can become actants in instances of institutional entrepreneurship and thus in the (re)definition of action nets and organizational fields.

In relation to the previous chapter, here it was possible to see how the central state tries to foster and homogenize local and situated digitalization paths that took place (or not) during the last decades, leading to the heterogeneity and coordination difficulties that the central state must currently cope with.

In the next chapter, we will see how one of the national enabling platforms advocated and imposed by the central state through PA2026, namely the digital identity system SPID, is strongly related to the outsourcing of resources and practices that must partly be performed by citizens/users in order to access DPS.

Here we will see how the actions and practices delegated to citizens/users may lead to new forms of inequality in accessing DPS tied to the availability of certain material and immaterial resources.

## 5. The new production of citizenship: the Italian Public Service for Digital Identity (SPID) between digital practices and new inequalities

As also seen in the previous chapter, among the aspects affected by digitalization we can find communication, interaction and transaction processes between public institutions and citizens/beneficiaries. Nowadays more and more public organizations deploy and curate apps, sites and platforms as tools for managing these processes, resulting in a growing presence of public services whose access and implementation are (sometimes primarily when not exclusively) intermediated through digital tools (Henman, 2019). In this sense, the 'public encounter' (Goodsell, 1981) between institutions and citizens increasingly takes place via digital interfaces appearing on citizens' private devices (smartphones, tablets, PCs), affecting forms of so-called street-level bureaucracy (Lipsky, 2010) and citizens' 'institutional habitus' (Dubois, 2020). However, to enact these 'digital' forms of public encounter, authenticated forms of digital identity that enable individuals and organizations to operate and interact online with institutions in a 'certified' manner play a fundamental role. These forms of identity, defined by the European Commission as 'key enablers' of PA digitalization (European Commission 2020: 9), may vary from nation to nation<sup>92</sup>, but always seem to involve some scheme of identity verification through commensuration (e.g. linked to pre-existing 'paper' documents, accounts of various kinds or biometric data) and generally take the form of credentials (i.e. a unique combination of a username and a password) that individuals and legal

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<sup>92</sup> See, for instance, the Adhaar system implemented in India (Sachan 2018).

entities can use to interact with state institutions by accessing public sites, portals and platforms in an authenticated way (Lindgren et al, 2019).

Basing on these theoretical considerations, as well as on the interface-related research trajectory outlined in the methodological chapter of this thesis, this specific research focus sets out to analyze one of the organizational relationships and practices - and more specifically, one of the tools - involved in the digitalization of public services and forms of digital citizenship in the specific Italian case: the Public Service for Digital Identity (Servizio Pubblico Identità Digitale - SPID)<sup>93</sup>.

Each SPID identity consists of an e-mail address paired with different levels of authentication (such as, for instance, a password). SPID identities are not 'assigned' to citizens, and - in line with a logic of outsourcing and 'governance-beyond-the-state' (Swyngedouw, 2009) - must be autonomously 'produced' by individuals by turning to state-accredited private 'identity providers'. Through the presentation of empirical data of different kinds, in this chapter we will try to shed light on how, in Italy, new forms of 'digital citizenship' - and the practices they define - contribute to a rearticulation of the relationship between institutions and citizens and to emerging forms of inequality and exclusion in relation to the use of digital public services. In pursuit of this aim, the following paragraphs will briefly outline the theoretical and methodological approach that directed the collection of data that will be presented during the discussion.

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<sup>93</sup> In this chapter we will use the term SPID (without article) to refer to the entire system, while the terms 'a SPID' or 'a SPID identity' will refer to the individual digital identity.

### *5.1 De-scribing technologies in use: some Actor-Network Theory concepts*

Inspired by the concept of 'the new production of users ' (Hyysalo et al, 2016), which refers both to the strategies through which contemporary organizations tend to engage and 'produce' a certain type of users, and to the forms of 'production' enacted by users (e.g. platform work, editing Wikipedia pages, etc.), we will try to show how the creation of a SPID identity is linked to certain material and immaterial prerequisites that individuals must be equipped with and to certain forms of 'production' that must be enacted by them. The prerequisites and forms of 'production' associated with the creation and management of a SPID identity heavily depend on the way users are configured - that is, defined, enabled and constrained - by the designers of the system (Woolgar, 1990).

In fact, designers can generally inscribe technologies with certain choices regarding how (and thus, implicitly, by whom) they can/must be used, in this sense technologies - understood as relationships - act themselves by configuring its users and influence their action by defining 'scripts' (Akrich, 1992). Here, we could imagine technologies as 'texts' *written* by authors (designers) with a certain intention, style and structure and *interpreted* by readers (users) with a certain degree of freedom (Woolgar, 1991). As such, technology users, although free in their own interpretation (alike the readers of a text), are faced with a series of constraints, definitions and opportunities for action inscribed in the technology and its script. These considerations are based on an 'agnostic',



'symmetrical' and 'anti-essentialist' conception of agency, typical of Actor-Network Theory (ANT - Latour, 2005), i.e. on an ontology that repudiates aprioristic distinctions between the social, the natural and the technological (Michael, 1996). In this sense, we speak of distributed agency, i.e., the fact that courses of action are not carried out by individuals, but by the set of resources (human/non-human, material/immaterial) with which they relate and which they are able to interest, mobilize and align to carry out their courses of action.

Following this approach, then, non-humans participate in social action, and their inclusion in specific courses of action and relationships (in our case in state-citizen interaction) always entails translations and deviations that rearticulate the course of action itself, the actors involved, and the meanings and practices attached to it. Far from wishing to summarize here the complex ontological, methodological and terminological approach proposed by ANT (cf. Latour, 2005), for the purpose of this analysis it suffices for us to know that such an anti-deterministic conception of agency and technologies enables us to scrutinize and de-scribe courses of action and technologies-in-use, so as to be able to account for the actors (or better, actants, as this term refers also to non-human actors) involved, the way they affect the action, and any of the subsequent repercussions. Furthermore, it is useful to specify for the purposes of our analysis that ANT conceives of the technologies themselves as 'technical projects', that is, as an assemblage of different elements, which may vary over time, and which make up what appears as a 'black box', that is, what is perceived

as a single 'closed' technology - in ANT jargon: a network of allied entities made stable. SPID, for instance, involves, as we shall see, several different technical objects, procedures, knowledges, practices and elements that together define the SPID 'technology'.

## *5.2 A Brief definition of the context*

As already stated in the methodological chapter of this thesis, the research leading to the data presented here was carried out in Italy between the first half of 2020 and the second half of 2022, and thus in the midst of the Covid-19 pandemic and post-pandemic period. This is important for at least two reasons, which have contributed to a sort of 'new wave' of PA digitisation<sup>94</sup> in Italy: at the practical level, the physical distancing policies put in place have (as also emerges from many of the interviews held and public speeches analyzed) triggered an increase in the quantity and types of digital interactions between public institutions and citizens as well as the adoption of telework in PA, which, at the political level, has subsequently been translated into a very careful allocation of PNRR funds to PA digitization (see chapter 2 and 4)<sup>95</sup>. In addition to this, in relation to SPID, a significant increase in SPID identities can be noted for the same period (2020-2022): from 2016 (the year SPID was first issued) to

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<sup>94</sup> In addition to SPID, other important projects concern, for instance, the creation of a National Data Platform (PND), the digitisation of ANPR, and the deployment of other so-called 'enabling platforms' such as PagoPA, CIE or AppIO (see Chapter 4).

