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The COVID-19 pandemic as a vector for digital transformation in a representative local government: the exploratory case of the City Council of Milan

Master Thesis

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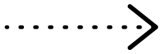
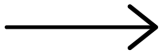
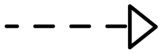
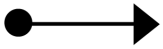
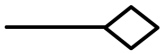
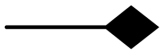
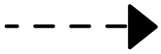
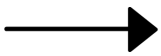
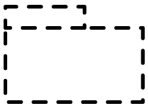
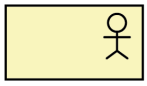
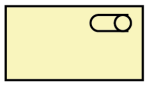
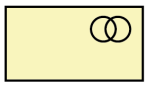
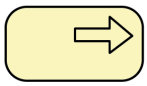
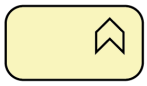
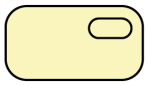
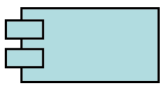
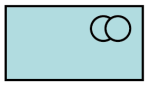
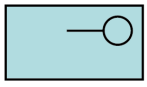
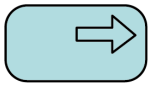
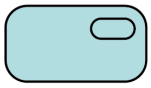
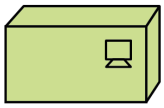
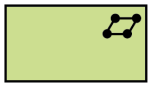
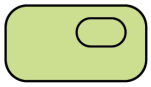
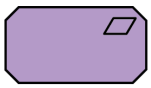
EAM	Enterprise Architecture Management
ICT	Information and Communication Technologies
SaaS	Software as a service
EU	European Union
EA	Enterprise Architecture
EAM	Enterprise Architecture Management
CCoM Milan	City Council of Milan
TEF	Technology Enactment Framework
TUEL	Testo Unico Enti Locali – Main Law for Local Governments

Symbols

Archimate notation

Notation	Concept	Description
	Association	Models a relation between objects that is not covered by another, more specific relationship.
	Access	Models the ability of behavior and active structure elements to observe or act upon passive structure elements, e.g. business objects.
	Serves	models the use of services by behavior and the access to interfaces by structure elements.
	Realization	Links a logical entity with a more concrete entity that realizes it.
	Assignment	Links units of behavior with active elements that perform them, roles with actors that fulfill them or artifacts with system software.
	Aggregation	Indicates that an object groups a number of other objects.
	Composition	Indicates that an object consists of a number of other objects.
	Flow	The flow relationship describes the exchange or transfer of, for example, information or value between processes, functions, interactions, and events.
	Triggering	The triggering relationship describes the temporal or causal relationships between processes, functions, interactions, and events.
	Grouping	Indicates that objects belong together based on some common characteristic.

Notation	Concept	Description
	Business actor	A business actor is defined as an organizational entity that is capabl of performing behavior.
	Business role	A business role is defined as the responsibility for performing specific behavior, to which an actor can be assigned.
	Business collaboration	Business collaboration is defined as an aggregate of two or more business roles that work together to perform collective behavior.
	Business process	A business process is defined as a behavior element that groups behavior based on an ordering of activities. It represents a flow of activities, with one or more clear starting points and leading to a clearly defined result.
	Business function	A business function is defined as a behavior element that groups behavior based on a chosen set of criteria (typically required business resources and/or competences). It offers functionality that may be useful for one or more business processes.
	Business service	A business service is defined as a service that fulfills a business need for a customer (internal or external to the organization).
	application component	An application component is defined as a modular, deployable, and replaceable part of a software system that encapsulates its behavior and data and exposes these through a set of interfaces.
	Application collaboration	An application collaboration is defined as an aggregate of two or more application components that work together to perform collective behavior.
	Application interface	An application interface is defined as a point of access where an application service is made available to a user or another application component.

Notation	Concept	Description
	Application function	An application function is defined as a behavior element that groups automated behavior that can be performed by an application component.
	Application process	An application process is defined as a sequence of application behaviors that achieves a specific outcome.
	Application service	Application services describe the functionality that application components offer to its environment.
	Application interaction	An application interaction is defined as a behavior element that describes the behavior of an application collaboration.
	Device	A device is defined as a hardware resource upon which artifacts may be stored or deployed for execution.
	System Software	System software represents a software environment for specific types of components and objects that are deployed on it in the form of artifacts.
	Network	The physical communication medium between two or more devices. A network is the physical realization of a communication path.
	Technology service	A technology service is defined as an externally visible unit of functionality, provided by one or more nodes, exposed through well-defined interfaces, and meaningful to the environment.
	Requirement	A requirement is a “need that must be realized by a system”. System does not necessarily meanan IT system.
	Constraint	A constraint is “a restriction on the way in which a system is realized”.

The explanation of the symbols were adapted from ArchiMate 3.1 as presented in Enterprise Architecture Management Course, summer term 2019, Prof.Dr. - Ing. Bernd Hellingrath at ERCIS - WWU Műnster

1 Motivation

The Covid-19 pandemic has impacted the functioning of governments all over the world. In a matter of weeks, governmental procedures have been forced to turn toward digital solutions to ensure continuity in their functioning. Governments had to suddenly find new ways to enable politicians to meet, discuss and deliberate. Their response included a sudden switch from physical to digital gatherings for the decision-making procedures at each governmental level, from European Institutions to National Parliaments and City Councils (The Vox, 2020; Tony Blair Institute for Global Change, 2020).

The application of digital technologies to democratic institutions, unprecedented in scale, seemed to realize extensive experimentation of applied forms of digital democracy finally. However, on the contrary of what preconized for a long time by scholars which looked at ICT as a revolutionary mean toward new institutions (Dahl, 1988), their application took the form of an instrumental enhancement of representative democracy (De Seriis, 2020). Nevertheless, this abrupt shift constitutes a precious opportunity to carefully observe a substantive step in the integration of digital means on a practical scale.

Accordingly to Fountain (2001), it is precisely "when environmental shifts occur, including economic, political, or technological shocks, crises or revolutions, that institutions are less resistant to change". The COVID-19 pandemic escalated such kind of a shock to a scale at which can be seen the potential to shake the foundations of long-established institutions. Almost 20 years ago the same author, while presenting her seminal work on the "virtual state" (Fountain, 2001) advanced the proposition that the digital networks would require a much slower pace than what was at the time presented as an "internet speed change" for society. She anticipated that, for a highly resistant institution like government, 25 years would have been a much more appropriate period to finally start to see the results in its complex organizational architecture.

Moreover, other long-term theories about technology-driven change like the long-wave theory on techno-economic paradigms proposed by Carlota Perez (2001) see in the integration of digital technologies in the governing institutions at the core of society a necessary step toward a turning point for the cycle of innovation. She recently situated the COVID-19 pandemic crisis potentially at the beginning of the end for the turning point between the instantiation phase, in which technology disrupts previous institutions, and the synergy phase, in which the nature of the dominant technology is understood and integrated into institutional dynamics to move from a phase of high inequalities to watch she define the "golden ages".

Far from being a predictor of upcoming imminent revolutionary and salvific transformations, these theories help us to grasp the slow pace at which the evolution of institutions are deployed as much as the importance of the historic occasion we are facing. Therefore, learning from each occasion we have how to move forward in the path of integration of digital technologies into governing institutions is necessary.

The institution analyzed in this research is the City Council of Milan. Following the impact of the COVID-19 pandemic on Northern Italy, its democratic organs have been forced to turn toward digital technologies to ensure the prosecution of their activities. Although a traditional, old and even declining in the option of its members, legislative assembly like an Italian City Council can hardly be seen as an example of digital democracy, the practical transformation of its organs into a completely digital form may be an interesting exploratory case study.

A similar case can maybe try to fill the gap in the applied e-democracy studies missing in the academic arena, sometimes considered too focused on proposing newer theories than relying on practical matters (Mulder, 2013; Misuraca, 2018). Nevertheless, in consideration also for the particular conditions and temporality in which the digitalization occurred and in the lack of a theory for representative e-democracies at the local level, the selected theoretical perspective is the more established area of institutional change and technology.

Beside theoretical motivations, the COVID-19 pandemic, in the words of the President of the City Council of Milan, has realized “in a matter of weeks a change greater of what has been done in the decades before”.

This research tries to explore the process and the effects of what can be become a parenthesis, a small step or a significant turning point into the political life of the City of Milan, and of the other representative democracies that faced similar conditions all around the world.

1.1 Research question

The goal of this research is to assess how the City Council of Milan has been able to perform a rapid digital transformation due to the impact of the COVID-19 pandemic and to observe how this transformation has impacted its democratic processes.

Research Question: how has been achieved the digitalization of the City Council of Milan in response to the COVID-19 pandemic?
The research question of this research aims to exploring and describing how has been achieved the digital transformation of the City Council of Milan to understand which dynamics were at work in the enactment of technologies into this institution.

Sub-Research Question: how have been affected the democratic dynamics of the City Council of Milan from the digitalization?

The sub-research question takes into account the motivation for the digital transformation occurred, the preservation of the functioning of the democratic processes. Given the peculiar nature of the institution analyzed, the digital transformation has the goal not to promote a change toward a prescribed direction but to maintain active the political decision-making process merely.

2 Institutions, technology and democracy

2.1 Institutional change and technology

Discussing the process of digital transformation in the CCoM requires a prior understanding of the surrounding critical concepts. The whole idea of transformation implies institution change and better elaborating on what the institutions as social entities stand for is needed in this case. According to North (1994), institutions can be understood as "humanly devised constraints that structure political, economic and social interactions" (p. 97).

The author further argues that the institutions are composed of both informal constraints and formal rules. The former stands for the various restricting measures such as sanctions, taboos, traditions and codes of conduct (North, 1994, p. 97). In turn, the formal rules are laws, constitutions and property rights, according to North (1994) (p. 97).
While various publications attempt to employ their definition of institutions, the key principles remain the same: it is the way they the interactions in the society are regulation. However, the definition of an institution is the subject of controversy. From one perspective, institutions can be understood much more broadly, and include organizations, recurrent patterns of behaviour, social norms and even material objects in their definition (Dimaggio and Powell 1991; Lowndes and Roberts 2013).

Following that further, institutions also from other elements of social reality, in particular, the ideas on the one hand and political actors on the other (ct. Thelen and Steinmo 1992). The reform of this previous institutionalism launches the possibility of re-think the former institutions. Ferris and Tang (1993) discussed the differences between the "old" and "new" institutionalism: while the former "is preoccupied with describing specific political and economic institutions" within the economics and political science dimension, the approaches of the latter have, both theoretically and empirically, a more analytical vector (Ferris &Tang, 1993, p. 4).

Additionally, many institutions are developed as a means of helping individuals to sort out information that is relevant to solving their particular cooperative problems. According to Langlois (1986), while institutions help individuals to overcome bounded rationality by reducing the cognitive demands placed on individuals, they affect the way how individuals make decisions.

Institutions have been variously defined in terms of governance structure (Williamson 1985); humanly devised constraints that shape human interactions (North 1990); rules that prescribe which actions are required, prohibited, or permitted (Ostrom 1986); and legitimized social grouping (Douglas 1986). However, institutions are not the only contextual variables that affect situations faced by individuals. Geographical and cultural

factors also play an essential role in how these institutions are shaped (Ferris & Tang, 1993).

Ostrom, Schroeder and Wynne's (1991) underscore the importance of information and related transaction costs in evaluating various institutional arrangements and their performance in sustaining rural infrastructure in developing countries (Ostrom, 1991). Ferris and Tang (1993) give an example that the central government could be more successful in the looking for scientific or technological information needed to solve a problem, while the people that live in the place where the problem is occurring is more effective in obtaining the information time and place-specific.

In the light of the academic debate commonly contrasting various theories on the institutionalism, it particularly illustrates the overlap between the two leading theories of institutional change: punctuated equilibria theory and the incremental change theory, instead of merely combining those (Koning, 2015, p. 658). By doing so, Koning (2015) aimed at complementing the former by incorporating the latter, which allowed a more insightful view on the "underlying causal mechanism" (p. 659).

Endogenous vs exogenous change

Because institutions are studied considering their dynamic environment, depending on the nature of the institutional change, two types are commonly identified: endogenous vs exogenous change. The former stands for the processes that take place within the institution, while the latter describes the change that happens are the result of the external world impact (Koning, 2015).

The changed influences by the outer-world factors is of interest to this study. Koning (2015) distinguishes three types of the external change, based on the source of this change: a difficult-to-predict event, creating a large-scale institution or "a large-scale development in a society's structural characteristics" (p. 657). Following this division further, it is crucial to map the origin of the change precisely.

To better illustrate various facets, which comprise the exogenous institutional change, the following figure is used.

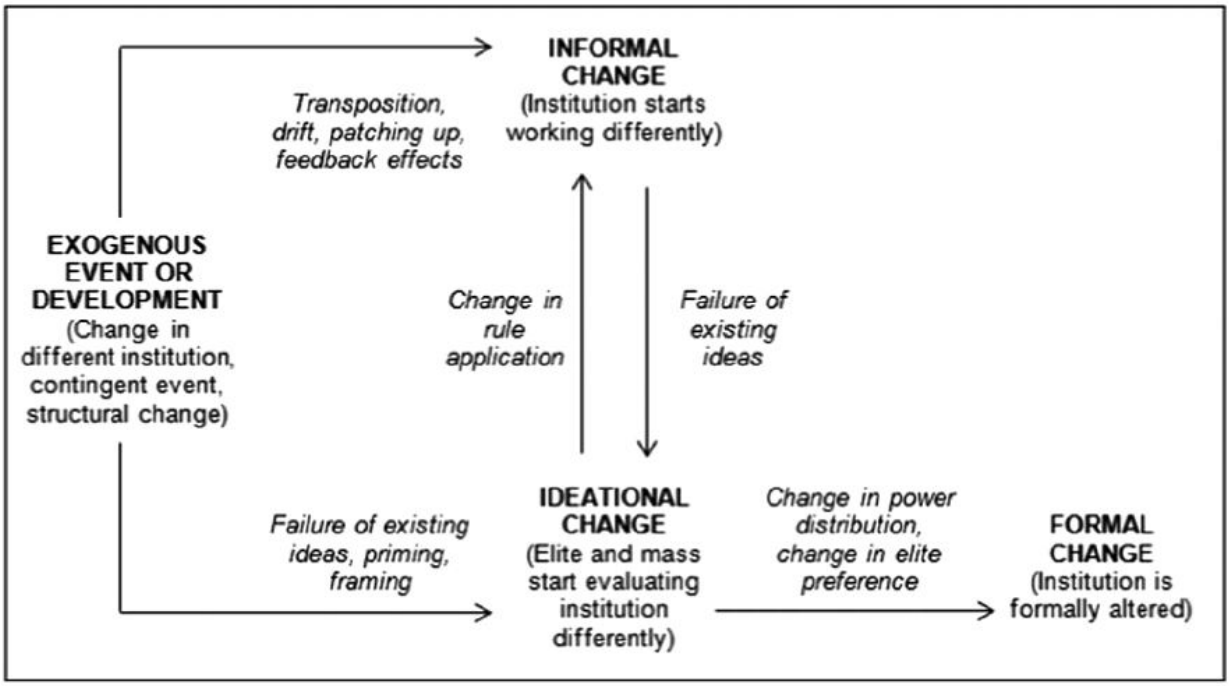


Figure 1. Integrated model of exogenous institutional change by Koning (2015)

This model suggests having a formal change, i.e. a change when the institution is formally altered. Within the context of this research, it is of utmost importance, as the research question suggests.

2.2 Technology Enactment Framework

As a part of the transformation process, technology plays an essential role within this change. This section will focus on the Technology Enactment Framework (TEF), the main theoretical background selected to conduct the case study about the digitalization of the CCoM. A short general introduction is followed by a more detailed analysis of its components and a relevant addition concerning the role of actors.

