

When Weber goes Digital During a Pandemic. Reflections on the Digitalisation of Bureaucratic Public Sector Organisations

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Abstract

Public sector organisations undergo digital transformation just as private sector ones. Literature states that increasing the digitalisation of public sector organisations will make public sector organisations more effective. However, public sector organisations may be slow in adapting their internal processes to exploit digital technologies and may also depend on the digitalisation choices performed by other organisations in their institutional environment. The recent pandemic has boosted the digitalisation of public sector organisations, especially concerning individual and team working practices. This position paper uses observational evidence collected during the Covid-19 pandemic to reflect on the sociotechnical clashes in the digitalisation of bureaucratic public sector organisations.

Keywords

Public sector organisations, Bureaucracy, Digitalisation, Digital transformation, Covid-19

1. Introduction

Public-sector organisations are generally expensive (compared to private sector organisations), inefficient, obtrusive, and slow in reacting to environmental stimuli [1]. Such negative traits of public sector organisations are commonly associated with the term *bureaucracy*, which is used negatively [1]. With the decreasing cost of digital technologies and their progressive diffusion, predictions say that the digitalisation of public sector organisations will eventually lead to the demise of *bureaucracy* [2, 3].

Just like the private ones, the public sector is undergoing a process of extensive digitalisation. Digital technologies are adopted to make public sector organisations more agile and nimble, and to improve the internal public sector organisation work dynamics [4, 5]. Several literature sources report evidence of the benefits of digitalisation of public sector organisations [4, 6–8]. However, digitalisation does not only bring positive outcomes to public sector organisations. Digitalisation may also increase their rigidity, creating forms of technocracies where “rules and machines govern society and changes to the system are difficult to initiate or implement” [1].

Digitalisation in public sector organisations happens under different conditions from private organisations. First, public sector organisations are subject to the influence of the institutional environment and elected officers or representatives [6, 8, 9]. Second, they must work respecting principles of transparency, accountability, and universality of access to their services that are unmatched by private sector organisations [10]. Finally, public sector organisational members have significant discretion on how to implement the digitalisation policies or adopt digital technologies inside their organisations [11]. Due to these characteristics, digitalisation in the public sector must face new barriers that may prevent public sector organisations from fully achieving the benefits of digitalisation [12].

During the recent pandemic digitalisation of public sector organisations increased significantly. A larger share of public services was digitalised and the number of citizens using the digital services increased. Above all public sector organisations’ staff experimented with digitally supported work methodologies such as smart and distant working [13]. The experience of digitalisation during the

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pandemic – also due to the unique in history contextual conditions – was not only a source of positive outcomes [13]. This position paper reflects on the adverse outcomes of the digitalisation of public sector organisations and focuses on sociotechnical clashes observed in the digitalisations of bureaucratic structures designed on the principles of Max Weber [14]. This position paper is based on observational data on the daily work practices of one large public sector organisation during the period 2020 – 2021. It presents thoughts on sociotechnical problems that may arise in the digitalisation of public sector organisations during the covid-19 pandemic.

The paper is structured as follows: Section 2 provides the foundations of the theoretical framing of this position paper by briefly summarising the literature on the digitalisation of public sector organisations, presenting the bureaucratic organisational model of Maximilian Weber, and framing the digitalisation of public sector organisations within a sociotechnical perspective. Section 3 provides some information on the observational data and describes four examples of negative outcomes of digitalisation of public sector organisations, which are discussed in section 4 identifying three sociotechnical clashes along with the related implications for research and for practice. Section 5 concludes the paper.

2. Theoretical Framing

Two literature streams are relevant for this position paper: the digitalisation of public sector organisations and the ideal type of organisational structure designed by Maximilian Weber. To this regard section 2.1 will briefly describe the main findings of literature discussing the digitalisation of public sector organisations, and section 2.2 presents the salient characteristics of Weber's bureaucracy. Finally, section 2.3 presents a conceptual sociotechnical view of the digitalisation of public sector bureaucratic organisations.

2.1. The digitalisation of Public Sector Organisations

Public sector organisations exploit the rapid advancements of digital technologies to innovate the way they work [5]. The digitalisation of public sector organisations goes together with the need to adapt the way of working to exploit better affordances of digital technologies [4, 6, 8, 15, 16]. Several areas of public sector organisations' work are affected by the digitalisation encompassing both public service delivery and internal work systems [1].

The digitalisation of public sector organisations proceeds incrementally with progressive waves of adaptations of processes, structure, and technology [6]. In their digitalisation efforts, public sector organisations may depend on actions undetermined by other actors in the institutional environment, or by actions of policy makers or elected officers [6, 9]. Those entities may either be the drivers or may impose constraints that public sector organisations have to address in their digitalisation efforts.