<sup>95</sup> For a detailed breakdown of the PNRR funds earmarked for the digitisation of PA see: <https://italiadomani.gov.it/it/home.html> (last accessed 12/08/2022)

February 2020, just under 6 Mio. of SPID IDs had been created, rising to 15.5 million at the end of 2020 and to more than 33 million SPID identities issued to date (which can be used to access more than 12,000 PA portals and 131 private service providers, such as banking institutions)<sup>96</sup>.

In addition to SPID, it is also possible to access most online public services with CIE 3.0 (the most recent version of the electronic ID issued by the Ministry of Internal affairs which will over the years completely substitute old non-electronic IDs. CIE 3.0 requires a PIN to be used in conjunction with a smartphone equipped with an NFC reader and a special app issued by the *Istituto Poligrafico e Zecca dello Stato* to access online services. In addition, it is also possible to access some services via CNS (with a special smart-card reader), the latter instrument, however, is gradually being abandoned in favour of SPID and CIE 3.0. The CIE 3.0, in contrast to SPID, is a 'hybrid' instrument, in that it is both 'physical' and 'digital' and can for instance be used as a turnstile card (offices, stadium, metro, etc.). The choice to focus on SPID and not on CIE was also taken basing on the high number of existing SPID IDs and the fact that it is more broadly used in comparison to the CIE<sup>97</sup>. The fact that SPID has a bigger diffusion and usage may be explained by the fact that a SPID identity is 'virtual' and can be autonomously produced by citizen at any given time by contacting private organizations acting as 'Identity providers', while the CIE is a 'physical'

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<sup>96</sup> Source: <https://avanzamentodigitale.italia.it/it/progetto/spid> (last access: 12/12/2022)

<sup>97</sup> For instance, more than 90% of all logs into the central national DPS gateway app 'IO' are made with SPID and only less than 10% with CIE (source: <https://io.italia.it/dashboard/>). Last access: 07/01/2023

electronically-readable card issued by the Ministry of Internal Affairs and handed out to individuals by municipal offices once a citizen's old paper ID expires, leading to a way more gradual diffusion of the tool.

### *5.3 Methodological notes*

As already addressed in the methodological chapter of this thesis – basing on a preliminary interface analysis of some DPS - SPID emerged as central element for the whole national context of PA and public service digitalization. Other contextual data relating to the more general 'digital transformation' of the PA emerge from the analysis of public speeches and discussions held by civil servants and representatives of other organizations and IT companies during the 2021 and 2022 editions of 'Forum PA'. For the analysis of the SPID system, a qualitative methodology was employed, which, in line with the theoretical approach presented in the previous section, was useful for de-constructing the 'script' (Akrich, 1992) and the actual usage practices linked to this system (Pink et al., 2015). In particular, following the idea of multi-sited ethnography (Kaur, 2019) to analyze the creation, management and use of a SPID identity and to reconstruct the system's design, various techniques have been employed in different 'locations', leading to the construction of what eventually appears as a spatially and temporally dispersed 'field', made up of 'sites' associated and

connected through elements and paths pertaining to the argument of the ethnography (Marcus, 1995).

In the first place, a reconstruction of the creation process of SPID identities was carried out by using the 'walk-through' method (Light et al., 2018) and browsing through the diverse creation procedures provided by the 'identity providers', in addition to this I enacted a sort of auto-ethnographic walkthrough and created various of such identities myself, tracing and reconstructing the diverse steps and procedures this entails through fieldnotes. This happened during the first phases of the research, when Covid-related mobility restrictions were still in force and the number of SPID identities started to grow significantly (see Chapter 2). For these reasons, another thing I did was to interview (and when possible, observe) diverse friends and relatives who were engaging (or had engaged) in the creation of a SPID identity with a specific attention to concrete practices and *episodes* and the non-human actants these include (Flick, 2000). As we will see in the empirical section of this chapter, through this reconstruction of the SPID identity creation process, it was possible to detect how SPID configures a certain type of user, endowed with specific equipment, skills and characteristics previously unrelated to the concept of citizenship.

A second 'site' making up the field I started to explore already during the first stages of the research is the official SPID Facebook page<sup>98</sup> managed by Agenzia per l'Italia Digitale (Agency for Digital Italy – AgID), one of the central state

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<sup>98</sup> <https://www.facebook.com/groups/1114025985303602>

agencies related to PA digitalization, having the task of “ensuring the achievement of the objectives of the Italian Digital Agenda, coordinating the administrations in the implementation of the Three-Year Plan for Information Technology in Public Administration and contributing to the spread of the use of information and communication technologies”<sup>99</sup>. On this official Facebook page, which is listed as a ‘publicly accessible group’ I started observing and collecting user requests, comments, and interactions (as well as AgID’s replies), something that I continued to do over the whole research period for approximately two years. Many (potential and effective) SPID users turn to the official SPID Facebook page sharing doubts and problems and asking for advice on the creation, use and management of a SPID ID. The page has more than 40,000 members, and user posts generally trigger a good amount of interaction (in the form of comments) with many salutary users and some ‘expert’ users I was able to recognize over time as they were recurrently commenting other users posts in order to provide a solution to the problem or to share their personal experience. It must be considered that, while many of the users turn to the page in order to get help, these people are in any case at least somehow familiar with IT (having Facebook profile and actively using it). Moreover, in line with the outsourcing of state functions that characterizes the entire SPID system, AgID's official profile often responds to users using standardized messages of little practical use or advising them to contact the private Identity Providers for troubleshooting

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<sup>99</sup> <https://www.agid.gov.it/it/agenzia/chi-siamo>

problems encountered when creating or using SPID. In fact, most of the interactions taking place on the page are among peers (citizens-users) sharing problems and providing possible solutions, thus offering a very interesting panorama to collect and inquire SPID related practices.

A third 'site' is made up by different interviews held with state officials I had the possibility to interact with during the 2022 edition of Forum PA. Specifically, through these encounters it was possible to arrange one in-depth interview with a manager of one of the state agencies that collaborated in the development and set up of the SPID system (now working on the Electronic ID – CIE - an alternative to SPID) and to engage in three informal interviews with diverse collaborators of the Department of Digital Transformation (DTD), a governmental agency also supporting the diffusion of SPID. Through these interviews it was possible to delve into the history, strategical purposes, infrastructural aspects and technical specificities of this tool, aspects that have also been further inquired through an analysis of official documents<sup>100</sup> and portals<sup>101</sup> relating to SPID (e.g. user manuals, AgID guidelines, F.A.Q., ...).

Last, but not least, the fourth 'site' where SPID related data was gathered is a 'support' desk for citizen wanting to create a SPID ID and/or experiencing difficulties with the use of DPS where it was possible to access and do research in February 2022. This digital help desk for people with low digital skills and

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<sup>100</sup> See, for instance, the SPID user manual provided by Lepida (one of the Identity Providers): [https://id.lepida.it/sites/default/files/documentazione/manuale\\_utente.pdf](https://id.lepida.it/sites/default/files/documentazione/manuale_utente.pdf) (last access: 06/01/2023)

<sup>101</sup> See, for instance, the SPID governmental website <https://www.spid.gov.it/> (last access: 06/01/2023).

literacy is organized by a 'third sector' association upon an announcement made by the Bologna municipality, which also financially supports and physically hosts the service in one of its municipal neighborhood offices. Through diverse informal interviews with users of the service, two semi-structured interviews with its organizers/staff and six sessions of audio-recorded observation carried out during the reception hours of the help desk (amounting to a total of 18 hours of audio-recording), it was possible to further explore SPID related issues and most of all to analyze it as a 'technology-in-use'. In fact, by being able to directly observe the interactions between citizen seeking 'digital support' and association agents (in addition to those analyzed on the SPID Facebook page) it was possible to experience SPID and DPS related usage practices and to retrace recurrent problems, difficulties and (sometimes very creative) solutions.