The TEF has been proposed to drive the exploration and examination of change in governments induced by ICT-based transformations (Fountain, 2006). The perspective adopted sets the focus on a dynamic process, in which the outcome cannot be predicted merely based on the input. In Fountain's view, mutual impacts between the institutions and technology are complex and highly interdependent, rather than are sequential and straightforward (Fountain, 2006).

The TEF, therefore, invites "to reverse the direction of the causal arrow that lies between technology and structure to show how the embeddedness of government actors in

cognitive, cultural, social and institutional structures influences the design, perceptions and uses of the Internet and related IT" (Fountain, 2001, p.).

The TEF has been proposed alongside the precognition of a Virtual State, in which the government is increasingly organized around ICT networks, based on the Internet. Fountain (2001) stressed out that such new organizational form is not pre-determined by the characteristics of the technology but depends on the way it is enacted in an institutional and organization context. An authoritarian State in the example can use the Internet to increase its surveillance capability while a democratic State to enhance citizens participation. ICT is considered an endogenous variable dependent on organizational arrangements in terms of design, development, implementation and use.

Such intense focus on organizational structures, including "soft" structures like behavioural patterns and norms, gives a considerable value to the TEF in the analysis of technology in political and administrative settings (Hoff and Scheele described, 2014).
The theoretical precursors of the TEF are social constructivism applied to technological development, history of science, sociology of technology. The novelty in this approach was the "synthesis of organizational and institutional influences, a focus on power and its distribution, a focus on the dialectical tension operating between bureaucracy and network" (Fountain, 2006).

A fundamental concept at the core of the TEF is indeed the concept of "embeddedness", developed by Granovetter (1985); or the idea that economic action is embedded in ongoing social structures and social relationships both for individuals and institutions. The TEF building on this perspective emphasizes the influences of certain organizational actors that may "implement new information technology in ways that reproduce institutionalized socio-structural mechanisms […] even when leading to suboptimal use of technology" (Fountain, 2001)

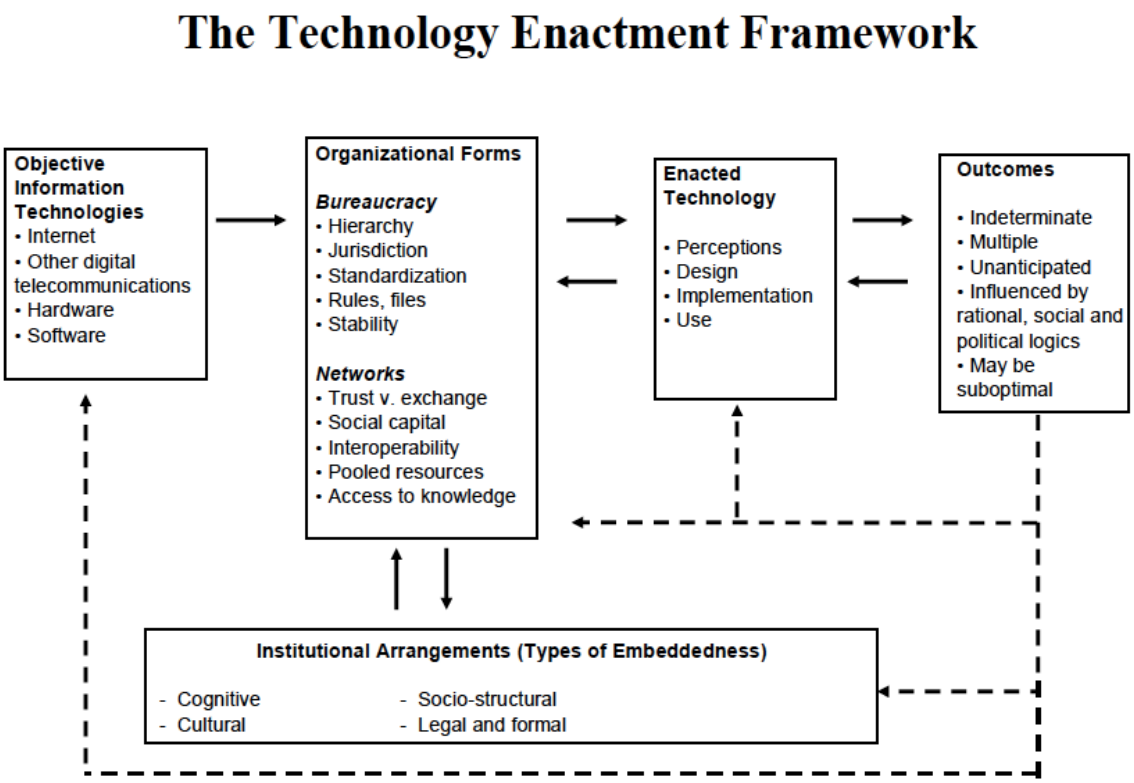


Figure 2. The Technology Enactment Framework retrieved from Fountain (2001)

The technology enactment framework illustrated above is composed of five main components and their relative interconnections: objective technology, organizational forms, institutional arrangements, enacted technology, outcomes.

Notably, a clear conceptual distinction is posed regarding "objective" and "enacted" technology. In the proposed framework, "objective" should be understood as a collective term for technology "as they exist apart from how people use them". At the opposite, "enacted" refers to how the actors in the organization use the system (Fountain, 2006). Thus, technology itself is conceptualized as distinct from how it used and opened to different possible enactments.

Organizational forms are also clearly distinguished from institutional arrangements. The latter ones, i.e. legal, social, cognitive and cultural "constraints for choices", influence the enactment of technology only through the mediation of bureaucracy and networks embodied in organizational forms.

Finally, the outcomes are the result of the reciprocal chains of interaction with enacted technology and organizational forms, and those outcomes influence all the other components indirectly. In the following paragraphs, these components will be briefly presented in a more detailed way.

Objective information technologies

Among objective technologies are the internet, hardware, software and any other ICT. In the TEF, the internet is a mere "spinal cord" for communications which potential as transformative technology rely on its capacity almost to annihilate communication and coordination costs and support a vast array of uses (Fountain, 2006).

Henceforth, a specific technology can be conceived to perform a vast number of functionalities that are then almost wholly ignored in use or even be employed for unpredictable further functions.

As noted by the author, "the flexibility, decomposability, and functionality of the web and related information technologies mean that a system's objective characteristics may differ substantially from those that are used" (Fountain, 2001, p. 89).

Organizational forms: bureaucracy and networks

Organizations are technical instruments in which "products or services are produced and exchanged in a market and in which rewards are given for effective and efficient control of the work process" (Fountain, 2001)."

Fountain (2001) also suggests that organizations remunerate, efficiency, effectiveness and control over the production and are distinguished between bureaucracy and networks

Institutional arrangements

Institutions generate rules and requirements to which actors and organizations must conform if they are to receive support and be deemed legitimate in their authorizing environment. They reward normative requirements for appropriateness and legitimacy and, in some cases, conformity to the procedure, presentation, symbols, and rhetoric.

Enacted technology

Enacted technology consists of the perceptions of users as well as designs and uses in particular settings. In this manner, Fountain (2001) argues that "the flexibility, decomposability, and functionality of the web and related information technologies mean that a system's objective characteristics may differ substantially from those that are used" (Fountain, 2001)

Outcomes

As a result, from the complex interaction and the mediation of non-deterministic variables, the outcome is generally considered unpredictable, and indeterminate.

Nevertheless, they are the result of technological, rational, social, and political logics that can be observed through looking at processes of enactments.

2.2.1 Actors integration

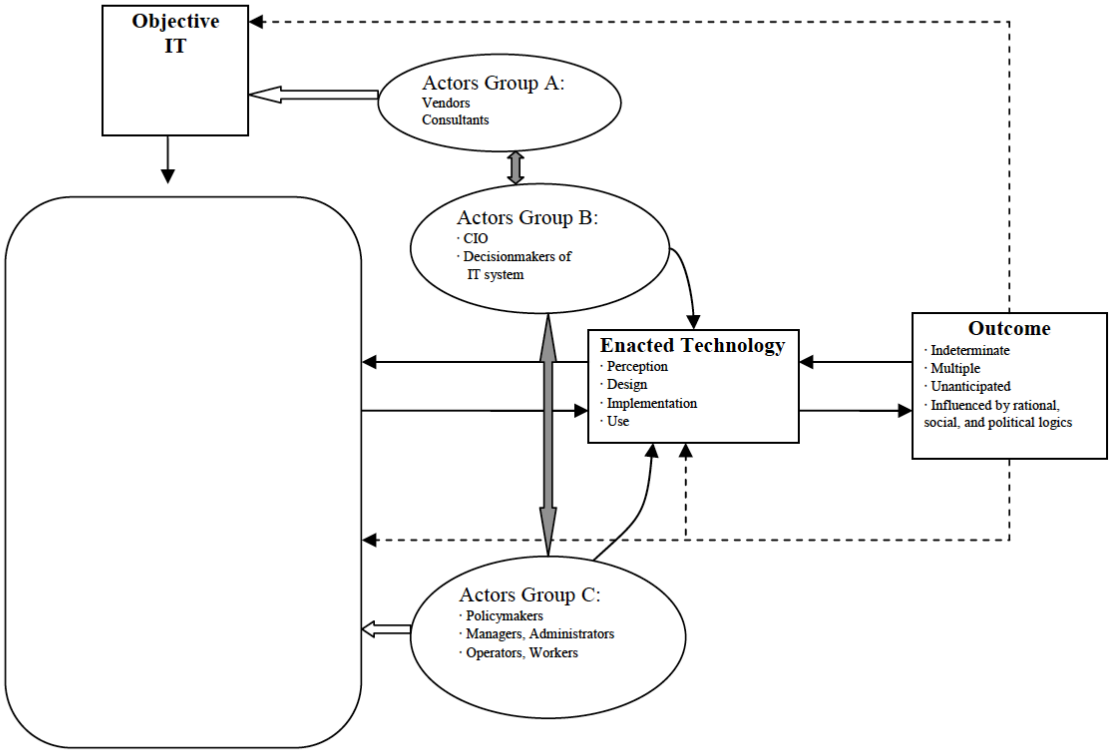


Figure 3. Key actors in the Technology Enactment Framework revisioned by Hirokazu Okumura (2004)

A main critique outlined how the Technology Enactment Framework fails to show the role of actors in the process of embedding technology correctly. In particular has been considered neglected the potential role of elected politicians, civil servants, and citizens for the development of more democratic governance (Yang, 2003).

As a response to these critiques, while translating the model, Hirokazu Okumura revised the framework introducing a three partitioned categorization of actors. Actors in group A are external vendors and consultants form the government "industry" area. Actors in group B are IT specialists internal to civil service, including chief information officers and other key IT decisionmakers. Actors in group C are policymakers, managers, operators from all different level of governments. Among this last group of actors, development of expertise in strategic use of ICT to create a bridge between technological, political and strategical logics (Fountain, 2006).

Direct influences on the objective technology is a prerogative of the actors in group A, which interacts with actors in group B. Actors in group B, therefore, cover the crucial linking role between vendors of IT and decisionmakers in group C.

Another relevant critique stressed out how the Technology Enactment Framework it missed out to consider theories of Socio-Technical Systems (STS), in which technical and social systems are separated but ontologically inter-dependent (Norris, 2003). While from a theoretical point of view this critique is correct, it does not undermine the general implant that sustains the usefulness of the Technology Enactment Framework.

2.3 Institutional legitimacy and democracy

Institutions cannot be look in isolation. They were seeking to provide more clarity regarding their perception by people. This chapter outlines the fundamental notions related to institutional legitimacy and democracy.

According to Black (2008), achieving compliance with government policy and regulation by citizens requires significant levels of acceptability and credibility of decision-makers and political institutions as a whole (Black, 2008). In other words, the people's perception of the legitimacy of the political regime builds the basis for a robust democratic process and ensures its effectiveness.

Legitimacy is often defined in terms of acceptability and credibility, as already mentioned above. Being a multi-dimensional concept, it can be assessed context-specific constitutional arrangements, ideology, discipline and other variables again, according to Windholz (2020). He also elaborates that in the light of the recently unfolding pandemic, special attention was dedicated to the perception of legitimacy in its legal and normative terms.

On the one hand, legal legitimacy as the legitimacy of the political institutions, processes and actions, entrusted in the political regime by the constitutional law, has a significant impact on individual actions. In this context, higher legal legitimacy during the healthcare crisis could help to ensure compliance with imposed restrictions on individual and commercial freedoms. Their legitimacy, in this respect, is set utilizing democratic political processes (Windholz, 2020). On the other hand, the normative aspect of legitimacy, assessed through the lens of a normative set of criteria, is another crucial aspect of acceptability and credibility of imposed COVID-19 policies. This approach allows citizens to evaluate the effectiveness, efficiency, fairness, consistency, transparency and other vital aspects of public policymaking. In this respect, it could account for an explanation of compliant and non-compliant behaviour (Windholz, 2020).

All in all, legitimacy is a broad term applied in a political science context to determine the acceptability and credibility of legislative and executive actions of a democratic government. There are, however, various aspects to legitimacy, which allow assessing the credibility of fundamental democratic properties. Legal legitimacy, for instance, characterizes acceptability of political decisions, decision-making processes and particular actions and responses of the decision-makers. In what follows, this aspect of democratic legitimacy will be discussed in further detail.

Procedural democracy: for the importance of following procedures and rules

The legal legitimacy of democratic regimes has been believed for a long time to be entrenched into the nature of democratic decision-making. Thus, Saffon & Urbinati (2013) adopt the definition of democracy by Kelsen and Bobbio, which highlights the "procedural rules, determining who can make political decisions and what guidelines should be followed in making those decisions" (Saffon & Urbinati, 2013).

In the procedural view, the democratic regime has to adhere to a specific set of criteria, reflected in the organization of the political process. Most crucial to this thesis are the engagement of minorities in political decision-making and the non-triviality of democratic rule.

Role of minority

Principally, political minorities are crucial actors, not mere subjects of lawmaking. Without them, it is difficult to fully imply democracy, since majority rule requires a minority counterpart. The minority does not only obey the majority's decisions but also critically analyzes and challenges them in many cases, thereby contributing to their making.

As Kelsen put it, "the will of the community, in a democracy, is always created through a running discussion between majority and minority, through free consideration of arguments for and against a certain regulation of a subject matter". Hence, political minorities must always exist, and their rights be must always be protected. This is ensured by equal political participation, as argued by Saffon & Urbinati (2013).

Role of non-triviality

All the above features only make sense if democracy channels and decides most of the significant conflicts existing in society. According to Kelsen, the very presence of nowadays, democracy depends on whether or not the parliament can be a suitable mechanism for addressing the problems of the present-day society. If the most relevant decisions of society are taken outside of it, despite the formal operation of democracy, democracy becomes trivial (Saffon & Urbinati, 2013).

Democratic procedures, which are respectful of the minority interests and which possess a non-trivial power, build a basis for the legal legitimacy of political decisions in a democracy and, thus, ensure high credibility and acceptability of legislative and executive orders among citizens. They also propose considerations for digitalizing democratic procedures, both inside the democratic institutions and in the state-citizen dialogue.