The digitalisation of public sector organisations may deliver increased flexibility and nimbleness to public sector action [6]. The flexibility afforded by digitalisation manifests in the improved capability of public sector organisations to adapt to changes in the external environment, to improve flexibility in the relationships with stakeholders, to adapt internal working dynamics, and to be more efficient with the diffusion of standards [6, 8, 16]. These benefits of the digitalisation of public sector organisations are neither automatic nor granted. Indeed, they depend on how digital technologies are integrated inside public sector organisations [8], on how bureaucrats decide to activate digital technologies inside public sector organisations [11], and on the possibility of bypassing barriers such as bureaucratic culture, technology level and literacy and lack of integration [12]. Being bureaucratic, public-sector organisations work extensively based on rules and the same set of rules that govern how the bureaucratic structure works may also impede the public sector organisations from working differently [1].

The digitalisation of public sector organisations is also seen as a way to compensate for the obtrusiveness and ineffectiveness of public bureaucracy [1]. Digital technologies are considered capable of making public sector organisations automatically accountable due to the inscription of organisational processes inside the technology [7, 16]. As a consequence some scholars also expected that the digitalisation of public sector organisations would contribute to the eventual demise of bureaucracy as we know it today [2].

2.2. Maximilian Weber's Bureaucracy

Within organisation studies, Maximilian Weber's work laid the foundations of organisational design by defining an ideal type of organisation that went down in history with the name *bureaucracy* [17]. Common sense tends to assign the concept of *bureaucracy* a negative connotation, especially when this is extended to public sector organisations [1]. Bureaucratic public sector organisations are perceived to be obtrusive, slow, costly, and unresponsive. Weber himself acknowledged that bureaucracies may tend towards authoritarianism and may transform into large technocratic structures [18]. However, this is not how Weber imagined a bureaucratic organisation to work. With bureaucracy, Weber aimed to define an ideal type of organisational design that could work independently from external influence. In the case of Weber such influence was that of politicians or political parties [14, 18]. In a bureaucratic organisation people can be put into offices where they can work independently and can be made accountable for the results, they will deliver [19, 20]. Weberian bureaucratic structures are designed on the base of the following set of principles.

Power is vested in the office, not in the individual. In a bureaucratic organisation the authority is designed, distributed, delegated, and delimited in a hierarchy where no individual has extraordinary power over the others. The power is embedded in the office they take on. This implies that no specific characteristic of individuals (e.g., census, social status, charisma, tenure) is a source of extraordinary power. To achieve such outcomes, roles and hierarchy need to be clearly defined, with no overlaps, no ambiguity, and with a clear and visible chain of command that tells every organisational member who is her supervisor and her subordinates [21].

The way the power is distributed in bureaucracy implies that *bureaucracy works on objective rules* without regards for persons [14]. Bureaucratic organisations define shared and standard rules. In the case of public sector organisations these rules are grounded in the law. These rules are debatable, in the sense they can be discussed and changed, but when approved they are mandatory for all organisational members and stakeholders [22].

Bureaucracy works based on technical principles. People are put in offices depending on their technical competencies and need specific technical competencies to take on official duties [21]. Staff's performance in a bureaucratic organisation can be assessed based on the outcomes they deliver. They do not need to be put in office based on lobbies or influence of political actors, and they are not elected. All workers are supposed to work for the benefit of the office or the organisation. Remuneration and compensation benefits – such as automatic raises in pay and guaranteed pensions – are necessary incentives to strengthen the loyalty of organisational members to the organisation.

Bureaucracy is independent of the influence of political forces. Officeholders are accountable to the organisations and the public service, but not to the political leader of the day [1, 14]. Specific strategies such as tenure for office holders, steady career paths, or negotiated budgets, are necessary to ensure the independence of organisational members of bureaucratic organisations. Bureaucratic public sector organisations can always be made accountable for their actions, and the democratic institutions and policy makers shall always have the possibility to call administrators of bureaucratic organisations to respond, ensuring that bureaucratic technocracy does not arise [1]. However, internal micro-management and working practices are independent of external influence.

When applied to public sector organisations such design achieves two goals [1]. First, it isolates the functions of public administration services from the unpredictability of the political area, separating administration from politics and making government intervention over administration more mechanics. Second, it gives administrators the control leverage to implement policy through technical competencies, education, skillset, and knowledge.

2.3. Sociotechnical Clashes in Bureaucratic Structures

In this paper we frame the digitalisation of bureaucratic public sector organisations from a sociotechnical point of view. According to the sociotechnical paradigm an organisation is composed by a set of interacting subsystems.

We use the model of Bostrom & Heiden [23] that identifies a social system and a technical system. The social system is composed by people and structures. The technical system is composed by technology and tasks.

All these four components mutually interact and influence each other. A longstanding and stable implication of the sociotechnical system theory is that when we want to introduce change in such systems, we have to address all the foundational elements of the system concurrently, acknowledging their mutual interactions.