Altogether, the data collected through these techniques allows us to describe both the way SPID was conceived and designed 'on paper' by its creators *and* the way SPID IDs are used and dealt with in practice, making it possible to highlight the way the system turns citizens into users by enrolling them into a whole set of actions and procedures that must be enacted in order to produce a SPID ID.

#### *5.4 From citizens to users*

In order to make sense of the data that will be presented here, it is necessary to briefly mention the underlying logic and functioning of the Public Digital Identity System (SPID) and the differences it entails with respect to formal



paper-based forms of identification. Generally, in identity management systems, identity is composed of a set of temporary or long-standing attributes (e.g. physical characteristics) associated with a given entity (Camp, 2004). The process through which these attributes are associated with a given entity (person/legal entity) takes place in relation to previously authenticated identities (e.g. through other documents or certificates) and physical characteristics and, in the case of digital identities, to the possession of certain technological prerequisites (e-mail address, smartphone, SIM card...) geared towards the commensurability of the different identified entities (Espeland & Mitchell, 1998). In this sense, user configuration schemes (Woolgar, 1990) play a central role in the transition from a paper-based to a digital identification system, and it seems in this sense important to focus on the ways, actors and processes through which identity is reconstructed, attributed and fixed (Lips, 2013).

Globally, in most cases the digitization of formal identity seems to consist of an isomorphic adaptation of the identity management models used in e-commerce and social media, which through initial procedures of configuration and categorization of the individual user allows for front- and back-end operations related to the creation, storage, and authentication of a profile and the retrieval, collection, and updating of data related to it (Bertot et al., 2016). The creation of a digital identity is therefore unthinkable without the presence of what Kitchin (2014) calls data assemblage (or data infrastructure), i.e. a socio-technical system composed of technical apparatuses and related elements closely interconnected

in the process of data production and management. It is therefore important to also focus empirically on the operational elements that make up the data assemblage and the practices associated with it, employing methodologies that are useful in making visible both the people, technologies and other elements involved in this process, and the ways in which these relate to each other (Ueno, 2000; Landri, 2018).

#### 5.4.1 The Italian Case: the Public Service of Digital Identity

As already stated, in the Italian case, SPID represents the main governmental digital identity management system. SPID consists in the creation - by the user - of one or more profiles uniquely linked to an individual (or legal entity)<sup>102</sup>. This service is defined on its official website ([spid.gov.it](http://spid.gov.it)) as a 'necessary, secure, efficient' tool that 'guarantees everyone the same access to different online public services [...] [and] reduces the costs incurred by administrations in managing and securing their identification systems'.

To create your SPID identity, you need to contact one of the nine so-called identity providers (IdPs) accredited by the government body Agenzia per l'Italia Digitale (AgID). The IdPs offer various possibilities for completing the SPID identity creation process. The elements required for the creation of a SPID are, formally: a valid identification document (ID, driver's licence, passport and others), the national health system card or 'fiscal code' card (or their certificate

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<sup>102</sup> The same person can generate a SPID identity with each of the nine identity providers accredited by AgID, and thus have up to nine different SPID identities at the same time (one with PosteID, one with TIM ID, ... ).

of assignment), an e-mail address and a mobile phone number for personal usage. The creation of a SPID includes an online registration phase and a subsequent identity verification phase, which can be carried out *de visu* via RAO<sup>103</sup> (at public counters, post offices, or private establishments - such as pharmacies, tobacconists or patronages - affiliated with the IdP) or via various remote procedures (recognition by online video call with an IdP operator; sending an audio-video recording while stating one's data, holding a document and a symbolic money transfer through one's bank account; CIE/CNS/digital signature with related readers). The use of SPID is free of charge, but providers may decide to offer forms of identity verification or other services for a fee<sup>104</sup>. Once generated, SPID can be used to access so-called service providers (SPs - e.g., INPS, ANPR<sup>105</sup>), which will ask - each time an access is made - the IdP chosen by the user to provide data (name, fiscal code, etc.) and the user to grant authorization for the use of these data<sup>106</sup>. Furthermore, SPID identity holders (i.e. user-citizens) are subject to certain 'obligations', i.e. they are expected to perform certain actions, including to:

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<sup>103</sup> The RAO (acronym for Registration Authority Officer) is the person in charge of *de visu* personal identity verification of the citizens who wish to acquire a SPID.

<sup>104</sup> In addition, IdPs can support themselves economically by offering access via SPID on portals of private service providers (e.g. credit institutions), who will have to pay a fee to the IdP for this service (the fees are set by AgID).

<sup>105</sup> By access via a SPID identity, many activities can be carried out independently from a PC, tablet or smartphone in an 'authenticated' manner, including managing one's health file, managing one's social security file (including payments), applying for bonuses and subsidies, downloading certificates from the National Register of Resident Population, etc.

<sup>106</sup> In addition to SP, user and IdP, the SPID system also includes so-called 'qualified attribute managers', which may be public or private and are responsible for certifying certain user attributes (e.g. a university certifying a degree obtained by an individual etc.).

'keep, either proactively or following notification by the Provider, the contents of the following identifying attributes up to date: details of the identification document and its expiry date, telephone and mobile telephone number, e-mail address, physical and digital domicile [...] maintain the credentials and information for use of the digital identity in such a way as to minimise the following risks (1) disclosure, dissemination and tampering; (2) theft, duplication, interception, cracking of any token associated with the use of the digital identity; (3) ascertaining the authenticity of the service provider or digital identity provider".

*(SPID Operating Manual, Lepida ID)<sup>107</sup>*

A SPID must therefore first be autonomously generated and then updated, 'cared for' ('keep credentials', ...) and used by citizens with due regard for various risks, the greatest of which obviously concerns identity theft<sup>108</sup>. Before being able to proceed with registration on LepidaID, it is necessary, for example, '[...] to accept the information document on the risks arising from possession of the SPID identity'<sup>109</sup>. In relation to these risks, there are three so-called. security 'levels' of SPID ('1', '2' and '3')<sup>110</sup>; these differ according to the type and quantity of credentials required by SPs to authenticate: the first level allows access to online services through a username (e-mail address) and a password chosen by the user; the second level - the most required by SPs for authentication - allows access with username and password, plus the generation of a temporary access code (one time password - OTP), provided by the IdP through SMS or mobile

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<sup>107</sup> [https://www.agid.gov.it/sites/default/files/repository\\_files/06\\_-\\_manuale\\_operativo\\_-\\_idp\\_spid\\_lepidaspa.pdf](https://www.agid.gov.it/sites/default/files/repository_files/06_-_manuale_operativo_-_idp_spid_lepidaspa.pdf) (last access: 06/01/2023)

<sup>108</sup> For instance, through a SPID one can access a personal space on the national social security website and change the IBAN to which payments (such as a pension) shall be sent, but also open a bank account and carry out other 'delicate' operations. Moreover, it is technically impossible to know whether someone with access to our documents has generated a SPID in our name without our knowledge.