2.4 Technology Enactment Framework for democratic assemblies

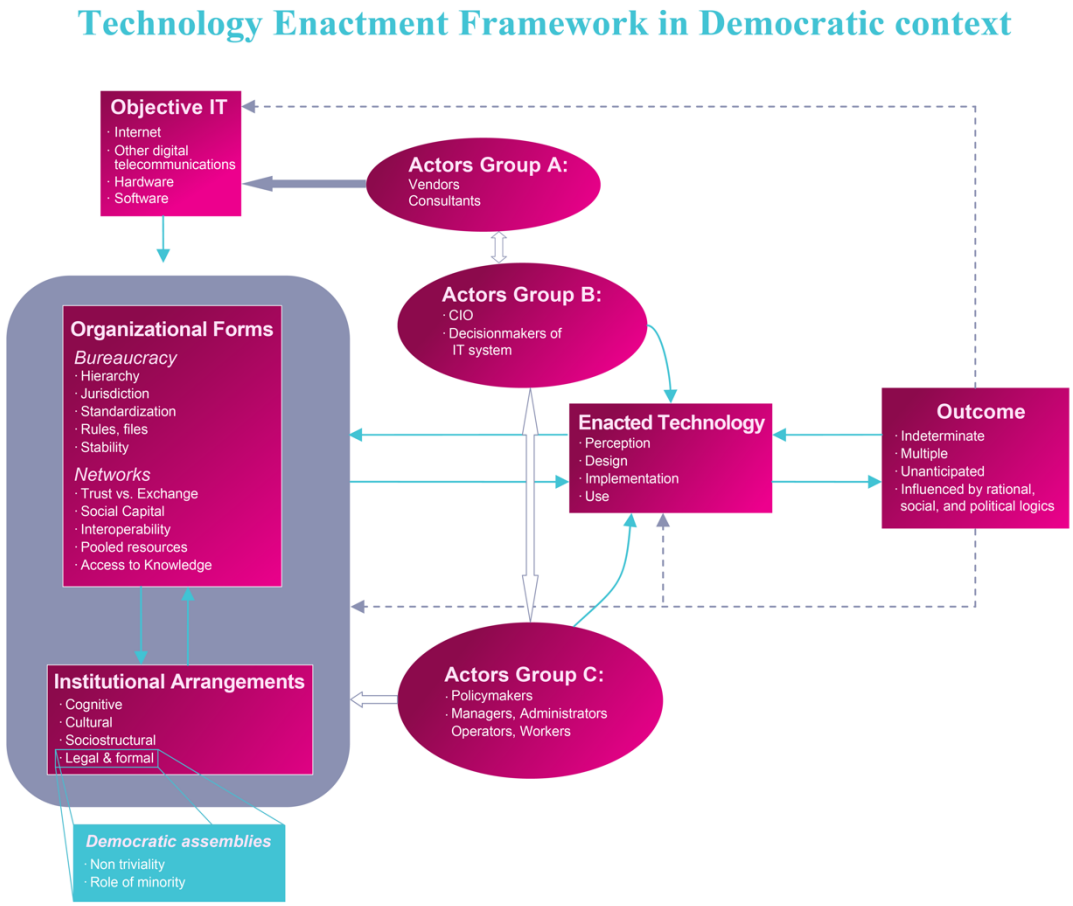


Figure 4. The Technology Enactment Framework in a democratic context, adaptation by the author

The proposed framework for this study is depicted in figure 3. It consists in the Technology Enactment Framework with a specific focus on the principles of democratic assemblies, incorporated in the Institutional Arrangements section.

A first reason is of course the capacity to fit appropriately a focus on democratic values into an already existing and solid framework for institutional change. The change occurred to the City Council of Milan is indeed a rare occasion in which such a

traditionally established institution has to face a strong technological exogenous stimulus. The internal distribution of power may vary considerably and is important to take it into account.

The second reason to select this framework is the holistic vision on organizations it entails. All the different actors, politicians, administrators, technicians, while perform in a variety of roles moved by different motivation, they all belong to the same institution with a strong identity. The single components are aware they compose a coherent unity this framework may help to capture appropriately.

The third reason is a strong emphasis on the unpredictability of the output. It is extremely important to not envision technology innovation as a linear process especially when politics is directly involved. In an exploratory research concerning a political institution it is important to keep open the door for contrasting visions.

A fourth reason is the clear distinction between objective and enacted technology. In an emergency context the focus for the actors involved in the development of the technological solution, as is the case for the digitalization of the City Council of Milan, may be on solving the problems at hand. The capacity of the Technology Enactment Framework to capture a potentially different perception or usage of the enacted technology is appropriate to draft a more complete picture and potential risks.

A last reason is the clear role of actors recognized in this version of the Technology Enactment Framework. According to an increasing number of authors (Fountain, 2001; Ogonek, 2016) the level of digital skills possessed by civil servants is a crucial feature for a successful digital transformation. The response to the pandemic stress can be a good test for this assumption.

Overall, the proposed framework is suitable to answer the research questions of how the City Council of Milan has been digitalized to preserve its functioning in an emergency situation and to assess whether the democratic principles at its core still find an appropriate application. The paradox this research will try to solve is if a technological change can be enforced in a democratic institution resulting in a non-change in its democratic nature. A paradox of particular interest in the perspective of future evolutions of democracy into a digital democracy.

3 Methodology

In this chapter will be presented the overall research design applied for the current work. The primary source used for its structuration, ensuring an appropriate and comprehensive research design inquiry, is the "research onion" derived from the work of Saunders, Lewis, & Thornhill (2009).
The figure below presents the resulting structure composed of six concentric layers that will be presented in detail in the upcoming sections. Starting from the research perspective down to techniques and procedure, they enable a clear explanation from abstract to practical choices adopted.

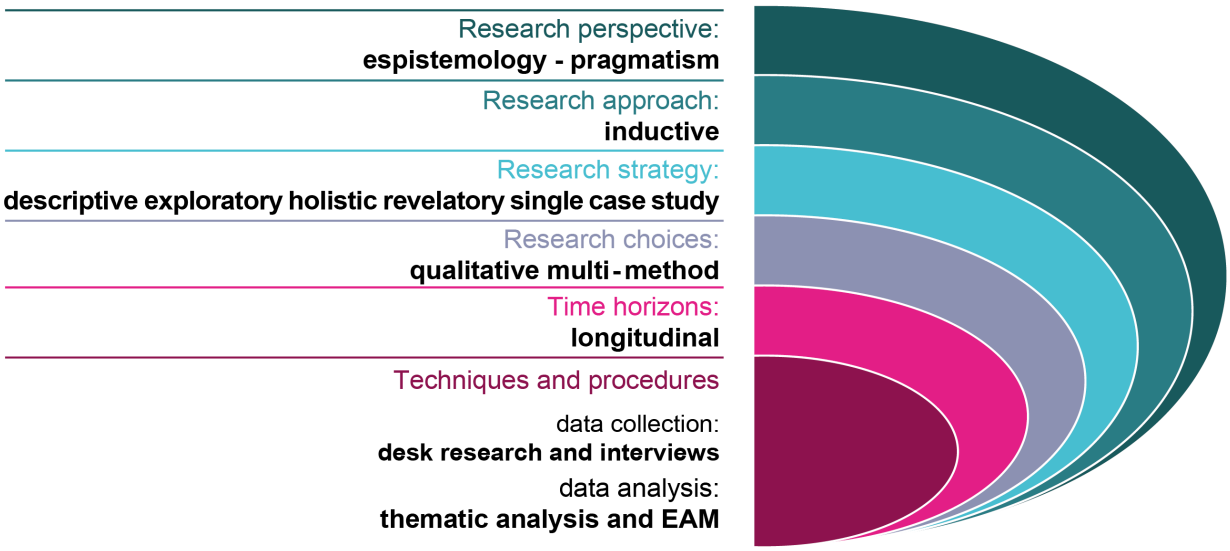


Figure 5. Methodological approach, adapted by the author from Saunders et al. 2009

3.1 Research perspective: epistemology and pragmatism

The preliminary decision to be made concern the basic system of belief, the perspective from which the creation of knowledge is pursued. To ensure coherence for the subsequent lower level choices should be selected as an appropriate research philosophy. The three main currents identified by scholar are ontology; the inquiry of the nature of reality or being; axiology, the study of judgements about value; epistemology, the research about what "constitutes acceptable knowledge in a field of study" (Saunders et al., 2009).

In the classification proposed by Saunders, this first order of distinction is then followed by a second choice among realism, which relates to scientific inquiry through the senses,

interpretivism, that poses emphasis on the difference between humans as actors, positivism, the application of scientific methods based on factual observations, pragmatism, which consider the philosophy adopted a continuum among positivist and interpretive approaches (Tashakkori and Teddlie 1998:26) instead.

A combination of pragmatism and epistemology seemed particularly appealing and suitable for the current research because on the hand both subjective enacted experiences and objective technology are observed and on the other side to comply to generate new knowledge deemed acceptable among research disciplines.

The resulting research paradigm is summarized as "observable phenomena and subjective meanings can provide acceptable knowledge dependent upon the research question. Focus on practical applied research, integrating different perspectives to help interpret the data." (Saunders et al., 2009).

3.2 Research approach: inductive

The research approach, indicating the relationships between theory and observations, is conventionally classified in inductive and deductive. The former consists in the usage of theory to elaborate a hypothesis to be tested through observational research, while the latter aim at deriving new insights and generalizations starting from observations (Bryman, 2012).

The purpose of inquiring the occurred digitalization of the City Council of Milan was to assess in the first place how it has been possible for an institutionalized organization to rapidly transform its functioning into a new organization reliant on digital interactions. In second place to assess its compliance with the principles of a democratic representative assembly and uncover further directions for future research. Therefore the present work followed an inductive approach in the sense that relies on the data collected to generate new insights and not to test an already existing theory.

Should be noted that the use of a conceptual framework that relies on well-established theories can pose the risks of limiting the potential for deriving inductive outcomes (Saunders, 2009). Nevertheless, the Technology Enactment Framework has been elaborated especially to reduce the risks of a deterministic and linear causation approach towards the implementation of technology in government and the institutional output (Fountain, 2006). It was therefore deemed correct to use it, especially in exploratory research, as a proper way to set the direction of the study without compromising the revelatory potential of the present case study.

3.3 Research strategy: a single case study exploratory revelatory holistic

The research strategy consists in the selection of means to fulfil the purpose of a study. The three primary variables that suggest the use of a case-study research strategy are the need to answer “how” or “why” questions, the lack of control over behavioural events and a focus on contemporary phenomena with real-world context (Yin, 2018). Since all of these conditions are completely satisfied within the present research on the City Council of Milan, a single case-study methodology was adopted.

Another important variable that fostered the selection of the City Council of Milan for a case-study is the ease to access data for an in-depth investigation (Yin, 2018). Author’s previous experience within local governments in the broader Milan area and the existing direct relationships with members of the City Council of Milan significantly favoured direct access to documents and further contacts.

Additionally, the exceptional pandemic period induced extraordinary changes enacted in response to the need to preserve essential public services, as the political decision-making assemblies. Thus, it constituted a significant occasion to aim for a single “revelatory” case-study, identified as an opportunity to observe and analyze a novelty phenomenon (Yin, 2018). The exceptionality of the circumstances analyzed represent a strong rationale for a single-case study, both exploratory and descriptive (Yin, 2018).

A case study approach on the digitalization of the City Council of Milan was therefore chosen since it enabled to appropriately focus on several promising areas of revelatory and exploratory research. In the first place to describe comprehensively “how” a relevant transformation occurred inside the City Council of Milan happened. Secondly, to explore both whether the democratic principle underlying the analyzed institutions have been respected and which opportunities and challenges raised. Moreover thirdly to derive insights for fostering new research (Thomas, 2011).

The underlying theory invites for a holistic case study, in which the unit of analysis is considered as whole observed from a different perspective coherently (Yin, 2018). Indeed, the Technology Enactment Framework relies explicitly on social constructivism, the sociology of technology, history of science, all theories that privilege a broad and comprehensive understating of their unit of analysis. Even when focusing on a single part, actor, arTechnology Enactment Frameworkact the emphasis is always posed on its relational nature and the dynamic complex processes resulting (Fountain, 2006).

The inherent risks in a holistic approach are to conduct the case study to an excessively abstract level, to a point the research will hardly be useful in producing new scientifically sounding knowledge (Yin, 2018).

To minimize such threat, a need for adaptation has been emphasized and consequently taken into account in the present work (Saunders, 2009). As suggested by Willman (2017), each good researcher should try to answer different questions, what, why, how, when, at various stages of its work.

Preliminary identification of the research problem has been conducted at an early stage to set the background and enabled the definition of a conceptual framework and research methods. After data collection through the first round of interviews and landscaping the background, a second "why phase" enabled the refinement of the research problem, taking into account the new pieces of information emerged from primary sources. Namely, emerged the need for a stronger emphasis on how dimension to uncover the methods applied for the occurred transformation. Moreover, emerged contrasting visions for democratic embeddedness. The figure below depicts the process adopted.

Figure 6. Research process, adapted by the author from Walliman 2017

3.4 Research choices: a multi-method qualitative study

The research choices refer to the methodology used to collect and process data. The main distinction adopted by Saunders et al. (2009) is among quantitative and qualitative, data collection techniques or analysis procedures that generate numerical or non-numerical data.
A second distinction is between the studies that adopt single or multiple methodologies to collect and process data, between mono methods and multi-methods.

This study used a multi-methods qualitative approach since it relies on qualitative data, interviews and document analysis, and process them to obtain non-numerical information.

Data gathered are processed using both a thematic analysis and enterprise architecture modelling. A triangulation, a combination of several data sources, is then applied to corroborate the research findings.

The adopted approach also reflects the accessibility of relevant data sources (Bryman, 2011). A formal request for quantitative data concerning the usage of the platform used for the City Council of Milan has been submitted to the corresponding office. Still, at the current stage of deployment, such data do not exist in a processable form for external use.

3.5 Time horizons: longitudinal

The time horizons dimension refers to whether the research focuses on the study of a particular phenomenon at a specific time, in cross-sectional studies, or collects several "snapshots" over time (Saunders, 2009).

The main advantage to perform a longitudinal study is the capacity to study change and evolutions over time. Therefore, this research adopts a longitudinal view from a peculiar perspective. The data collection occurred over a few weeks in a timeframe that can be considered a single time window. Nevertheless, the data collected and the techniques for analysis adopted, EAM models, in particular, enabled to draw a picture of a dynamic process and shed some light on the situation before the pandemic thus permitting to draw comparisons. Moreover, the fast-evolving situation concerning the digitalization of the City Council of Milan at the moment of the research implied that interviews taken a few weeks apart from each other could reflect a slightly different situation. 3

3.6 Techniques and procedures

3.6.1 Data collection

The usage of several sources for data collection is recommended to ensure a comprehensive understanding of the object of study, the uncovering of different lenses and more insights, resulting overall in higher quality research (Yin, 2018; Saunders, 2009; Bryman, 2012).

In a preliminary phase was performed mainly through desk research with the scope of identifying the main characteristics of the field of study and set the direction for the research proposal (Willman, 2017). A secondary goal was to acquire a sufficient level of expertise to prepare for the primary data collection using an interview appropriately. Especially in areas in which specialized knowledge is applied, like in the ICT and

administrative domain, it is highly recommended for the interviewer to prepare the set for the data collection (Anda, 2005).

Desk research

The desk research consists in the acquisition of relevant data from already available data sources, mainly but not exclusively results from academic research and governmental documents (Saunders, 2009).

A literature review has been conducted using mainly Limo and Web of Science scientific search engines for the keywords “local e-gov”, “e-parliament”, “e-governance adoption”, “institutions and technology change”.

In parallel has been conducted desk research into legislative documents concerning the internal functioning and the legal context of the City Council of Milan and the broader field of digital democracy applied solutions. Several sources were publicly available through the website of the City of Milan, while others have been obtained during the first interviews.

Other relevant sources retrieved were publicly retrievable from the European Commission and the Inter-Parliamentary Union website.

Overall the approach followed the literature review model presented in Saunders (2009), in which the research proceed for successive iterations to refine the expertise in the area of the study as far as new relevant topics were uncovered in the interviews. The proposed framework relies on the ideas and concepts analyzed, integrated in order to develop a comprehensive model.

Semi-structured interviews

Semi-structured interviews have been the main sources of primary data. To organize the process for the data collection using this technique has been followed the approach presented in Yin (2018) based on five different elements.

The first element is about the mindset and predisposition of the interviewer. It is considered essential to be aware of the importance of the several recommendations among them two occurred to be particularly relevant: be adaptable and seek opportunities in unexpected evolutions, an essential factor especially given the broad matter of study and the differences in the interviewed; a focus on limiting the bias from the author, crucial in handling data collected from experts belonging to different, contrasting ideological positions.