<sup>109</sup> <https://id.lepida.it/lepidaid/wicket/page?1> (last access: 12/08/2022)

<sup>110</sup> <https://helpdesk.spid.gov.it/knowledgebase.php?article=14> (last accessed 13/08/2022)

app (e.g. PosteID, SielteID) for smartphones or tablets<sup>111</sup>; as an alternative to the OTP, it is possible to access using level 2 through the IdP app by framing a QR code that will appear on the SP's access page; level 3, in addition to the username and password, requires a specific physical medium for managing cryptographic keys (smart card reader or remote digital signature device). Only a few IdPs allow the activation of this third level, which remains little used at present.

In SPID identity is thus fixed, attributed, verified and managed through an assemblage that includes elements previously unrelated to the concept of formal identity, such as e-mail address, mobile phone (number), SMS, but also mobile apps, IdPs and RAOs. Recalling the concepts of user configuration (Woolgar, 1990) and user production (Hyysalo et al., 2016), we can highlight how this system envisages citizens to become users by (pro)actively and autonomously generating and managing a profile, the use of which requires the possession of a set of technological devices and specific technical skills. Moreover - even though the 'P' in SPID stands for 'public' - we can see how most of the elements underlying the functioning of this system fall within the private/individual sphere (mobile phone, SIM card, PC, e-mail box, IdP, RAO, etc.).

In the following paragraphs we will see how these features - emerging from an analysis of how SPID works 'on paper' - may *in practice* lead to forms of exclusion and/or difficulty in accessing DPS due to the lack of certain forms of 'capital' (technological, economic, cultural, social) on the part of users or to their

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<sup>111</sup> Aruba allows to generate OTPs via a specific physical device, which must be purchased from the IdP by the user.

lack of 'connectivity' (absence of an e-mail account, a SIM card, an app store account). We shall also see how this depends on the fact that practically speaking the elements and courses of action involved in the creation and management of a SPID ID go well beyond those emerging from a mere 'theoretical' analysis of the tool.

#### 5.4.2 Digitizing one's identity

By illustrating some of the data collected, we will devote the following paragraphs to describing SPID as a technology-in-use and highlighting some of the practices related to its creation and everyday-usage. In practice, the creation of a SPID identity begins with the choice of one of the nine IdPs. As already mentioned, IdPs offer several options both in terms of the (1) registration and (2) recognition phases and in terms of (3) using SPIDs to access SPs portals once the SPID has been generated. The IdPs, although subject to the necessary requirements defined by AgID, are in fact pretty 'free' to organize registration, recognition and access as they see fit, with the constraint that at least one of the options offered for each of the three phases must be free of charge for users. The choice of IdP thus implies knowledge of several technologies and requires a sort of 'comparative' analysis of the different options offered by IdPs. To give an idea, PosteID envisages a payment for de visu recognition at the post office, but makes free recognition possible through the joint use of the PosteID app and CIE, it provides for the sending of a maximum of eight OTPs via sms per quarter, which are unlimited only for people over 75 years of age; LepidaID

offers free recognition via bank transfer and audio-video recording, or de visu at public offices and affiliated businesses, but only offers twelve OTPs via sms per year, while Aruba does not offer this option at all<sup>112</sup>. We will see later why the number of accesses with OTPs via SMS is an important feature, for now it is sufficient for us to note how even the initial choice of the IdP alone can result in 'confusion' as to which is the most appropriate option to take according to one's technological equipment, technical knowledge and needs. This 'confusion' clearly emerges when looking at number of websites that try to provide information (not always clear and not always up-to-date) on the matter, or by reading through the requests of many users of the SPID Facebook page asking for advice on which IdP to choose, often also indicating specific needs (e.g. lack of a smartphone, reduced mobility, resident abroad) or asking which the 'free' or 'simpler' solution to generate a SPID is.

Beyond the general bewilderment triggered in some by the system's operation schemes and underlying logic ('so when do I need SPID?' was one of the most frequently asked questions among the digital support counter's users), one of the obstacles resulting as evident from the observations at the counter (to which people turned both to carry out the phase of creation and management of their SPID, and to access DPS - such as, for example, the digital health record or the enrolment in kindergarten) concerned the scans (of their ID and fiscal code cards) needed to complete the registration phase. Many of the people were not

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<sup>112</sup> For a comparison of IdPs visit: <https://www.spid.gov.it/cos-e-spid/come-scegliere-tra-gli-idp/> (last accessed: 12/08/2022)

aware of the need for the scans, or did not know how to make them properly (e.g. file weight and accepted format, see Figure 3 in the appendix); in these cases, the person at the counter made the scans from their mobile phone, and then sent them to their own personal e-mail address, from which the scans could then be downloaded to the workstation PC through which the SPID registration was carried out. Another of the most frequently observed operations concerned the creation of an e-mail box to be used specifically for SPID creation, a box whose credentials were then provided to the assisted person on a sheet of paper written by pen, together with the advice to guard them carefully, since they were necessary to receive communications from the IdP and to perform other SPID-related operations. The same thing happened with SPID credentials, which were thus transformed from digital to paper (always written by pen), and for the access code to the IdP app to be downloaded from the app stores (to access which, among other things, it is necessary to have an account, e.g. AppleID). In fact, many of those assisted expected to receive an actual 'document' at the end of the SPID creation process and did not want to leave 'empty-handed'. Confusion is also generated in some users by the presence of these different sets of credentials: an e-mail address with the corresponding password (which may or may not be the same as the PW chosen for SPID), which in turn is different from the access code for the IdP app, which in turn is not the OTP code sent by the IdP for each access to the SPs (to which must be added the security questions and answers set by the IdP for password recovery). The difficulties of some users



also emerge when looking at the practices adopted by the support desk assistants in relation to the management of these credentials:

As password I always set some easy data that you might find written on the user's identity card, like the expiry date... because when I generate the SPID the password cannot contain a common word, even if you put an asterisk in the middle, let's say it has to be an alphanumeric code... and so I always put 'zxcvb' first [points out to the first five letters at the bottom left of the keyboard she has in front of her, *N/A*], then a question mark and then these data I told you, obviously I explain it to them... but sometimes they have problems remembering or even reading this kind of password! Same thing for the PIN of the IdP app, I just set it as the user's date of birth! Because they don't remember their passwords, they are often confused...

*(Counter assistant)*

All of this denotes the actual materiality related to the digitization of one's formal identity and highlights the difficulties related to the enactment of this process, other data suggest that the confusion and difficulties encountered by some users are related not only to the materiality of the process (i.e. 'how' one activates/uses a SPID), but also to its underlying necessity - i.e. 'why' and 'when' one needs to have a SPID. For instance, there are many users on SPID's FB page who call for maintaining a 'physical' alternative to online public services, as 'not everyone can cope'. Indeed, as we have seen, digitizing one's formal identity requires not only a whole range of technological endowments, but also good skills in 'orchestrating' those endowments. We shall now see, how this also applies to the identity verification phase.

### 5.4.3 Getting Recognized

Once the registration phase has been completed, the next step is the identity verification phase. Like the previous phase, this step too has procedures that may result difficult for some, or that may involve more or less 'hidden' costs. Once again, the user is confronted with a series of possible options offered by the various IdPs among which to choose:

- 1) in-person recognition through public RAOs<sup>113</sup>, which involves receiving an 'activation packet' or 'electronic seal' via e-mail that must subsequently be presented online to the chosen IdP; recognition at post offices RAOs or at other physical counters of private IdPs is instead often subject to a fee, moreover RAO counters (both public and private) are not always homogeneously present throughout the country<sup>114</sup>;
- 2) recognition via webcam, obviously requires one to have a webcam, moreover, although some IdPs offer this service free of charge, by choosing the paid option one can choose among a number of 'priority' appointments set for the days immediately after the request is made (whereas free ones are often 'unavailable' - see Figure 5.1 in the appendix)
- 3) uploading an audio-video selfie, together with the payment of a symbolic sum by bank transfer, presupposes that one is in a position to make the video (during which one has to read out data and hold an ID card); the transfer may not be problematic for those having access to on-line banking, but can be time-consuming (and costly) otherwise;

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<sup>113</sup> Public counters must take action themselves to qualify as RAOs, by sending the application form downloadable at the following URL to AgID:  
[https://www.agid.gov.it/sites/default/files/repository\\_files/riciesta\\_di\\_sigillo\\_rao\\_pubblico\\_3.pdf](https://www.agid.gov.it/sites/default/files/repository_files/riciesta_di_sigillo_rao_pubblico_3.pdf) (last access: 22/08/2022)

<sup>114</sup> <https://www.spid.gov.it/cos-e-spid/come-attivare-spid/le-pa-per-attivare-spid/>

4) authentication with the Electronic Identity Card (CIE) or electronic passport through the apps of digital identity managers, requires one to have a smartphone or tablet with an NFC reader, or alternatively a smart card reader to be connected to the PC (which requires installing specific drivers on the PC);

5) authentication via the National Services Card (CNS), requires that one has activated one's own (CNS) by visiting a ASLs (Local Sanitary District) or other authorised offices and that one has a smart-card reader (and the ability to install the relevant drivers); similarly, verification via Certified Digital Signature requires that the user already has this tool (which often requires the payment of a fee) and the associated signature device; lastly, Poste ID offers recognition via SMS, but only if one already has a certified Poste SIM card.

Options 4) and 5), which are often offered free of charge (see Figure 5.2 and 5.4 in the appendix), are at the same time the options that require specific equipment on the part of the user, which entail 'hidden' activities and costs (e.g. purchase of a smart-card reader or a smartphone with NFC, activation procedure for the CNS, certified Poste SIM or digital signature); the other identity verification options, on the other hand, require payment for *de visu* recognition or the ability to use certain tools (app, app store, webcam, online banking, etc.). Beyond that, all forms of verification require some sort of activity on the part of the user: whether it is to physically go to a counter, to produce a video or to organize and carry out an online recognition via webcam. Moreover, as already mentioned, when choosing among the variety of identity verification possibilities offered by IdPs, also the forms of level 2 access options offered should be kept in mind, as

not all of them provide access via OTP sent by SMS (while all of them provide it via an app), and only PosteID offers it in unlimited quantities (and only for the over 75s), which can be problematic for those people who do not have a smartphone or do not know/intend to use it. Apart from this, two-factor authentication via OTP through SMS has been increasingly reported as insecure in recent years (Lei et al. 2021), which exposes SPID users who choose this mode of access for Level 2 to greater risks (compared to users accessing via an app).

The choice of IdP, registration and recognition are thus activities that require the user to make cognitive efforts (to inform themselves about the choices by comparing the existing alternatives) and the availability or 'production' of a series of elements (scans, e-mail boxes, SIM cards, app store accounts, webcams, etc.) that may cause difficulties of various kinds. Think of people who are unfamiliar with the IT world and the software and hardware devices connected to it, people with reduced mobility or cognitive handicaps, or more simply language barriers (IdP portals are only in Italian). For this reason, and in support of this hypothesis, it is not surprising that one of the most widespread practices among people who find it difficult to create (and as we shall see, also to manage) a SPID is to turn to people in their own relational circle who can offer the necessary technological equipment or support. In this sense, the digital support desk at which the observations took place is but a (rare) formalization of such widespread informal practice. In fact, one of the people in charge of the desk

often repeated: 'I just do what they [the people receiving help, N/A] should do on their own'. This not only provides food for thought on the actual organizational 'efficiency' of SPID and the amount of activities delegated to citizenship through digitization, but also shows how people who have physical, linguistic or cognitive difficulties, or who lack the technological (devices), connective (network access, e-mail account, SIM card) or cultural (technical and IT knowledge) capital necessary to carry out the required operations, compensate for this lack by drawing (if and when possible) on their social capital. In turn, this means that people who do not have any of these forms of capital (including social capital) are in practice excluded, or at least heavily marginalized, by SPID. This is well summarized by the experience shared by a SPID Facebook page user through a post on the page:

My father is 91 years old, has many motoric difficulties and lives in a nursing home. To activate a SPID for him I started by enabling his CNS at the ASL, then, by using a specific Usb reader I bought on Amazon, connected to the computer, I registered him with a new email address I created and a SIM card I specifically bought for him, I used the CNS to verify his identity from my home through one of the IdPs, now, once his identity has been verified through the CNS I no longer need a PC and reader and I manage everything via the IdP's app (on the smartphone from which I already manage four other SPID IDs, all with different IdPs) and I use it by logging in without needing my father's presence, or his CNS card!

*(FB user post on the SPID official FB page)*

As we can see, in this illustrative case, someone produced a SPID identity on behalf of his father (evidently not in a position to produce it autonomously) by drawing on his own resources (time, devices, connections and accounts) and

incurring costs. This excerpt highlights both the materiality, resources and skills that the user must provide for the activation of a SPID, and the (improper, since it not legally envisaged)<sup>115</sup> practice of individuals producing such an identity for third parties (since as the excerpt denotes this can take place without the person concerned being physically present<sup>116</sup>), but, at the same time, it also highlights two other fundamental aspects of SPID, namely its 'management' and its 'usage', which in this case clearly infringe the 'formal obligations' to which SPID identity holders are subject.

#### 5.4.4 Managing and using a SPID identity

Using a SPID 'simply' means accessing service providers' websites, most of which require level 2 SPID credentials. As already mentioned, SPs can be accessed with SPID level 2 mainly in two ways: by using smartphone applications provided by IdPs (through which it is possible to generate an OTP or to scan a QR code appearing on the SP's login page) or through OTPs sent by the IdP via SMS<sup>117</sup>. The IdPs' applications require an access code (or other forms of authentication, such as facial recognition or fingerprinting) and allow access to the SPs' portals an unlimited number of times (via QR code or OTP), whereas

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<sup>115</sup> SPID does not provide for a system of delegation, so it is not possible to act on behalf of third parties using one's own SPID, nor is it envisaged that third parties will act online using someone else's SPID, which remains a strictly personal tool. At present, only INPS and Agenzia delle Entrate provide procedures for activating digital delegation, but these are only valid for the individual service provider.

<sup>116</sup> Identity theft and impersonation were also emphasized as the biggest risks of such a system during the interview by the state official who had worked on SPID's development.