The second one consists of the training for these specific tasks acquiring knowledge, as presented in the previous step, and gaining familiarity with the interviewing techniques.

For this last point has been particularly useful the years of direct involvement with local government dynamics and functioning of the author.

The third element, the development of an interview protocol, has been realized following the guidelines proposed in (Jacob & Furgerson, 2012). The protocol comprises at first an introduction on the ongoing research and open-ended questions about the background of the interviewee to enable the familiarization with the topic. Then a set of questions, elaborated from the conceptual framework, that proceeds from the general to the specific. The template used can be found in the appendix. Given the interdisciplinary nature of the topic, depending on the interviewed, different questions were posed. A saturation approach was applied to avoid excessive redundancies and uncover as many aspects as possible in a systematic manner (Saunders et al., 2018).

The fourth element is the screening of candidates. A preliminary list of the actors involved with the digitalization of the City Council of Milan has been elaborated on the example of other fruitful holistic case studies to identify experts suitable for interviews (Yin, 2018; Medaglia). With expert should be intended "someone who is part of the field action that makes up the research topic and either bears responsibility for problem-solving procedures or has access to information about decision-making process or about groups of people" (Meuser and Nagel, 1991). A list of all the relevant stakeholders has been created, trying to achieve a complete mapping of the roles involved from an internal and external perspective: political decision-makers, ICT internal support, administrative decision-makers, citizens, journalists, vendors, council members both from the opposition and ruling parties. The resulting roles have been operationalized contacting experts, in many cases through a snowball technique.

The fifth element is the conduct of a pilot case interview. An "interview 0" has been conducted early in the process of problem identification, granting access to internal documentation and the start for the snowball process.

A total of 10 interviews has been conducted, all at a distance using Skype for Business, Microsoft Teams, Zoom, WhatsApp for audio and video recording. The interviews were conducted between 26th of June 2020 and the 5th of August 2020. The length varied between 45 minutes and around 180 minutes.

Interviewee	Actor role	Position	Organization	Expertise
A	Group C – Political decision maker	President of City Council	Ruling political party	Political - legal
B	Group C – Administrator	Deputy secretary general	Municipality of Milan	Administrative - legal
C	Group B – ICT technician	ICT support – in charge for City Council of Milan	Municipality of Milan	Technical
D	Group C – Political operator	Member of City Council of Milan	Ruling political party	Political
E	Group C – Political operator	Member of City Council of Milan	Opposition political party A	Political
F	Group C – Political operator	Member of City Council of Milan	Opposition political party B	Political
G	Group C – Political operator	Member of City Council of Milan	Opposition political party C	Political
H	Group C – External user	Journalist	President of Journalists guild of City Council of Milan	Journalist – political
I	Group B – Technical decision maker	Chief of Staff for Deputy Mayor Digital Lead	Executive office of Deputy Mayor	Technical - legal
L	Group C – External user	Citizen	None	Political - social

Table 2. List of experts.

3.6.2 Data analysis

Thematic analysis

Thematic analysis is "A method for identifying, analyzing and reporting patterns within data (Braun & Clarke, 2006)."

The approach for a thematic analysis suggested by Braun and Clarke (2006) has been adapted to the present research. A notable adaptation has been necessary to incorporate the concepts derived from the Technology Enactment Framework into the coding process. To guarantee the quality of the coding was performed a pure coding from the bottom-up, identifying, therefore, all the elements contained in the interviews. At the same time, the core elements derived from the conceptual framework has been used as an overarching

frame in which the lower-level codes have been fitted. Since the interview protocol has been developed following the Technology Enactment Framework, this process maintained a strong coherence and reliability.

The results of the interviews they have been therefore analyzed following the steps depicted in figure 6.

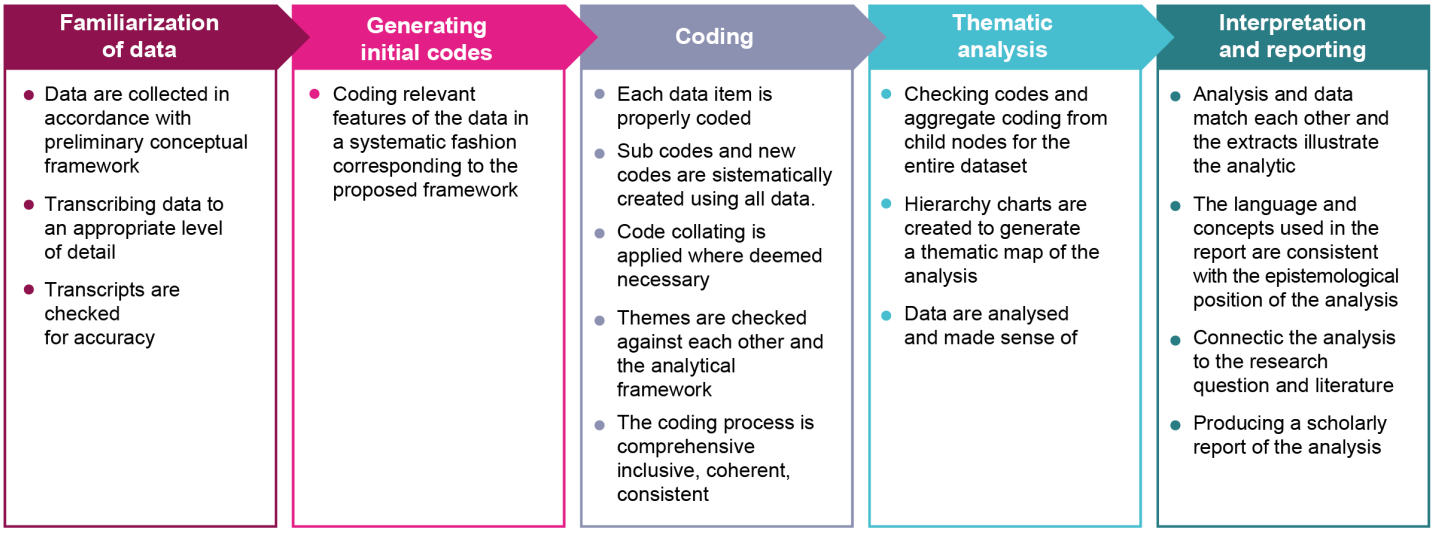


Figure 7. Thematic analysis phases, adapted by the author from Braun & Clarke 2006

The coding process was completed using the software Nvivo 12 thanks to a license obtained from KU Leuven. Hierarchy charts were created to assess the coherence and have an overview of the results of coding. In the appendix can be found the complete CodeBook generated.

The codes resulting have finally been connected with the research question and the literature to observe meaningful findings.

Logic model analysis

An increasingly selected technique for data analysis in case studies is the use of logic models to show the result in complex activities (Yin, 2018). It is a particularly useful technique to assess theories of change and therefore, suitable for the selected Technology Enactment Framework.

For the present research the Enterprise Architecture (EA) modelling perspective has been adopted given its specific capability to "support organizations in managing the complexity of their business environment and facilitate the integration of strategy, personnel, business and IT" (Lemmetti & Pekkola, 2012). Applied to the public sector context EA maintain its usefulness as a tool for providing a holistic view of an

organization and understanding the relationships between motivation, operational processes, software platforms, technological infrastructures.

On an operational level, the derived Enterprise Architecture Management (EAM) approach consists in the "use of models, frameworks, principles, and viewpoints by architects and other stakeholders to strategically govern business and technology in an integrated, IT-supported manner with the aim of describing the current and desired state of the enterprise and transforming it as a response to internal and external challenges" (Lankhorst, 2017).

To fulfil the purpose of this study EAM has been used as a tool for assessing in retrospective the change occurred. The actual usage moved from the usual As-Is/To-Be procedure, in which the goal is to achieve an improvement in the organization, to an As-Was/As-Is procedure, where the focus is in on assessing the already occurred evolution. The EA models presented show on in an holistic perspective all the actors, the processes and the technologies involved in the new "remote" functioning of the City Council of Milan.

The notation adopted is ArchiMate developed as an open specification by the OpenGroup (2019). ArchiMate consists of a widely diffused set of EA elements and concepts providing a practical, unified and straightforward notation to describe organizational structures and their relationships.

Archi (2010) is open-source software, free for use, that utilizes the ArchiMate notation. For the current research, Archi has been used for the creation of the models using elements from the Business Layer (Yellow), Application Layer (Blue), Technology Layer (Green), Motivation Layer (Purple). A description of all the elements used can be found in the "symbols" section.

The created models have then been validated and updated with the support of the ICT department of the City of Milan, as a collateral action besides conducting interviews.

3.7 Limitations

This study succeeded to achieve its research objectives, yet naturally, several limitations impacted its outcomes. The following paragraphs outline the major areas, where this study suffered from the limitations.

A first limitation was related to the overall time constraints for completing this research. Data were collected on a limited period, while the research would have benefitted from a longer period of observation. The process of digitalization may still evolve significantly or even be reversed. Therefore, the researched could have possible neglected various aspects of the transformation, which represents an ongoing process.

A second limitation, strictly related to the first one, was the pandemic impact on data collection. The interviews were conducted in a short period only via digital means. Given the hierarchical and closed networked structure of City Council of Milan, this research relied mainly a on "snowball" fashion effect to obtain access to the experts. This determined some difficulties when the communication chains were suspended and posed limits in terms of potential to proceed fast and in parallel in the scheduling of interviews. An interview with the main vendor of the software used for the transformation was postponed to aftermath the conclusion of the data collection. Therefore, the overall interaction with the City Council of Milan representatives was slowed down, which, in turn, resulted in reduced time for data analysis.

A third limitation was the extended area of research. Both the research question and sub-research question cover a broad theoretical area. Analysing such a large field pose the risks to be superficial and not sufficiently exhaustive (Saunders, 2009). However, on the other hand, the adopted research design enabled to pursue extensively an exploratory purpose. It was granted priority to this goal in consideration of the novelty object of inquiry. The democratic nature of the institution at hand required an explicit consideration and an interdisciplinary effort. Investigating only the technological change or the democratic functionalities would have constituted a significant loss also in terms of validity, neglecting constituent elements in the motivation for such change (Yin, 2018). Moreover, neglecting how the change occurred on such a limited time span would have missed out an important opportunity to observe a public administration adapting one of its core procedures in a surprisingly short time span. Nevertheless, the risks of a too broad too shallow research remain valid and should be considered, proposing further, more specific, research.

A fourth limitation is been the pandemic impact of the author. It is deemed correct to recognize the sensitive matter of the research and its impact on the author that was residing in Milan during the peak of the pandemic and the following months. That situation determined significant mental stress and limitations in research facilities. After February 23rd all university facilities in Milan were closed to external students, from March 10th the mobility was forcibly restricted to only essential movements.

3.8 Ethical considerations

A robust ethical risk in conducting case studies is the usage of the findings and exploitation of its participants to substantiate preconceived positions. Since all researchers have to acquire knowledge about the matter foremost, they have to be careful in collecting all the evidence, especially when supporting claims contrasting with to the overall (Becker, 1967 in Yin, 2018).

Specific attention was posed on the creation of a diverse panel of experts in terms of age, sex, ideological position to reduce the risk of confirmation bias.

A high level of attention was posed on carefully handling the material resulting from the interviews. At each participant was asked consent for the recording and processing of the results. All the personal data non-necessary for achieving the research's goal have been removed from records or anonymized as much as possible.

4 Case description: the CC of Milan in the pandemic

In this section is presented the legal and technical context at the occurred digitalization. An overview of the different institutional arrangements is presented to situate the research in the legal and organizational context. Building on the institutional context two EA models are described. The first one presents the architecture for in presence sessions, while the second one describes the remote sessions functioning. This overview of the measures adopted for the response to the pandemic prepares for the analysis section.

The first election for the City Council of Milan dates back to the 1860, in the early aftermath on the Unity of Italy. Since that event the sessions of the City Council have always been held in Palazzo Marino in the heart of the City of Milan (Vitale, 2016). The pandemic forced an interruption in the functioning of the City Council of Milan that has been quickly resolved with a complete digitalization of the sessions.

4.1 Regular institutional arrangements

National legal framework

The primary source of formal legitimacy in the institutional architecture of Italy is the Constitution of the Italian Republic (1947). It sets the legal basis for the whole Italian State law and represents the founding document where are stated all the general principles on which administrative and political structures are built.

At Article 114, last amended in 2014, are set the requirements for municipalities, like the City of Milan, recognized as “autonomous bodies with their own statutes, powers and functions according to the principles established by the Constitution.” (Costituzione della Repubblica Italiana, 1947)

A secondary legal source, the ordinary law on the organization of local authorities approved with Legislative Decree 18/08/20 n.267 (TUEL), defines the regulatory framework within which are executed all the activities of the Italian municipalities.

Municipalities are granted, at Art. 3, autonomous local authority with statutory, regulatory, organizational and administrative autonomy in application of the subsidiarity principle. At Art. 6 of TUEL is established that the basic rules for the functioning of municipalities are approved on a local basis and contained in the Municipal Statute. Art. 12 of TUEL establish the principles for information and statistical systems in local governments based on data sharing and interoperability.

Artt. from 36 to 54 established the general rules for the functioning of elected organs of municipalities, City Councils and Mayors. The electoral rules states that for cities over one million inhabitants are elected 48 councillors that maintain their role for five years.

The City Councils are there recognized among the official organs of Municipalities composed in turn from the President of the City Council, the Councillors Commissions, the Councillors Groups and the Conference of Chief of Groups.

City Councils are formally responsible for the political-administrative guidance of municipalities. The have exclusive competence for a series of functions like approval of City Budget, approval of local legislation.

Art. 43 grant to all Councillors the right of initiative of all the matter under the responsibility of the organ they belong. They should be able to access all the data they deemed necessary for the fulfilment of their functions and receive the required support from civil servants.

At Art 44 explicitly refers to the rights of opposition in City Councils, considered of particular importance for a correct functioning of local government, which are then granted the rights to create inquiring Commissions on the activities of the Municipality they belong.

At Art 97 is normed the role of Director General of Municipalities. Among other obligations, who holds this role is responsible for the correct functioning, assistance and verbalization of the sessions of City Councils.

Art 124 impose the publication, in an accessible manner, for citizens of all deliberations of the Municipalities.

These obligations cannot be delegated to any other organs of the public administration and therefore City Councils are considered among the essential services for the Italian Republic.

4.1.1 Local legal framework

All the practical measures necessary to grant the right to Councillors are contained in the Municipal Statute. The Municipal Statute of the City of Milan was adopted in 1991 with a vote of City Council and updated most recently in 2016. It established the principles for organization and functioning of local institutions and the methods for data accessibility from citizens.

At Art. 2 it states, “the City of Milan inspires its action at the method of democracy, representative and direct, at the distinction of political decisions and administrative implementation […] at transparency, equity, efficiency, efficacy of administrative activities.”

The prerogatives of Councillors are established at Art. 25. Councillors are considered representatives for the totality of the local community, free to exercise their function. At the same time they are considered accountable towards their voters.

The formal functioning of City Council is determined on the basis of the Regulation on Organization and Functioning of City Council of Milan, last modified and approved with deliberation 24/2018 from 31/5/2018. The relevant attributions for our research are summarized in the following paragraphs based on the aforementioned Regulation.

The President of the City Council manage the assembly, send the convocations, intervene in the discussion, is responsible for the proper development of the discussion, manage the voting procedures (Art. 5). The President interpret a ceremonial role has symbol of the City Council.

The Secretary provide assistance to the President in the fulfilment of its functions. The Secretary help in the management of voting procedures, certify the presence of Councillors, and ensure formal validity to the vote (Art. 6).

Each member of the City Council, the Councillors, is granted the right to access every information they consider necessary for the fulfilment of their role from civil servants, the Mayor or external sources (Art. 16). They have the right to promote amendments to all the proposals discussed in the City Council (Art. 59). They have the duty to take part in every session of the City Council, for which they receive a monetary compensation (Art. 29-32).

In the City Hall a room is dedicated to the assemblies of the City Council in which are reserved dedicated spaces to the Councillors, the Mayor and the members of his cabinet, the President, the public and journalists. To celebrate the occasion of an assembly, usually twice a week, during the session are exposed on the façade of the City Hall the Communal flag together with the Italian and European flags (art 40).

During each session the “legal number”, coincident with half the number of members of City Council of Milan, maintaining the validity of the sessions of the City Council should be always verified. In case it is not achieved the session is immediately concluded (Art.48). Such disposition is often used by the opposition as a form of pressure towards the ruling party which is responsible to ensure that the “legal number” is maintained. In case arises the possibility to “call” the lack of legal number it is used as a way to conclude the discussion and then slow down the functioning of City Council and the deliberation process.

Each Councillor should maintain a proper attitude towards the discussion, an appropriate language and do not interrupt other members of City Council of Milan while they are intervening. In case of misconduct the President have the faculty to mute the discussion (art 50-51).

Another prerogative of the Councillors is to promote amendments to the ongoing discussion until it is declared concluded. One single sub-amendment can be presented by each Councillor for each element discussed. In case of technical content the offices of City Council and the Secretary can provide assistance to the Councilors or to the President

(Art. 59). Generally speaking, the presentation and discussion of amendments is one of the most important prerogatives of the minority in City Council. The presentation of a significant number of amendments constitute a strong leverage in their hands to obtain concessions. Flooding the discussion with hundreds of amendments is the most typical form of obstructionism carried out.

The citizens, referred to as the Public, have the right to assist to each session of the City Council of Milan but they cannot intervene and should abstain from showing explicitly any form of participation or political support (Art. 52). Usually the participation at the sessions of City Council is considerably low. Only two citizens are recognized as a constant presence in the City Hall by the members of City Council. The presence of journalists is not regimented beside their admission in the room predisposed for the sessions of the City Council (Art. 40).

The convocation document must be sent using a certified email system (PEC) at least three days in advance of the session which it refers. All the necessary documentation

The voting procedures are performed using electronic devices and blatant vote, except in extraordinary conditions or in case of malfunction of the devices. Upon request of five Councillors, for each vote is performed a personal identity verification. The President assisted by the Secretary, guarantee the validity of the voting procedures (art 68).

4.1.2 Digital strategy

Under the auspice of the Deputy Mayor for Digital Transformation, since 2016, the City of Milan reorganized its procedures to centralize the ICT infrastructures under the central authority of a CIO. A comprehensive digital strategy was adopted, inspired by the "national three-year plan for IT in Public Administration" drafted by AgID (Agendadigitale.eu, 2017). Several projects to enhance the digitalization are ongoing toward the vision "Digital Milan" in the direction of creating public-private partnerships, national relationships with Ministry of Technological Innovation, international relationships for knowledge exchange under the "Digital Bridge" initiative. Several infrastructural projects are ongoing with the goal to foster interoperability, improve citizen access to services, data analytics. A specific focus on acquiring human resources was also pursued with the goal to enhance ICT management capacity (Daneo, 2020). Overall, the City of Milan is constantly positioned among the best Smart Cities in Italy in terms of digital transformation of government (ForumPA, 2019).

Administrative support

The administrative support is in the Regulation on the Organization of the Offices and Services of the City Council of Milan, last updated and approved with deliberation of City Council of Milan 11/5/1998 n. 42. This Regulation determines the creation of a Direction of Service for technical-administrative support exclusively dedicated to the City Council of Milan, functionally dependent from the President of the City Council.

The Director General for the City of Milan, or a Deputy Director General, is directly responsible for the compliance and legal legitimacy of the procedures of the City Council of Milan. The Director General is also expected to take part in the sessions with the role of Secretary.

Technical support

The ICT support is functionally dependent from another Direction, the Direction of Project for Digital Lead. In particular the office for Security of Applications. The usual duty for the ICT support concerning the City Council of Milan is ensuring the availability of voting devices and other technical equipment present in the City Hall. He is also responsible for the management for the online streaming of sessions which are then recorded and published on the website of the City of Milan. The ICT support personnel works in close relationship with the providers of technology both as a virtual service and as physical devices.

4.2 EA model for in presence session of City Council

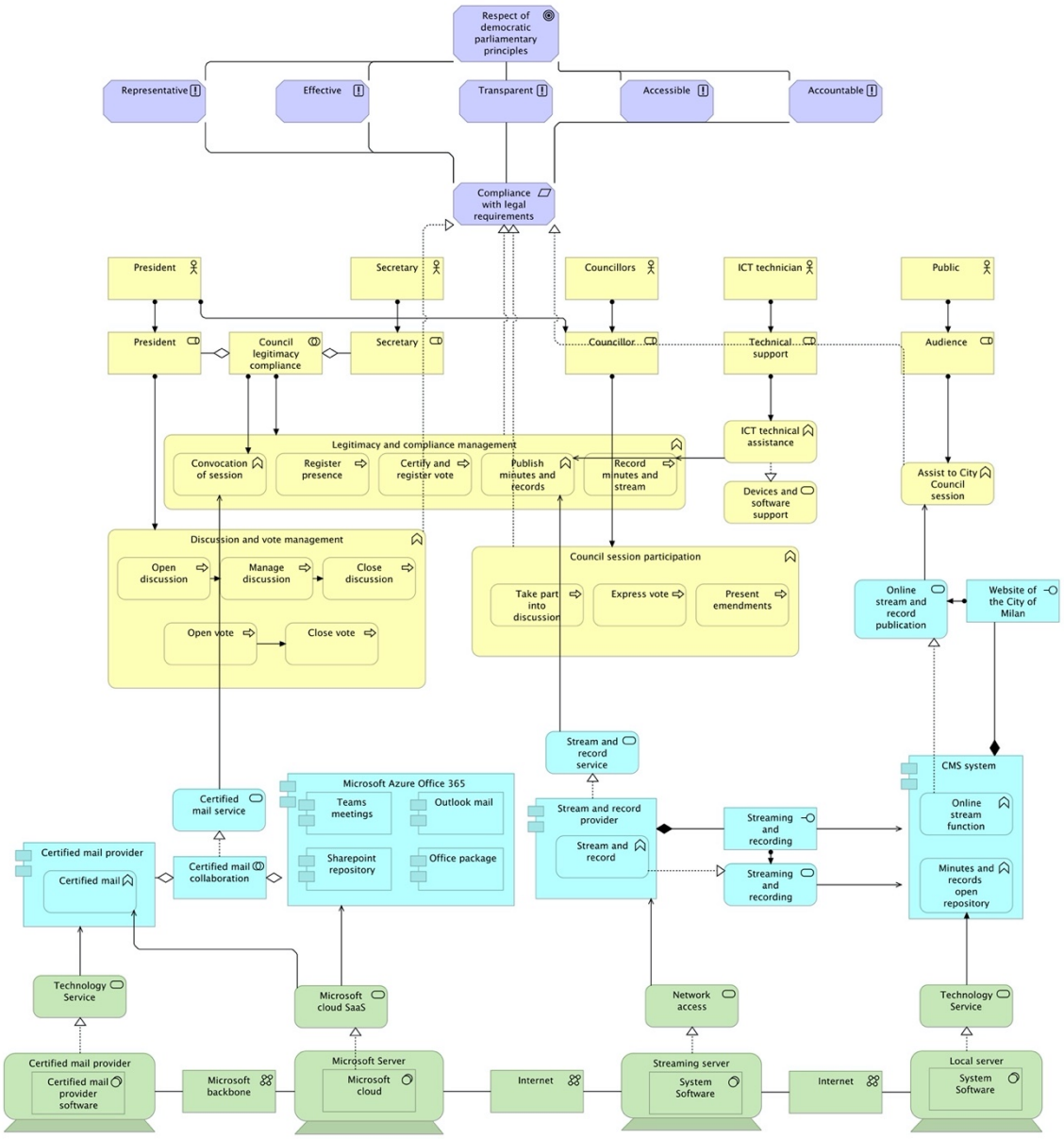


Figure 8. EA model for in presence session of City Council of Milan

In figure xxx is presented an EAM model for a physical session of the City Council of Milan in which are connected the motivational layer in purple, the business layer in yellow, the application layer in light blue and the technology layer in green. The model has been created in accordance with the legally binding documentation presented in the previous paragraphs and validated via the ICT support office.

Motivation layer

The motivation layer shows the requirements for a democratic assembly as presented in the conceptual framework and discussed in detail in the previous paragraphs. They are

summarized for clarity in „compliance with legal requirements". All the different business functions realize these requirements meaning that they are all fulfilled to be in accordance with them.

Business layer

In the business layer there are the five actors recognized to be part of the City Council: the President, the Secretary, the Councillors, the ICT support, the Public (intended as citizens and journalists).

The President and the Secretary are responsible to cooperate in the management of the operations that certificate the legitimacy and legal compliance for the City Council sessions. This function is composed by processes "register presence", "certify and register vote", "record minutes and stream", "publish minutes and records" and for the function "convocation of session and documents sharing".

The President is also responsible for the voting operations represented in the function for "vote and discussion management".

The Councillors are responsible for the "Council session participation" function that comprehend the processes "take part into discussion", "express vote", "present amendments".

The ICT technician is responsible for the "technical assistance" function that on one hand realizes the service "devices and software support" while in the other hand serves the functions "publish minutes and records" and "record minutes and stream".

The Public is entitled to the function "Assist to City Council session".

Application layer

The certified mail provider (PEC) is the application component that serves the "convocation of session and documents sharing" function.

Microsoft Azure Office 365 is most important part of the technological system of the City Council of Milan. It is composed by the functions "Teams meeting", "Outlook mail", "Sharepoint repository" and "Office package". In the physical operations these functions are a mere support to the daily work of the actors involved and are not linked to any specific function of the City Council.

It cooperates in the "Certified mail collaboration" with the "Certified mail provider component" to take care of the "Certified mail service".

The “stream and record provider” trough the “stream and record service” serve the “Publish minutes and records” function.

The same component is connected via an interface to the “CMS system” that realizes the “Online stream and record publication” service that then serves the “Assist to City Council session”. The “website of the City of Milan” is an interface composed by the “CMS system”.

Technology layer

The technology layer is composed by the servers that serves the four different application components presented in the previous layer.

The only peculiarity that should be stressed out is the Microsoft technological structure. It provides its cloud service as a software as a service and uses a dedicated network, Microsoft backbone, as an interface to exchange data with an higher level of security and in compliance with GDPR requirements.

4.3 Pandemic impact

4.3.1 National and regional impact

The first reported case of COVID-19 in Italy was on 31st of January. On the same day the Italian Government declared a state of emergency for six months approved with a deliberation from the Council of Ministers. With this measure was opened the possibility to derogate to any specific legal constraint, notwithstanding the general principles of law (Gazzetta Ufficiale, 2020).

In the following weeks the situation became progressively more alarming in Northern Italy and in particularly in Lombardy. The first clusters were identified and quarantined in smaller cities, Codogno and Lodi, few tens of kilometres away from Milan. After a rapid spike in positive cases, people recovered in ICU and an increasing number of deaths, the whole Lombardy Region was put on quarantine on March 8th. In a personal communication to the author, a physician serving in the main Bergamo hospital, the epicentre of the Lombardy pandemic outbreak 80km north of Milan, on March 15th described the situation there as “unspeakable, absurd, immensely bigger than a single human being”. In the period ranging from 23rd of February to the 4th of April has been reported an estimated at 27 thousands the actual amount of deaths in Lombardy due to COVID-19 (Bucci et al., 2020)

On March 12th the Italian Government approved exceptional measures to lock down the whole Country, imposing the suspension of all public and private activities. On March

17th the Decree-Law "Cura Italia" 17/18/20 n. 18 was approved by the Council of Ministers containing urgent measures to face the pandemic situation.

At article 73 it is addressed the emergency situation of City Councils. They are considered essential services for the functioning of state and specific measures are undertaken to guarantee their functioning via the simplification of the legal requirements during the state of emergency declared for the pandemic. It refers explicitly to the introduction of remote sessions for City Councils even in absence of a specific local regulation. Therefore, criteria of transparency and accountability should be established from the President of City Council within requirements of identification of participants, publicity of sessions and in respect of TUEL dispositions. The result of this measure is an unprecedent degree of freedom to experiment and realize solutions for remote legally binding sessions, without the need of a pre-existing approval from the local City Council.

The state of emergency was recently extended until 31st of October 2020 (Gazzetta ufficiale, 2020).

4.3.2 Local impact

The City Council of Milan suspended its activities on March 5th after a last physical session in which the annual budget was approved to grant the possibility to deploy all the financial resources available in the wake of the pandemic uprising.

In the following weeks the City Council suspended its sessions while the administrative and technical offices were developing and testing a solution to ensure the possibility to prosecute the democratic gatherings of the City Council.

On the 23rd of March the President of the City Council issued a Resolution to organize remote Councils Commissions, sub-assemblies composed by the Councillors and external experts. In the motivation the Resolution refers as the source of its legitimacy to the Decree-Law "Cura Italia", which imposed to introduce the new measures without further expenditures for technological solutions. This requirement implied the re-use of technical instruments already adopted for other purposes and to avoid requesting an ad-hoc solution developed by an external contractor.

In the Resolution are stated some general principles for online correct behaviours, a sort of official "netiquette", and the modalities for the convocation on the online sessions on Microsoft Teams. To all the participants is sent an "invitation to a scheduled meeting" in their calendar. The invitations are possible using the already existing accounts on Microsoft Azure, in use for all the members of City Council and the personnel of the City of Milan as a mean for supporting their daily activities.

A formal procedure for manually tracking the presences during the Councils Commissions is also established, relying on the chat of the Teams' virtual meeting room.

Before the convocation of the session is possible for the Presidents of the Councils Commissions to extend an invitation to external experts so that an invitation link can be sent to them.

Following the successful experimentation in the Councils Commissions, the President of the City Council issued a Resolution on the 9th of April to predispose the rules for the remote convocation of the City Council of Milan.

Art. 1 states that the convocations are sent using the pre-existent certified mail service (PEC) containing the links for the access to the documentation inherent the upcoming sessions of the City Council of Milan. In this document are also stated the procedures to record the presences, to verify the constant compliance with the "legal number" and thus the validity of the voting procedures. The voting procedures are based on a manual identity check and on a roll call expression of preference.

The amendments submission is normed in Art. 8 to introduce the possibility to present them via email during the sessions. Each Councillor was enabled to submit a written text to the offices at support of the President. The amendments are then collected, standardized and shared on the online platform with other Councillors.

Art. 10 re-actualize the norms about the recording of sessions. The duty for the record and online streaming service is stated to be on an external contractor via the website of the City of Milan.

On April 16th the City Council of Milan has been convened for the first time in a remote session at the presence of the Mayor. As figure 8 shows, that session recorded a peak in terms of online presences.