<sup>117</sup> As already mentioned, DPS offered by SPs can also be accessed by using the CIE 3.0, which encompasses the use of a smartphone with an *ad hoc* app installed and an NFC reader.

access via OTP sent by SMS is limited (at the Id provider's discretion). This, as can be seen by looking at the following posts on the SPID FB page, is not always clear to users, may vary over time at the discretion of the IdP, and may, if one doesn't have the IdP app, lead to the impossibility of accessing the needed DPS, thus generating public service access discrimination:

Are the text messages for OTPs one can receive limited? It's telling me: 'you have finished the number of SMS accesses available to you. You can now access only via the PostelID app' ... but I can't. I'm not able to use it... Now what?! I can't access my electronic health record!

*(FB user #7)*

I've run out of OTP SMSs to access INPS (social security, N/A), I have no intention of downloading any app on a smartphone I do not have and do not intend to buy, to me this is an unacceptable form of discrimination!

*(FB user #19)*

In addition to this, the issues raised by the limitation of OTP codes sent via SMS also clearly emerge from the words of one of the persons working at the digital support desk where the observations took place:

[...] the problem is... you can resort to different forms of access to SPs via SPID, but the one with the OTP via SMS works three, maybe four times a quarter and then it doesn't let you log in anymore! That is, you can no longer enter your e-mail and password and receive the code for double authentication via SMS... So you must have the app, the problem is that not everyone knows how to use it because you have to scan a QR code, and that's if you have a computer, if you don't have a computer it's a mess because you have to switch from one screen to another on the phone... and people who aren't used to use smartphones really don't know how to do this!

*(counter assistant #1)*

All three of these excerpts emphasize how inequalities in access emerge in relation to one's technological endowment or ability to use digital devices. In general, then, this situation highlights how the mediation of access to public digital services through private IdPs can result in discretionary choices on the part of the latter, which, in practice, result in discriminatory and unequal treatment of the citizenry regarding access to public online services. One of the 'creative' practices recommended by FB users to cope with this situation is to activate multiple SPID identities with different IdPs, so as to be able to sum up the OTPs via SMS that the individual IdPs make available, a solution that is in any case a contrivance that, looking at the procedures for creating a SPID, requires effort and can be anything but easy for those very people who would need more OTPs via SMS. Once again, the most common solution to dodge the problem is to turn to relatives and friends for help (or if there is one, to a support desk, bringing along - if one has one - one's mobile phone or smartphone<sup>118</sup>), in which case, however, one must be aware that 'assisted' and 'assistant' must have SPIDs activated with different IdPs, since it is only possible to manage one identity per app (see FB user excerpt #23 in the previous section). For example, it is not possible on the same smartphone to use two SPIDs activated with the IdP TIM ID, as two identical IdP apps would be required on the same device. One solution 'devised' by users in this regard is to use apps, such as 'Parallel

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<sup>118</sup> Very often, people in need of assistance went to the counter without a mobile phone or smartphone and could thus not be assisted. This underlines how in SPID, formal identity and access to public services become an element linked to the endowment of specific technologies rather than to one's physicality.



Space' (available only for Android), that 'duplicate' the desktop of their smartphone thus enabling the use of two identical apps for the management of two SPIDs with the same ID provider. Another solution proposed by some is to download software on one's PC that simulates the Android smartphone operating system, thus being able to download ID providers' apps directly onto one's desktop without having to use a smartphone. Evidently, both 'solutions' require a high degree of familiarity with the digital world, and thus do not seem to offer a viable alternative for people who already have difficulties with much simpler operations, while they may 'work' for those users who do not want to buy/use a smartphone for personal (political, ethical, etc.) reasons<sup>119</sup>.

Beyond the features of the procedures (or scripts) concerning access to SPs and the management of credentials mentioned in the previous section, another aspect relating to the management of one's SPID concerns the updating of data, credentials and documents relating to one's profile (see section 3). For instance, the SPID password (which is required if access is made by means of an OTP via SMS, but not if access is made by means of an IdP app) expires every 180 days and must be changed accordingly (always in compliance with the IdP's security criteria), and whenever the document used during registration expires (or is lost), the SPID profile in question is suspended and it is necessary to enter the details of the new identification document. Other data that must be updated in the event of a change are: telephone number, home address and e-mail address. Once

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<sup>119</sup> See, for instance, the following discussion on 'personal reasons' held on the official AgID forum: <https://forum.italia.it/t/spid-e-condanna-a-dover-possedere-uno-smartphone/25927/176> (last accessed: 20/08/2022)

again, these are small activities that can be easily carried out by most people, but which, like many of the other activities described above, may be difficult for others to implement (or understand), as also illustrated by the words of one of the counter operators:

*If you once understand how to do things, it really takes you five minutes... and if you have the right tools of course, otherwise it's a mess, a maze... you may spend whole days trying and not solve anything!*

*(counter staff)*

In this sense, referring again to the concept of user configuration, SPID presupposes that its users are equipped with a whole series of objects and technical capabilities, that they engage in a series of activities, and that they have already activated other kinds of profiles (e-mail accounts, app store accounts, ...). In the presence of these elements, SPID may indeed be a tool that facilitates the relationship between citizens and institutions, otherwise SPID may, as we have seen, take on the appearance of a 'digital maze' that is far from efficient. Apart from this, SPID is in any case based on the outsourcing of activities related to the concept of formal identity, both because the management of SPID identities is delegated in its entirety to the IdPs, and because it is the citizen who has to activate and consequently engage in a series of activities for the production and management of his or her digital identity, making available his or her own time and resources, as summarized by the following comment made on SPID's FB page:

"... so, let's spend: PC, printer, smartphone. all state-of-the-art and up-to-date (including connection) and... time! Then sometimes we must also pay a little something... we have

become public offices ourselves, hired for free and above all involuntarily by an increasingly absent and less and less available PA."

*(FB user #71)*

In the best of cases, therefore, SPID is a system configured in such a way as to delegate to citizenship the performance of a whole series of activities, in the worst of cases, it turns out instead to be an obstacle that creates new forms of inequality linked to technological elements and personal characteristics previously unrelated to the concept of formal identity and the relationship between public institutions and citizenship. In fact, in comparison with other, less stringent forms of digital identification, such as the profiles needed to access social media or shopping platforms, the SPID system sets up a net of actions, required skills/knowledges and necessary devices/accounts that may lead to the exclusion of citizens from the use of DPS.

Based on the data presented so far and other data that could not be presented for reasons of economy of the text, we will now move on to some concluding remarks.

### *5.5 Concluding remarks*

Looking at the (technological, cognitive, procedural) elements and practices involved in the assemblage underlying the operation of the Public Digital Identity Service (SPID), it was possible to observe how this formal identity management system is based on a specific configuration of users, which, in addition to requiring that users 'produce', use and manage their digital identity

autonomously by engaging in various activities, SPID presupposes that its users are equipped with technological knowledge and a set of endowments. Indeed, if SPID proves to be for some a truly 'efficient', secure, user-friendly, and therefore 'advantageous' tool, for others it can turn into a digital maze that leads to the exclusion of such advantages in arbitrarily discriminating ways. This not only highlights how digitalization processes may contribute to an increasingly marked outsourcing of public activities and functions (think of the role played by IdPs), but also shows how the delegation of these functions and activities is based in the case of SPID on the active involvement of citizens and their private resources (time, money, devices, relationships and sometimes creativity), as well as on the existence of pre-existing 'infrastructures' (telephone network, Internet network, e-mail providers, app stores, pharmacies, etc.). In return, the unequal presence of these elements (which can be traced back to individual or territorial causes) translates into unequal accessibility of public online services by citizens and thus into emerging forms of exclusion and marginalization that cannot be overlooked, especially if seen in the light of the prospects that see a future increasingly digitalized PA, with public services provided according to the logic of 'digital first' or 'digital only' (Baskerville et al, 2020; Poole et al., 2021).