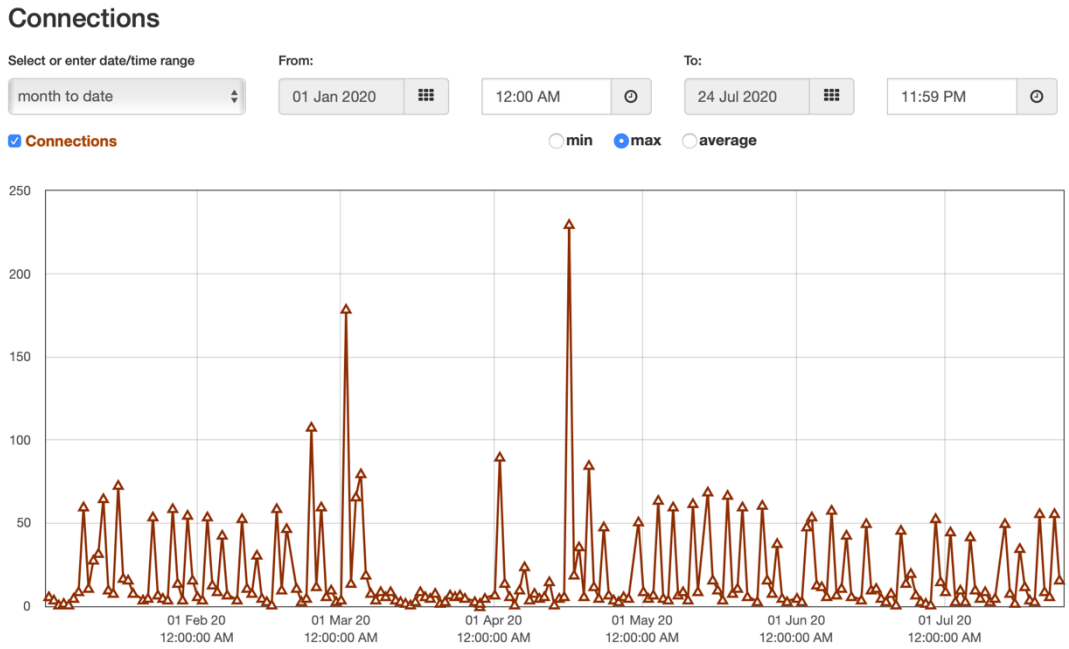


Figure 9. Users connected to the streaming service of the City Council of Milan.

After few weeks working in accordance with the issued dispositions, the President of City Council of Milan adopted another Resolution on April 27th to introduce a new system for online voting procedures.

The new system relies on Polly, a build-in additional software component of the Microsoft Azure cloud service. The Councillors can there express their vote using a specific form, created ad hoc for every voting session by the ICT support.

The system is currently in use after the extension of the state of emergency on which it relies for its formal legitimacy.

4.4 EA model for remote session of City Council

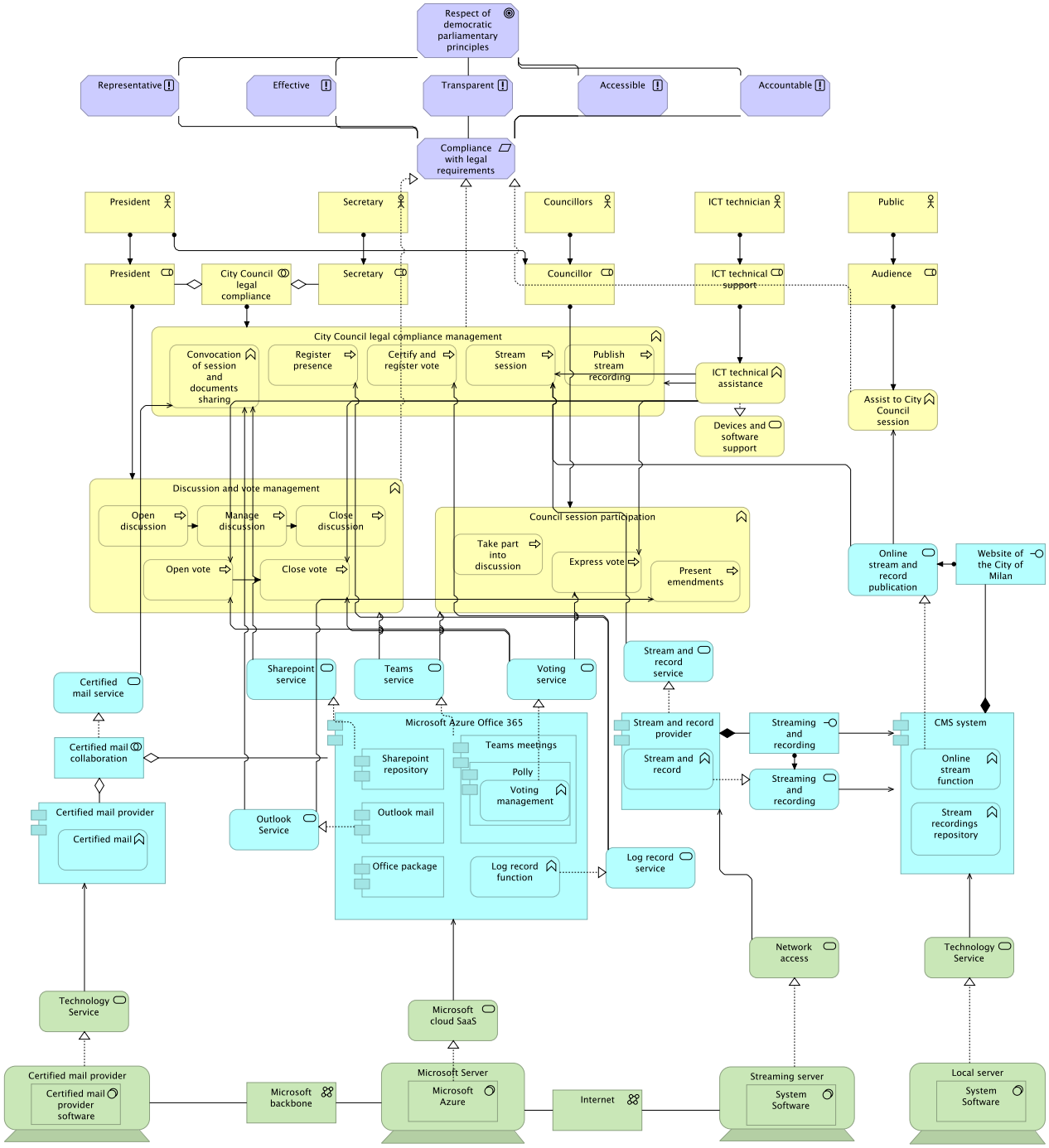


Figure 10. EA model for remote sessions of the City Council of Milan

In figure 10 is presented an EA model for the functioning of the remote sessions of the City Council of Milan. The general architecture remains obviously the same as in the physical sessions. The goal of the digitalization was indeed to preserve all the functions and features of the City Council in the pandemic context. The main differences are in the realization of four different processes: the session participation, the documentation sharing, the voting procedure, the public streaming.

In the following paragraphs each procedure will be analysed in detail. The explanation for the new architecture adopted benefitted from the findings of the interviews with the experts that will be presented in the next session.

Session participation

With the session participation process is intended the capacity to hold the session in a remote way in itself.

The Council session participation in the remote form is served by the “Teams service” realized by the Teams meetings” component. At the same time the “register presence” function is served by the “Log record service”.

This is a new function implemented in the Microsoft Azure Office 365 component. This function was developed by the service provider upon specific request from the City of Milan to manage the presence in its digital meetings. The “register presence” function is fundamental for the compliance with the “legal number” to guarantee the formal compliance of the session holdings. In case the registered number of Councillors would be less than half of its member the session would be declared concluded. Keeping track of the connection and disconnection from the “Team service” is also necessary for the fulfilment of requirements for the attendance fee the Councillors receive.

Documents sharing

The documents sharing process involved the “Sharepoint repository” components that serves, through the “Sharepoint service” the “Convocation of session and documents sharing” function.

“Sharepoint repository” is another component of the Microsoft Azure Office 365 component. Practically, this is an application used to share the online version of documents that were previously sent as attachment to Councillors using an email service or printed on paper upon request. In this new arrangement all the documents are uploaded on the cloud service and accessed upon request. This enables a reduction in terms of printed documents, an ease of sharing due to the overcoming of the limits in size of attachments and an increase in the standardization since only one version of each document is created and accessed by all the interested actors.

Voting system

The “voting management” function serves the processes “express vote”, “open vote”, “close vote”. The “voting management” function is composed by the “Polly” component, which in turn is a sub-component of the “Teams meetings” component.

The “ICT technical assistance” function serves the “Open vote”, “Close vote”, “Express vote” processes. These operations are conducted manually by the ICT technician that creates a poll for each vote, open the possibility for the Councillors to vote and then close the poll. The “ICT technician” role is must possess the ability to perceive the momentum in the City Council assembly to be able to create at right time the tools needed.

The “President” is responsible for the overall “discussion and vote management” function. This role mimics the dynamics of the in-presence sessions of the City Council.

The “Councillor” can perform the “express vote” process which is served by the “voting service”. Each councillor can vote infinite times during the opening of each vote since only the preferences indicated at the moment of the closure of the voting poll is counted.

The fact that almost all votes expressed in the City Council are blatant votes is a significant advantage in terms of security. After every voting session each Councillor can control if the recorded vote represents his preferences and ask to manually change it in case of any problem. The security of the system relies on the Microsoft’s infrastructures. The identity of the voters is checked at the moment of the log-in using Microsoft credentials, in the same way used for accessing every other cloud service. Using this feature are created several rooms with changing access rights depending on the components of the meeting. The security of the platform benefits also from the Microsoft Backbone network.

Streaming

The streaming process is a transposition of the system previously used for the same purpose in the usual sessions of City Council of Milan. The main difference is not in the architecture but in the recording of the video stream through a “dummy” account in Teams.

5 Case analysis: an assessment through the Technology Enactment Framework

5.1 Objective technology

Objective technology is a term that encompasses the technological artifacts that preexist the specific usage by people. In our research, these are mainly software and its related ecosystem of services.

Software as a service and the cloud

Starting from what was already in use, force for users the adopted solution Relied mainly on software as a service infrastructure, commonly referred to as the *SaaS model*. In such an arrangement, the responsibility to operate the platform is delegated to the SaaS provider. According to expert C, “using the cloud, you can focus on the added value you bring: content and not infrastructure”.

Moreover, the business model of cloud services is “pay as you go”, that is, your investment will need to scale up only with the effective use of the technology. This way, one is eliminating the investment in infrastructures.

Expert C further argues that “In this period we've seen an important evolution of the services. It was already reliable before, but with the increased number of users, bugs emerge faster. Subscribing to cloud services, there are many objective advantages from the point of view of infrastructures”.

Limited functionalities

The participation to the sessions of the City Council relies on a pre-existing platform, Microsoft Teams. It's a platform that was not initially developed for large meetings, and thus presents some remarkable limitations in terms of number of video streams or management of audio. “We've not been able to develop a specific platform.

Probably that would have been better”, believes expert A. The system now in place is still lacking some key functionalities, such as the ability to block audio. “The responsibility is still delegated to each participant”.

5.2 Enacted technology

Implementation

Agile

To cope with the problems posed by the need of a short term digitization, an agile methodology has been spontaneously adopted by the technical support team, in charge of facilitating the political organs in developing IT solution. “We collected some requirements and we tried to solve them by week two” illustrates expert C.

The ICT technicians have been fundamental in selecting the working approach. They elaborated some technical reports to use them as a mean to communicate with other civil servants. This reports were not meant to constitute a piece of certification or any definitive documentation, but rather as working papers to be adapted and updated during the development of the solution, integrating new requirements as they were met.
“This time has been different then usual”, argues expert B, “In other occasions, when I was on the commitment side of technological project, we started from a complete process and then let the technician understand what they wanted. This high frequency of interaction enabled us to calibrate much better the solutions.”

The adopted solutions have been implemented gradually. First, they were used for the Mayor’s cabinet, involving nine members. Then, they were used in four council’s commissions, where only discussions took place. Finally, they were introduced in the City Council with 48 members, where an electronic vote and legitimacy certification took place.

“Everything worked out pretty well, because we checked it gradually”, states expert I, “we tested it first in the Cabinet. Then in an intermediate step with commissions where counselors started to familiarize with the technology and then the City Council, a bigger and more complex institution." For example, some sessions were used as a benchmark to try out the voting procedures that have then been changed accordingly, switching from a nominal check for personal ID to an electronic voting procedure.

To summarize, Expert B says that “if requirements are only collected at the beginning, if they are wrong then you have to keep it with you. Agile is a safe net.”

Reuse

In accordance with the requirements found in Decree Law of 18th March at article 73, the solutions for the remote sessions needed to be implemented without any additional relevant cost for the public sector. “The reuse approach means to exploit the technologies

already in use", explain expert C, "this follows the guidelines provided by AgID in the three-year plan for digitization of the public sector in Italy".

This way, it was not necessary to indict a public procurement process. "The reuse approach works on an opposite way: you adapt the reality you want, to adopt on what you already have" concludes expert B.
"We use Microsoft Teams to achieve integration with the pre-existing systems. It enables the login of councilors and then everything passes through that system" explain expert B. Teams is used as a platform to connect to repositories for data and documents and to enable a precise management of the access to the different meetings.

An integrated system for voting, Polly, was selected together with the Microsoft support technicians. We have asked for and received a tool for keeping track of logins, specifically integrated in the service upon request", further elaborates expert C. "Thanks to the servers being located in the Netherlands, this is also compliant with the GDPR".

"We have centralized our providers at the beginning of our mandate", explains expert I, "now we have fifteen thousand users, all with a Microsoft Teams account. We have a much stronger leverage to be taken into account and create solutions that fit our needs". Indeed, to guarantee stability and certainty about the identity of users, there was the need to adopt an institutional account. "The day we had to be forced at home we already knew which software we would have used" informs expert I.

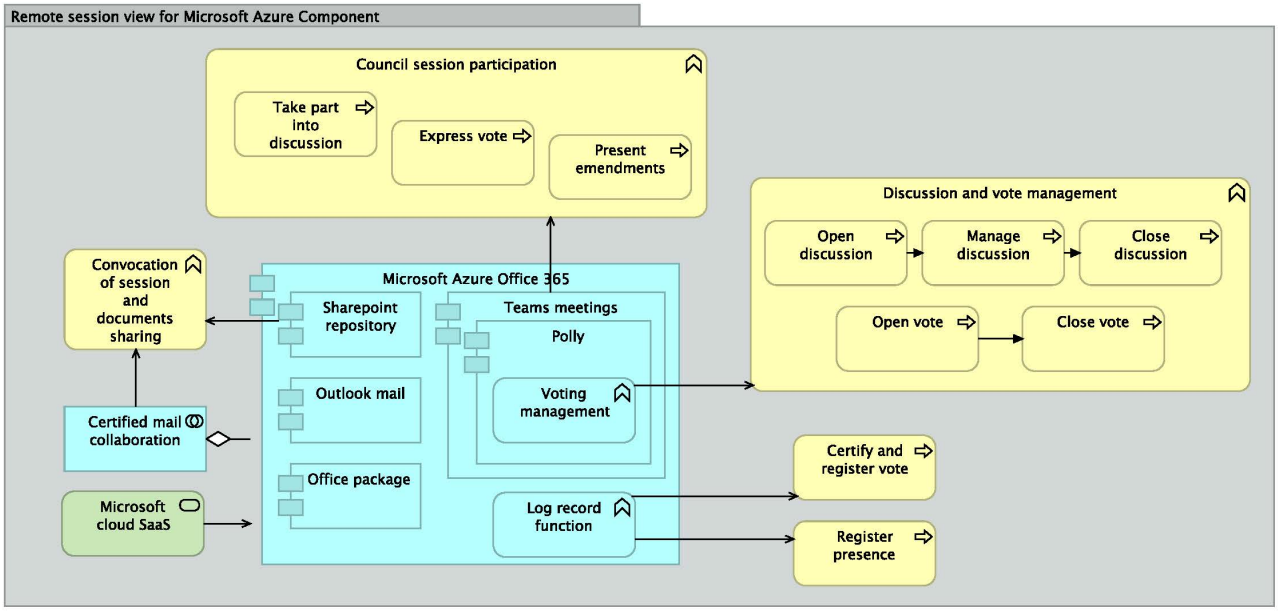


Figure 11. Remote session view for Microsoft Azure Component

Use

Behavioral risks

With a remote system, the behavior of the participants became increasingly not constrained by the environment. The self-regulation of councilors is more important than ever before, to ensure not only the correct participation for all participants, but also to avoid more serious mismanagement.