If some of the inequalities that define these new forms of exclusion and marginalization - unavailability of devices, IT knowledge, internet connection or social support networks - can be traced back to the well-known concept of the 'digital divide' (Sartori 2006), broadening this concept, other inequalities

generated by SPID seem to be linked to elements that we could define as 'connective', that is to say, to resources needed to be fully connected to contemporary digital infrastructures (e-mail account, app store account, digital signature, SIM card, online banking), or to managerial capacities needed to take care of institutional relations by orchestrating and connecting different elements belonging to both the physical and 'digital' worlds (paper documents, OTP codes, QR codes, verification e-mails, electronic seal, profile data, webcams, smart-card readers and so on).

In order to cope with such forms of marginalization and exclusion, many individuals turn - as seen through the data presented - to the knowledge and resources of people in their own relational circle or, alternatively, and when present, to 'digital' support desks of various kinds. The digital divide and 'connective' inequalities are thus in a sense compensated for by activating one's social capital. In this sense, the population groups that already experience situations of marginality, risk to undergo particularly harsh forms of exclusion from the SPID system and thus from the use of digital public services. At the same time, precisely these population groups could benefit from a simplification of their relations with public institutions. Beyond this, the widespread practice of turning to third parties in order to carry out 'formal' procedures and requests online using one's SPID exposes individuals to risks (impersonation, fraud, identity theft) to which people with good technological equipment and knowledge are less exposed. Moreover, having to turn to third parties, even when

these are well-intentioned, means having to accept the fact that one's personal data, sometimes very sensitive, are exposed. At the support desk, for instance, mothers wanting to enroll their children in kindergarten were asked very sensitive questions about the child's father data (foreseen by the enrollment procedure one should fill out autonomously); for those answering there was no father (and thus no need to insert his data), the next question foreseen by the procedure was about the cause of his absence, with possible answer options such as "dead", "incarcerated", "lost parental authority" and so on. While formally data privacy is guaranteed – as a SPID should *only* be used by its direct owner, and thus such forms of help are not foreseen, informally, people turning to others for help with DPS may undergo forms of 'data humiliation', as they have to expose very sensitive personal information (to friends, relatives, or as in this case, complete strangers<sup>120</sup>) to access a digital public service. On the other hand, some individuals run the risk of becoming managers of multiple SPID identities of people in their own relational/parental circle, taking over the relationships that the people they assist should autonomously have with public institutions, and thus transforming themselves through the commitment of their own time and resources into sort of individual public counters.

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<sup>120</sup> It is important to notice that the persons giving support at the help desk where the observations have been made were not official public servants, and as such, not subject to the strict data privacy regulations public servants are subject to when managing sensitive citizen data. In fact, at the end of every individual 'help session', the assisted person was asked to sign a release for the processing of their sensitive data. In other cases that came to my attention, counters were organized in an 'informal' manner and often assistance with the creation and management of SPID and access to online services was provided for a fee, exposing the assisted people to even more risks.

In conclusion, through an analysis of SPID, through this chapter we have attempted to bring out how the digitalization of formal identity and the practices connected to it involve technologies, knowledge and activities previously unrelated to the relationship between citizenship and public administration, generating new risks and new forms of exclusion based on what we could define as 'connective' inequalities (Bruni and Esposito, 2022). We have seen how this occurs in relation to the SPID system's functioning and the configuration of users that characterizing it, but especially in relation to the multiple activities this system delegates to the citizen/user. As we will also see during the next chapter, much attention is currently being paid by AgID to the *accessibility* of PA platforms, sites and portals<sup>121</sup>, less importance seems instead to have been given to this concept in the setting up and current management schemes of SPID, the main tool for *accessing* the aforementioned PA digital interfaces. Even considering the limitations of the research presented here, the data collected seem in fact sufficient to suggest that in the transition from street-level bureaucracy to screen-level bureaucracy it is of fundamental importance to pay attention to the way in which citizens are configured and progressively transformed into users. A kind of attention that must be necessarily given to implement PA digitalization policies in such a way to avoid that the much-vaunted 'efficiency' and 'efficacy' do not actually translate into new risks and new forms of inequality, exclusion, and marginalization.

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<sup>121</sup> See also <https://www.agid.gov.it/it/design-servizi/accessibilita/linee-guida-accessibilita-pa> (last accessed 20/08/2022).

<div>novità</div> <div>PRIORITY</div>	CLASSICO
<div>7.99€ iva inclusa</div> <div></div>	<div>Gratuito</div> <div></div>
<div>Primo appuntamento disponibile: 29 Giugno 2021 alle ore 09:30</div>	<div>Non ci sono appuntamenti disponibili</div>
<div>Identificazione entro 5 giorni lavorativi</div>	<div>Identificazione entro 10 giorni lavorativi</div>
<div> Per ottenere l'appuntamento proposto dovrai completare la procedura <b>entro 15 minuti</b></div>	<div> Per ottenere l'appuntamento proposto dovrai completare la procedura prima possibile</div>
<div>Scegli &gt;</div>	<div>Scegli &gt;</div>

Figure 5.1: The different available options for webcam recognition offered by one of the IdPs (elements in red added by the author, screenshot taken 28/06/2021).



## Con quale metodo vuoi identificarti?

Seleziona uno dei seguenti metodi e aggiungilo al carrello

DA CASA	⌚ 10 minuti circa
 Firma Digitale	GRATIS

DA CASA	⌚ 10 minuti circa
 Carta Nazionale dei Servizi (CNS) 	GRATIS

DI PERSONA	
 Presso un InfoCert Point	PIU' SCELTE DISPONIBILI

DA CASA	PROMO	⌚ 10 minuti circa
 Documento elettronico	<del>29,90 €</del> > 14,90 € + IVA	

DA CASA	⌚ 10 minuti circa
 Video riconoscimento	29,90 € + IVA

Figure 5.2: The different identity verification options offered by one of the IdPs (the option 'presso un InfoCert Point' only includes options that foresee a payment)

## 1. Carica il FRONTE del documento

Hai dubbi sul verso del documento? [Vedi esempio](#)

**FORMATI:** pdf, doc, tif, tiff, jpeg, jpg, png **PESO MAX:** 3.5MB

SCEGLI UN FILE

↑ Puoi anche trascinare il file in quest'area

## 2. Carica il RETRO del documento

**FORMATI:** pdf, doc, tif, tiff, jpeg, jpg, png **PESO MAX:** 3.5MB

SCEGLI UN FILE

↑ Puoi anche trascinare il file in quest'area

**Attenzione!** Puoi caricare solo immagini **a colori** dei documenti richiesti.

Figure 5.3: the requirements one of the IdPs imposes for the Id scans that must be handed in during the registration phase, elements in red added by the author.

**Registrati a PosteID abilitato a SPID**



Con SMS sul tuo numero cellulare certificato

>



Con Carta Nazionale dei Servizi o Carta d'Identità Elettronica attive

>



Con Firma Digitale

>



**Se non hai nessuno degli strumenti elencati**  
inserisci i tuoi dati online e vai in un ufficio postale  
Il servizio di identificazione prevede un costo di € 12 che potrai corrispondere in ufficio postale

>

Figura 5.4: The options offered by PosteID on its website for the identity verification phase.