“Our Constitutional Law, at article 54, states that those who hold public offices have to do it with discipline and honor”, recalls expert A, “but we know there were bad examples. Even Councilors that were at the beach”. On a more serious note, the personal identity can became an issue in case of deliberate misconduct. “the app enables everyone to vote. I can call someone else and let him vote in my place, but then it's on my legal responsibility” argues expert F.

The system to record the presence of councilors can only register the login and logout, but “if you are connected with the camera turned off we can't be sure that you are there. It happened that someone was called out and did not replied because they was not there”, recalls expert F.

At the same time, being connected from home is a very different matter than being present in person, in an official assembly. As reports expert G, “being connected from home is much more relaxed. This can even be a problem because requires a much stronger focus effort.”

The political dynamics may determine strong disputes and arguments, difficult to moderate remotely. “we can mute the microphones but we can't prevent them to reactivate them. The risk is to paralyze the session”, declares expert C.

Adoption Support

The participation to the sessions of the City Council relies on the technological infrastructure and therefore the predisposition of appropriate devices. Granting all the needed support became an essential service to be provided, explains expert C. Technical support was therefore granted since the beginning of the experimentation and expert F recognizes their qualities and availability.

“Everyone has been able to use the product: the resistance was cultural. We needed to explain it in a good way and drive the Councilors through the usage”, reports expert C.
“We have never faced a really insurmountable problem”.
“A big praise to the technicians for spending a lot of time with us, testing the systems”, expresses expert G.

“We have explained several times during the sessions of the City Council, that there exists a responsibility for the Municipality to guarantee the technical means to take part into the sessions of the Councils. But on the other hand, if from a technical point of view we can certify that the system is working, then we can say we fulfilled the need of councilors to be able to connect. It is also up to them to take care of their capacity to be present”, summarized expert C.

5.3 Institutional arrangements

Socio-structural

Pandemic motivation

“All over the world governments had to face a shock and find solutions in response to the emerging needs”, declares expert I. “Institutions that relied on thousands of years in person had to change. The democratic life was suspended”.
The situation was recognized from the very beginning as being extremely urgent. It gave a strong motivation to all civil servants, according to expert B. “The fear of the virus, to go out of one’s home, helped us to overcome the push-back in that critical phase. It is part of human beings to consolidate praxis and stick to them: if it worked, why change? In normal times, I don’t know if we would have made it. If we are not so used to tech, we tend to prioritize ourselves to change”.

“It was mandatory to solve problems”, expert C adds. “So the emergency saturated all my time. I am used to work until late, as it is typical for certain roles, but for months we have not seen a free moment”.
“We needed to be fast: we had to reach really important goals like food security or rent relief”.

The pandemic forced change to happen on areas already under scrutiny for improvement, like the digitization of certain working activities. “The organizational culture was not ready for such change, but we have been helped a lot to work more and better. Now, it is up to us to try to balance work and personal life”, said expert I.

“In great tragedies you can find great resources”, believes expert I. “Who is able to be resilient can find great treasures”.

Cultural

Attachment to traditions

“We never thought about digitizing the City Council. The rituality is important. In democratic assemblies, functioning remotely is a taboo, as you can seen when sick senators are carried to vote”, believes Expert A.
The rituality and sacredness of the City Council is widely recognized by its members.

For instance, E states that “the Council Hall is so sacred that in every representative assembly around the world it is forbidden to the police to enter it. It’s a way to express how sacred it is, the free and sovereign debate”.
“When I was first admitted to the City Council, I was emotional. I was sitting in the same place where many politicians that made the history of Italy stood”, recalls expert F. In the remote functioning most of these theatrical elements are lost, comments expert A. “The City Council lost most of his suggestions: democracy is an agora that happens around a center. Maybe it makes sense: express strength, theatricality, efficacy.

That is why we want to move back there. Where lays a quote by Cicero, to tell us how to operate, with the public present. All of this cannot be replaced.”

5.4 Organizational forms

Bureaucracy

Organizational flexibility adopted

The pandemic situation had a strong effect on the organizational behaviors of the civil servants and councilors of the City of Milan. As expert D explains, “I was able to abandon the regular time scheduling. This way, I have been able to organize much more meetings, commissions and to meet more executives and relevant actors”.

“We did not have much time to solve problems, so we adopted a much faster pace than usual in scheduling our meetings”, recalls expert B. “We were able to rapidly receive feedback and move on with our projects.”

Expert G recalls how immediacy and punctuality to meetings increased significantly, beside a much faster exchange of documents.
People worked much faster because the useless lags were dramatically reduced, elaborates expert I: “I noticed how, when you meet outside, you still need to spend time once you are there. Reducing the time needed to move, you can cut meetings short”.

Networks

ICT-administrative bridge

“The dialogue between the technical side and the administrative side is a critical point, because we speak two different languages”, explains expert B. “But we have been able to learn the respective language in this occasion”.

The need to quickly organize a solution that entailed both administrative and technical specific features, created a bridge between figures usually not so able to understand each other”, elaborates expert C. “The high number of interactions helped us calibrate much better solutions”.

“The ICT support demonstrated an interesting capacity to communicate”, notes expert C. On the other side, this perception is confirmed by expert I: “it was a fortuitous case, that on the administrative side the was a sincere curiosity and openness to learn technical competencies”.

“The discussion on the digital transformation involved the technicians, the President of the City Councils, the administrative support. We decided together how to act to make the democratic life of our institution possible”, reports expert I.

“The ICT support is now in charge of directly supporting the president in the moderation of the City Council. In that role there is a need to know exactly how vote will happen, how amendments and sub-amendments are managed, all the content discussed”, explains expert C. “We generate digital objects for the voting process. If we cannot do it, the City Council has to stop. It is now part of the inner dynamic for its functioning”. “Our collaboration has been a best practice on how technicians and administrative personnel have been able to talk to each other and enrich themselves”, concludes expert B.

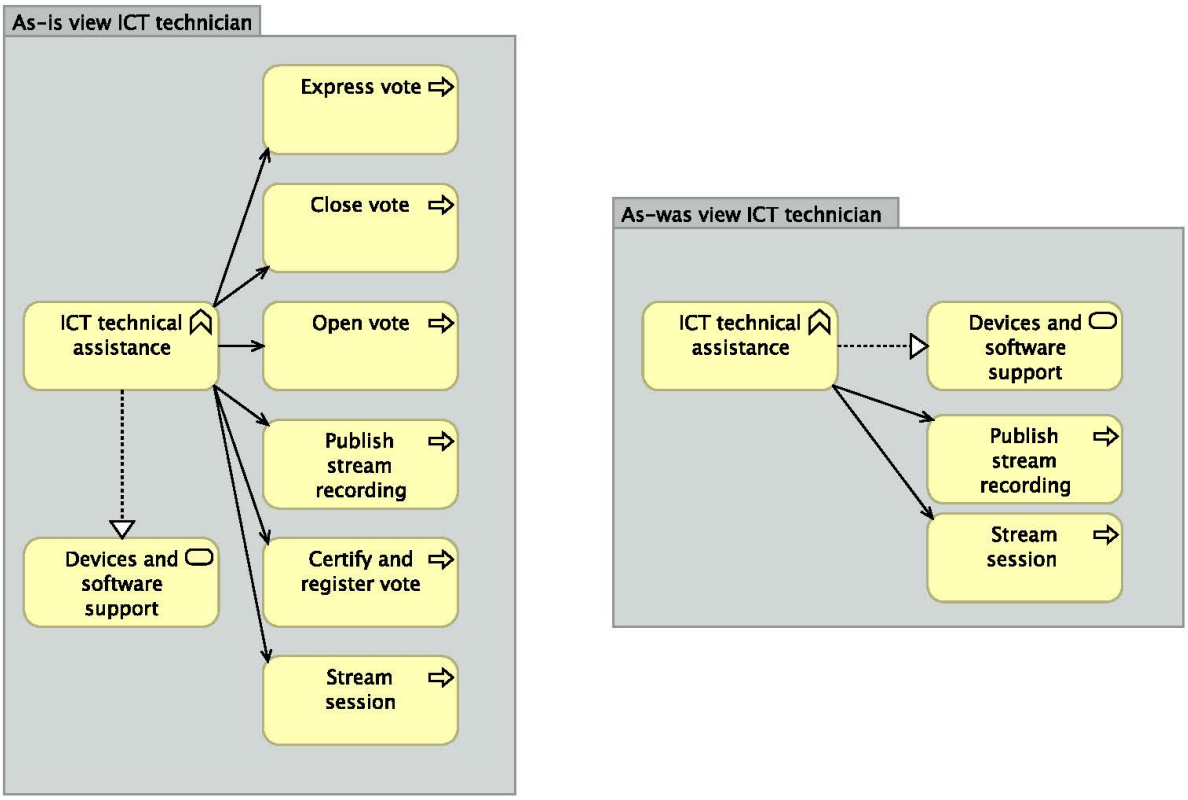


Figure 12. Comparison between remote and in person duties for ICT technician

5.5 Outcomes

Increased ease of participation

A rise in the participation of councilors to the sessions of the City Council of Milan has been noted by expert A, who–believes that "it eased the participation. It is evident. Especially for those who were struggling to conjugate work and political activity".
"There is a stronger participation from women, who usually suffer from these dynamics", expert D remarked. "I noticed it especially in councilors of the Commissions".

The potential for remote participation in occasion of physical impediments is well recognized by expert E: "if these tools enable the participation of hospitalized councilors, it's good and I'm open to regiment it in our Regulation".

For expert F, the reduced amount of time needed to be in the City Hall located in the city center, frees more space and time, to be invested in meeting citizens of the suburbs, while being able to participate remotely among different sessions even when traveling. "The

remote sessions surely enable a much stronger participation from previously absent colleagues and are present and brings contents: it is an opportunity for everyone to be present. The only real one", argues expert F.

In the experience of expert G, "the immediacy of the remote sessions is very useful: we have been able to connect with people from all over the world successfully".
"This reduces the environmental impact, increases the time at your disposition and increases your productivity, because you can work more and more comfortably", summarizes expert D. "If remote sessions weren't available, we would not have received our participation fee that relates to physical presence. Some of us rely only on that stipend. For democracy to be representative, it means that everyone should be able to participate".

The change in the participation induces some reflection upon what was previously considered acceptable, as illustrates expert A. "It happened that Councilors were not able to participate for months and it was considered a fatality. But this phase poses a problem: since we think this is compatible with representative democracy, we can no longer do it".

Loss of direct interpersonal communication

One of the main emerging issues is the lack of direct interpersonal communication, as expert F said: "usually exchange a lot in person and democracy in this fashion loses a lot. The majority is less willing to discuss, not because they are not open to approve modifications, but because it became difficult to manage them."

Most of the complex and non-formal relationships that constitute the essence of the activities in the City Hall are not translated into a specific technical solution. An example is provided by expert F: "I presented a motion with a strong request. The deputy Mayor was open for a bargain with me but we had to follow up the ongoing session and we were not able to continue our discussion.

We tried to exchange some messages online, but after a few we stopped. It is very hard to bargain that way, it's easy to be misunderstood. I need to talk with other people to mediate and other people have the same need. For sure, we are in an emergency situation and therefore not prepared for this. If we want to make this a permanent transformation we need to face this problem. It limits a lot the political dialect."

The difficulties to transform physical presence is so high that expert F considers it an unsolvable and undesirable purpose so far, "it is a matter of protecting dialogue, the democracy itself".
For expert G, the loss of direct interpersonal communication creates a need to obtain the attention from colleagues in a different way, more centered on content than on rhetoric: "you need to put more effort on the content, on keywords to be clear in few minutes within this spatial distance".

The role of journalists changed significantly, according to expert H. Previous interactions were conducted in parallel with the sessions. Now they can only assists to the streaming online in a passive way. “One of the crucial aspects of my work is interaction”, states expert H. “Beside physical events, we were able to pose questions “*a margine*”, as they are called in our jargon. Not only on the event in itself, but on other themes of interest in those days in the City.”

“From dialogue, proposals and confrontations thrive. Especially in the City Hall of Milan, since councilors see each other face to face. They can change what they are saying based on the reactions of the interlocutors. Online, I have never seen such dynamics”.
The interactions among councilors of different parties are now almost zeroed, like the interactions with journalists. Even the role of citizens has been diminished, from his point of view. The Public can only assist without intervening during the sessions but, he recalls, during important votes there were many citizens present, silently following the discussion in person. “It is another way of being a democracy, without exaggerations”. “Of course we can ask documents in chat, but this is much more complex”, concludes expert H.

“I continued to follow the sessions online”, reports expert F, “but before, I used to discuss with councilors. Now, I only call them to express my appreciation quickly”. The public should also be involved in Council Commissions, but according to expert F, “now it is not possible to intervene, so I refused to follow their work at all”.

Successful formal compliance

The approval of the Decree Law Cura Italia set the legal landscape concerning remote City Councils solutions, giving the responsibility of the President to adopt a piece of regulation that respects the prerogatives of city councilors.

“We were in front of a choice: either remote or we cannot convene it”, remembers expert C. “We tried to create some guidelines that respected the City Councils as institutions but also to introduce remote sessions”, reports expert A. “We were not aware this way of proceeding would have lasted that long. Our goal was to create a temporary place to perform the functions of the City Council. The idea was to find a way to avoid the suspension of democracy”.

The Regulation for City Council already included the electronic voting even if in the city hall, “our concerns therefore were only on ensuring an appropriate measure for voting, to avoid mistakes”, illustrates expert C. In a matter of weeks, first the remote Council Commission were instituted and then the City Councils. “We took some time to reflect on it and decided to start from Commissions, were there is no need to vote”, recalls expert A.

“For sure, the Decree Law Cura Italia guarantees the legitimacy of the remote sessions”, underscores expert E, “but one thing is the possibility of a limited period, another is the introduction of them without an end”.
The decree law established this opportunity only during the state of emergency, as expert C concludes. “If we wanted to continue after that moment, we would need to approve a specific regulation in the City Council”.
Expert D summarizes her view: “The principles of a representative democracy were respected in the digitization of the City Council”.

Risks of reduced role for minority

“The debate should absolutely be sacred and free. In which we look into each other’s eyes and talk. The digital dimension sacrifices this”, believes expert E, “it’s not the same thing as being together in the Council Hall where you see the majority, the minority, the cabinet. There, the proposals emerge and the minority can have an influence.”

“Clearly, an online City Council would sacrifice all of this. When the emergency is prolonged for four months, this is sacrificed”, explains again expert E. “A substantial element of representative democratic institutions is the effort to find convergences. The way in which amendments are presented prevents this”.

The chiefs of political groups suffered particularly from the online condition to fulfill their role, explain expert D. “the point is how we want to do politics. Should we necessarily make so many compromises?”.
“I would cut the time to discuss in the sessions for everyone, to make everything more practical. To discuss about problems and proposal and not only about rhetoric to turn things upside down”, continues expert D, “now indeed the negotiations that were done in few minutes require much more effort”.

The majority can be more relaxed about maintaining the “legal number” and voting procedures explains expert F: “Now all the tactics the minority used to perform are no longer working. People are now able to connect to the sessions even from time to time, just for voting. The majority is composed by 32 members and the minority by 16, that is correct. But there has not been a substitute tool for obstructionism.”

“The majority pays less attention to minority, they do not need to listen and so they do not do it. Even in practical cases when we tried to improve some elements”, continues expert F, “now the City Council could have been replaced by only few members”.
“Obstructionism is never an end in itself”, explain expert F, “you use it to be listened to”.
“I can even be technically present but not caring about the vote. How can I be aware of such vote?”, asks expert E.

On the other hand, expert C shares a similar concern but at the same time points out how, in the end, not even in the Council Hall can the councilors be forced to pay attention to the discussion.

Diminished complexity of debate

“Due to the need to face COVID-19 pandemic, we have revolutionized the dynamic of the City Council, in some sense”, explain expert C. “We tried to keep it as overlapping as possible with respect to the normal sessions but everything that is collateral cannot happen”.
“It was not possible to discuss complex arguments, as this period would have required”, argues expert E, recalling the main issued discussed as trivial or simplistic, adding: “the debate should be articulated and not limited to a binary choice”.

“The representative democracy its deeply linked to complexity and debate should be complex”, further recalls expert E, referring to the presence of amendments and sub-amendments and how they are the responsibility of the individual councilor, not of political groups.

“One thing is being alone in a room, reading documents and thinking about amendments”, illustrates expert F, “another is being physically in the heart of the debate, notice some relevant points and discussing a shared proposal with some other councilor linking different amendments and sub-amendments. When this condition is missing, the action is limited. There is an objective limit”.

After few weeks from the instauration of the remote regime there has been an upgrade, which has introduced the possibility to send amendments via mail. On the matter, expert E comments that “if I have five normative proposals, but I lack technical competences, I would normally require the support from the City Councils technician.

But in the actual context, I would privilege the “flagships” amendments that will never pass, to show my constituency that I fought for them instead of working on more complex amendments that I cannot elaborate on my own.”
The risks, expert E recalls, is to not privilege quality in the councilors action. “If there is a complex debate, it is also required to have a constant interaction, among us councilors”

The emergency situation impacted significantly on the debate, recalls expert F, “but if we want to make this transformation permanent, we need to face these problems. The political debate is incredibly limited”.
“The result is not satisfying because in politics confrontation is required and there you cannot do it”, argues Expert L.

Desirable future opportunities

More participation

Expert C sees the potential for a further development of digital interactions. “A Regulation is being elaborated at the moment”, expert C explains, “every digital transformation of our processes derived in a higher level of participation”.
“A potential for elimination of paper and increase in participation is concrete”, argues expert E. “If we want to write down amendments on a tablet instead of paper, for me, it is good”.

Hybrid design

The City Council sessions are really a hard duty to schedule, given their length and unpredictability, elaborates expert C, adding that “the remote sessions enable a different vision, before impossible to realize at a cultural level. I hope we will maintain whatever good has emerged. Now it is even possible to participate from outside Italy”.

“We received instruction to move towards hybrid solutions for the future”, illustrates expert C, “we will see, based on the will of the president and the councilors”.
The newly discovered possibilities to cover roles will remain, argues expert A. “It is clear that some political steps require a physical presence, but many meetings do not lose anything in remote sessions. Some things can certainly remain remote, probably starting from commissions.”

“We can absolutely pursue the elimination of paper and increase the remote participation of councilors”, believes expert E, for whom it would be possible to “start from commissions that are not a deliberative assembly where you need to vote”.
“The digitization of democracy should be complete”, argues expert D, “giving the possibility to carry out the mandate in a digital way. I am among who wants to keep the digital democracy and digital Commissions. I hope this experience will prosecute in a hybrid form.”

“It’s obvious there will be a transition phase, with some meetings in digital and some other in physical. But I think that at the end of the path we want to follow, many actors will continue to use digital tools”, concludes expert C.
“First, as a citizen I’m really happy we now have back-up instruments for rapid democratic deliberations”, expresses expert I. “It may be useful also for positive circumstances”.

Ecological solutions

Ecological considerations from expert B outline the potential for reducing paper consumption "When I first arrived in the City Councils, I saw an enormous amount of paper. I thought about how to improve the situation, but every change in an assembly requires lot of time. The speed-up was the pandemic that helped us overcome existing resistances"

Furthermore, experts G and E express their interest in the reduction of paper, while expert C notes how "at the end of the digitization path, paper will be removed and actors will just use digital."

5.6 Summary of results and discussion

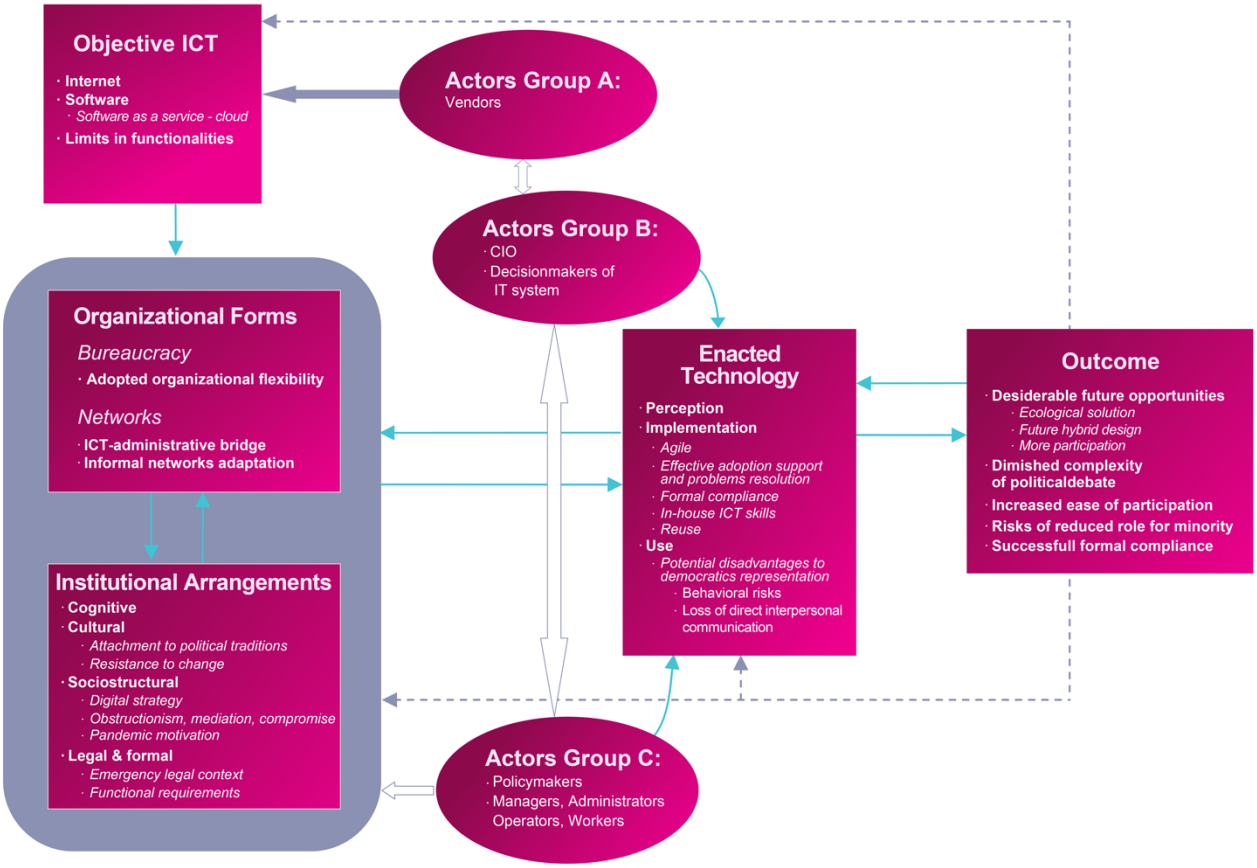


Figure 13. The Technology Enactment Framework in a democratic context, adaptation by the author

The presented models and the results from the interviews depicted a clear picture of the occurred change.

From a formal point of view, the digital transformation was undoubtedly a success.

After the Art. 73 of Decree-Law Cura Italia freed the City Council from the usual legislative burden. The administrative and technical officers took a rapid initiative to cope with the urgent need of preserving the functioning of the assembly.

The Technology Enactment Framework lens helped us to uncover the organizational strategies adopted and the outcomes produced.

The usual organizational forms were adapted into a more flexible organizational structure.
The administrative and technical side were able to work together in rapid iteration cycles, in practice applying an agile approach. The legal requirement for avoiding further expenditures and a pre-existing digital strategy of centralization pushed for the adoption of a re-use approach in which the vendor had a critical role.

The secondary research goal can also be now addressed.

The democratic dynamics of the City Council of Milan have been exposed extensively through the experience collected in the interviews.

The two selected principles for the assessment of the quality of the democratic debate can now be briefly assessed.

For what concern the role of minority as an actual promoter of a healthy democratic debate, there have been collected several critiques which, through observation of the digital tools adopted, can be considered found. The complexity of the City Council in-person interactions is hardly transposed in digital procedures adopted.

Also, for what concern the non-triviality of the decisions adopted the critiques collected through the interviews raises some concerns. The diminished quality of the debate and the reduced capacity to process structured discussions seems to find a confirmation in the design adopted for the digital transformation.

Both of these elements are not absent in the digital configuration, but since the primary motivation for the occurred transformation was to preserve the democratic life of the City Council of Milan the current limits should not be underestimated.

Maybe, is the research question that should be reformulated to recognize that the real motivation behind the digital transformation of the City Council was to preserve its formal functioning and not its democratic quality.

6 Conclusion

In the previous chapters, we have performed an in a deep analysis of the digital transformation of the City Council of Milan to assess the research goal of uncovering how the digital transformation process took place and whether the democratic principles at his core have been preserved into the newly instituted remote sessions.

The primary goal of this research was achieved because we have been able to show in detail, through the lens provided by technology enactment framework, the dynamics activated during the digital transformation process and the outcomes derived from the enactment of the new technological solutions adopted.

The secondary research goal was also achieved thanks to the findings derived from the interviews performed, which revealed the democratic processes in detail.
An assessment of the democratic principles related to the role of minority and the non-triviality of the content of the voting procedure performed was performed, and critical elements have been discovered.
The actual technological solution if on one side preserves the capacity of the City Council to perform a legally binding-decision making process, compliant with the legal requirements, on the other hand, arises concerns about a potential negative impact on the quality of the democratic debate and the limits the contribution of the minority.

The limitations to this research are a limited capacity to the generalization of findings due to the particular context analyzed, with a high degree of context-specific variables like the legal procedures for both the functioning of the City Council and the organizational structure. A limited explanatory purpose was also expected since this research was mainly exploratory.

Future research could be performed to try to grasp if the presented findings can be translated into a broader context. A comparative case study should be an interesting approach to try to understand if the peculiar dynamics of the political debate, including a firm reliance to traditional forms, in-person relationships, and substantial context-specific leverage on powers.

Another attractive stream of research can be a longer-term assessment on the impact of the pandemic on the attitudes towards the use of technology in a political context. The usual strong resistance to change in our case study was overcome by an exogenous factor.

A last future research direction concerns the potential existence of different visions of democracy enacted with the use of technology. In the coming years can be expected a rise in the occasions in which representative democratic dynamics will be digitalized and their design should the object of careful research.

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Appendix

A Interview protocol

Interview for master thesis: expert x

Who am I?
What am I doing?
Why did I ask for an interview?
Questions:
Introduction

1. A.Role position and background?
   B.Role position in digitalization of Milan Town Council?

E-democracy and representative government

2. A.What is your vision of digital democracy?
   B.What is your vision of digital democracy in the context of local representative democracy?
   C.Do you think that the principles of representative democracy were respected in the digitization of the CC?

Institutional change

3. Which drivers and barriers were relevant before digitization to pursue it or not?
4. A.What barriers and drivers did you encounter in the digitization process?
   B.What are your concerns from an organizational point of view?
   C.What are your concerns from an institutional (cultural and legislative) point of view?
5. Which, among the interesting aspects of the process of transformation, were particularly relevant?
6. What are your prospects for the future?
7. Among the people involved with the functioning of the City Council (especially active citizens), whom would you advise me to interview?

Organisational forms

8. How did you interact with your colleagues to deal with the digitization process?
9. What factors (methodologies, skills), do you consider of crucial importance to aCity Council of Milanplish this transformation?

Enacted technology

10. What differences did you encounter in your role, with respect to the use of the newly implemented instruments and their management?
11. Did you observe any difference in the behaviour of the other actors involved, with respect to the prior functioning (of the CC) ?
12. How would you consider your experience in this project overall?
13. Were there any particularly significant moments to exemplify the change in the functioning of the CC?

Objective technology

14. What are technologies used for the operation of the CC?

B Codebook

Name	Description	Files	References
Actors group A - vendors		1	1
Actors group B - decisionmakers of ICT		1	1
Actors group C		10	14
Administrators		2	4
External stakeholder (citizens - journalists)		2	2
Policymakers		4	5
Enacted technology	The process of enacting technology refers to the tendency of some organizational actors to implement new IT in ways that reproduce, indeed strengthen,institutionalized sociostructural mechanisms even when such enactments do not use technology rationally or optimally. Organizational actors tend to enact technology to preserve ongoing social, or network, relationships and to maintain performance programs. More entrepreneurial or visionary professionals might use the Internet to develop new capacity.	10	153
Design		1	1
Implementation		8	44
Agile		3	11
Effective adoption support and problems resolution		6	14
Formal compliance		3	5
In-house ICT skills		3	5
No legacy		1	2
Reuse		2	4
Perceptions		7	15
Use		9	93
After		5	9
Before		6	18
Political strumentalization		3	3
Positive councillors responsibility usage		3	4
Potential disadvantages to democratics representation	Political strategies, capacity to fulfill role, possibility to impact on adopted politics	8	58
Behavioral risks		8	28

Loss of direct interpersonal communication		4	17
Strict application of rules		1	1
Good quotes		10	75
Institutional arrangements	Institutions generate rules and requirements to which actors and organizations must conform if they are to receive support and be deemed legitimate in their authorizing environment. They reward normative requirements for appropriateness and legitimacy and, in some cases, conformity to procedure, presentation, symbols, and rhetoric	10	212
Cognitive	Cognitive institutions are mental habits, which influence people's behavior and could lead to making a particular decision	7	14
Rigid forma mentis		0	0
Cultural	The shared symbols, narratives, meanings and other signs that constitute culture	9	32
Attachment to political traditions		6	13
Resistance to change		5	9
Willingness to change		1	2
Legal-formal	Legal and formal institutions are rules, which define processes and procedures of solving problem and making decisions	10	118
Democratic		10	84
Accessible	Involvement of the public, including civil society and other people's movements, in the work of the CC.	5	16
Accountable	Members of CC who are accountable to the electorate for their performance in office and for the integrity of their conduct.	3	9
Advantages		3	5
Drawbacks		3	9
Effective	Effective organisation of business in accordance with these democratic norms and values.	9	14
Representative	Elected, socially and politically representative committed to equal opportunities to its member to carry out their mandates.	5	13
Transparent	Open to the constituency and transparent in the conduct of its business	5	15
Emergency legal context		6	11
Functional requirements		6	22
Socio-structural	The social and professional networked relationships among professionals that constrain behavior through obligations, history, commitments, and shared tasks.	10	48
Digital strategy		4	13

Obstructionism, mediation, compromise		6	15
Organizational motivation		1	3
Pandemic motivation		4	16
Objective ICT	Includes the Internet, other networked computing systems and telecommunications, hardware, software, and digital devices	9	69
Advantages		2	10
Hardware		1	2
Limits in functionalities		7	14
Microsoft backbone		0	0
Other ICT		7	23
Amendments		5	5
Convocation PEC		2	2
Log records		2	3
Microsoft Azure		2	3
Stream		1	2
Voting system - Polly		5	5
Software as a service - cloud		2	3
Organizational forms	Organizations are technical instruments in which products or services are produced and exchanged in a market and in which rewards are given for effective and efficient control of the work process. They reward effectiveness, efficiency, and control over production	9	56
Bureaucracy		6	20
Adopted organizational flexibility		5	11
Networks		8	33
ICT-administrative bridge		3	9
Informal networks adaptation		5	11
Outcomes	Multiple, unpredictable, and indeterminate. Outcomes result from technological, rational, social, and political logics.	10	139
Desiderable future opportunities		9	37
Ecological solution		4	5
Future hybrid design	Physical + digital	5	14
More participation		3	5
Dimished complexity of debate		4	9

Increased ease of participation		6	23
Other negative results		7	20
Other positive results		7	25
Risks of reduced role for minority		4	14
Successfull formal compliance		5	10

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Münster, 11 August 2020

Giovanni Davide Zenga

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