## 6. Conclusions

As we saw in the first chapter of this dissertation, the digitalization of public administration is frequently approached in deterministic, generic, ostensive, and normative manners. For instance, by deeming it as inevitable or by establishing linear connections between the deployment of digital technologies and the achievement of things such as 'efficient' or 'transparent' - and thus 'better' - government. Consequently, this prevailing perspective results in a widespread portrayal of public administration digitalization as a univoque and determined *evolutionary* process. This kind of approaches seek to make public sector digitalization quantifiable, measurable, and globally comparable through the use of tools such as evolutionary models, benchmarks, digitalization scores, and similar metrics. On the other hand, in recent years a growing literature adopting more situated and less deterministic approaches to PA digitalization issues highlights how digitalization develops as a context specific phenomenon encompassing more than just the immediate (in the sense of not intermediated) and passive adoption of digital technologies in PA (e.g., Plesner and Justensen 2018). Through these approaches, PA digitalization is framed as an emergent process which affects much more than just technical dimensions, and the heterogeneity of what hides behind and beyond the synthetic term digital unfolds. In fact, by recognizing the heterogeneity of the technologies we synthetically define as digital, and by stressing not only their technical, but also the societal, organizational, contextual, and relational aspects (and the way these

intertwine) it is easier to conceive processes of PA digitalization as the construction of a whole infrastructure of integrated technologies, practices, projects and services (Bertot et al., 2016), rather than as the pre-determined and passive adoption of this or that digital technology.

Inspired by these approaches and by the analytical sensitivities of neoinstitutional theory and Actor-Network Theory, the research path enacted, and the cases here presented, try to highlight diverse aspects, dimensions and specificities within the past and present context of the growing Italian PA digitalization infrastructure. Guided by two PA digital interfaces as methodological ‘sensitizing devices’ and starting points (see chapter 2), the qualitative and abductive research path enacted led to the analysis of diverse digitalization-related practices taking place within Italian PA affecting diverse kinds of individual and organizational actors, i.e., citizens, the central state, and local PA. Given that each of the empirical chapters already has its own ‘concluding remarks’ section, we will now only briefly summarize the three different cases analyzed to then move to more general conclusions.

Starting with the mainly descriptive historical reconstruction of digitalization processes within the municipality of Bologna, we have seen how PA digitalization can emerge upon situated and contextual factors affecting the way technological opportunities are locally translated into practice. As we have seen, in the Bologna case different separated PA digitalization ‘strains’ have emerged over time, mainly in relation to specific professional cultures present within the

municipal staff and offices, for instance as part of statistical or communicational projects, but also in relation to broader contextual factors (such as the presence of the CINECA, or the post-war migrations). Here, in the absence of national guidelines and laws, digitalization practices took specific shapes in connection with political visions, organizational-administrative reassemblages and individual interests, leading to the use of a heterogeneous set of technologies tied to specific PA practices such as citizen data management, front-office organization or institutional communication. Further, we have seen how organizational efforts and processes of translation have been necessary to integrate and coordinate the heterogeneity of digitalization projects previously taking place separately within the municipality, highlighting digitalization as a deeply organizational – and not merely technical – phenomenon. In fact, the need for coordination, orchestration, and integration to achieve ‘stable’ and functioning digital solutions also emerges by looking at the work enacted by the Agenda Digitale sector not only to harmonize internal projects and technologies among each other, but also to deal with the specificities of ‘external’ actors participating in PA digitalization processes, such as citizen, the central state or external IT suppliers. Moreover, being Bologna considered as a ‘highly digitalized’ municipality, this also shows how the alleged ‘efficiency’ and ‘efficacy’ of digital PA solution is not the predetermined result of the immediate adoption of digital technologies. In fact, it seems that ‘good’ digital PA solutions

(what we could call stable actor-networks, such as the Iperbole platform) emerge out of successful translations of heterogeneous elements into each other.

Looking at the national landscape, through the absence of a historically well-defined state coordination, over time the processes of translation taking place within local Italian PAs took different shapes, generating more or less stable actor-networks and more or less ‘successful’ outcomes throughout the diverse local context, leading to the qualitative and quantitative heterogeneity of the digitalization processes enacted throughout Italian local PA as of today.

As we have seen in chapter 4, to cope with this heterogeneity and to achieve an integrated national PA infrastructure, Italian central state agencies engage in endeavors of institutional entrepreneurship aimed at defining and operatizing their idea of ‘successful’ PA digitalization. Here the use of digital technologies is not only the primary desired outcome of the endeavor, but also part of the ‘toolkit’ used to define and enact PA digitalization policies itself. Indeed, from an analytical point of view, the DTD case tries to highlight how technologies may be enrolled in projects of institutional redefinition, actively participating in forms of institutional work and entrepreneurship. Moreover, we have also seen how, rather than something emerging upon ‘forces’, isomorphism (in this specific case technical isomorphism) may unfold as a desired and intentionally pursued organizational strategy of specific institutional entrepreneurs that may be successful or not. Indeed, as we were able to see, one of the main aims of the DTD strategy is to homogenize and standardize local PA digitalization



trajectories by setting up a net of action that need to be performed by PA bodies in order to get funding. Here, we have also seen how the mandatory use of nation-wide standardized digital tools supporting specific PA practices (such as PagoPA for online payments and SPID for digital identity verification) is part of the statal digitalization strategies and policies.

In the third empirical chapter of this thesis (chapter 5), we analyzed how one of the tools fostered by the central state policies – SPID – affects the interaction between citizen and PA in digital environments. Here, through a detailed analysis of the tool and of the user practices related to it, we have seen how SPID defines a set of actions and procedures citizen need to perform to get, use and manage a SPID identity. This case highlights how digitalization processes may contribute to the outsourcing of public activities and functions to citizens, but also shows how the delegation of these functions and activities may be based (at least in the Italian case of SPID) on the active involvement of citizens' skills and private (also relational) resources. Furthermore, we have seen how, in the case of SPID, the delegation of complex sets of actions to citizen may lead to new forms of vulnerability, marginalization and inequality.

Upon these results, we can see how PA digitalization does not simply build on the passive adoption of one-fits-all technical solutions, but rather on way more complex and fragmented processes of translation participating in the incremental construction of a diffused digital infrastructure involving diverse technologies affecting heterogeneous actors in different ways. By highlighting some of the

aspects, elements and dimensions participating in-the-making of the Italian PA digital infrastructure and their mutual interplay, we have seen how contextual elements and pre-existing conditions may concur in the definition of technical procedures and practices, but also how this depends on the involvement and effort of individual and organizational actors. By highlighting diverse forms of work and activity necessary to bring forth this infrastructure and its construction – such as the articulation work enacted by the Bolognese Digital Agenda sector, the institutional work in which the DTD currently enrolls, and the activities required for citizens to access the infrastructure – we also tried to highlight how PA digitalization relies upon practices and activities that remain, partly or fully, invisible. Basing on these considerations, it seems useful to consider PA as a situated and open-ended infrastructure-building process entailing heterogeneous (not merely technical) elements and to further analyze the different procedures, and elements participating in functioning and construction as to make them visible and available for analysis (and possibly policy planning). Not only for the sake of academic analytical curiosity, but also to critically scrutinize the way the elements and practices participating in the infrastructure may lead to unintended and/or undesired outcomes negatively affecting phenomena of public and collective interest.

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