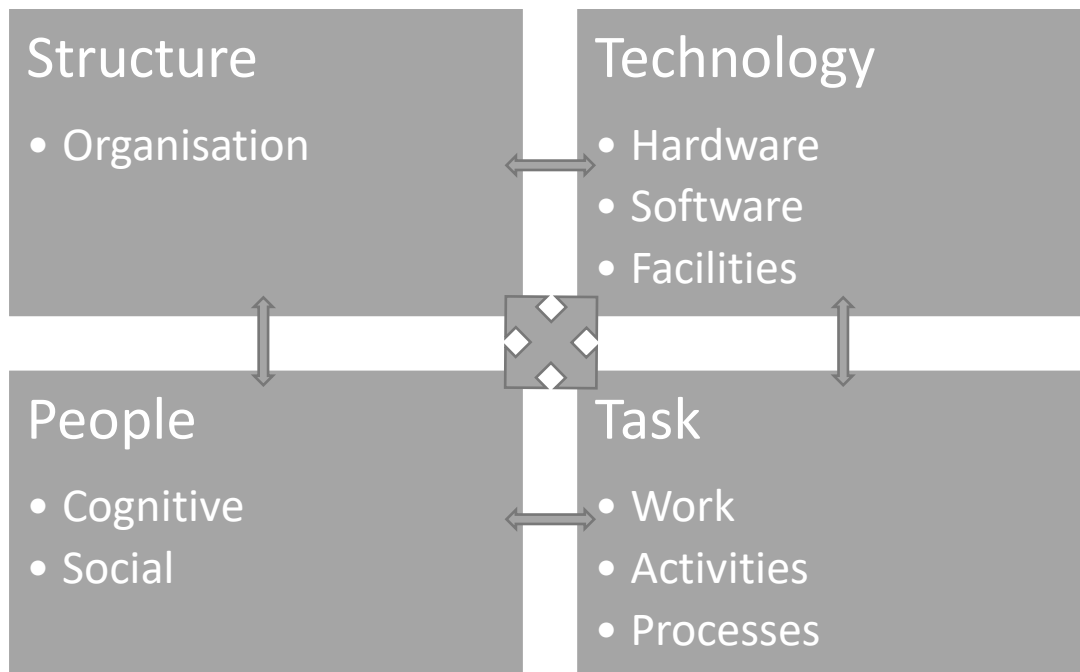


Figure 1. Sociotechnical framework based on [23]

If we frame the digitalisation of public sector bureaucratic organisations in a sociotechnical perspective, we may observe that both the organisational structure and the digital technology influence several components of the sociotechnical system.

The bureaucratic model as described in section 2.2 provides structures by way of its standard rules, roles, and hierarchy. These structures influence how people work and cooperate inside organisations. Organisational staff will interpret the rules and orient their organisational behaviour towards them. Enacting the rules they will also develop routines to execute organisational tasks.

Digital technologies on their side also provide structure as they also work on rules which in this case are algorithmic and may support or automate tasks. If the rules of digital technologies coincide with the rules of bureaucracy, then we may have the benefits described by the literature. Nevertheless, digital technologies also bring into public sector organisations new rules, and some of them are not just necessary for the working of the bureaucratic apparatus, but also for the technical functioning of the digital technologies. More on this line of thoughts, digital technologies also introduce in organisations new roles and new tasks that are not necessary for organisational goal, but are instrumental for technology management.

Finally, when public sector organisations are digitalised, the organisations themselves play a central role in the adoption of the technology. Public sector organisations are free to interpret the technology features. Digital technologies may then be enacted in different ways and bureaucratized by the public sector organisation [8, 24].

During the digitisation of the public sector organisations if bureaucratic structures and technology structures are aligned or are addressed together to be aligned then we may observe the positive benefits the literature ascribes to the digital transformation of public sector organisations. On the other side, if these rules clash, then we may observe organisational problems of technology malfunction that depend on sociotechnical clashes.

3. Research design

This position paper is based on qualitative observations performed in a large public sector organisation undergoing several digitalisation initiatives. These observations are taken by the author who took part in such digitalisation initiatives as a consultant. During the participation to these projects the author collected data in the form of field notes, observation notes, and reflection memos. These data are complemented by email-exchanges, official acts and documents the public sector organisation has circulated to all its members on the digitalisation initiatives.

These initiatives were either introduced at the time of the Covid-19 lockdowns when the public sector organisation underwent an extensive digitalisation process due to the need to resort to digitally supported distant or smart ways of working, or they were started before but were boosted during the pandemic.

The data collected was organised as a single research database and was analysed with an interpretive approach using the NVivo CAQDAS with a three-level coding structure according to the Gioia methodology [25]. The concepts of socio-technical systems as described by the framework depicted in Figure 1 worked as sensitising device. The data was coded to search for problems in the digitalisation initiatives and for identifying roles, rules, routines, as well as bureaucratic, organisational, and technological structures. The codes were analysed to reconstruct the sociotechnical perspective beyond each situation, and to explore the interactions among the technical and the social part.

Preliminary evidence of these analysis was discussed with organisational members, also with some of those in charge of the digitalisation processes. The results of the analysis of these observations are presented below as four narrated mini cases, each one describing a challenge and a consequence of the digital transformation that led to internal forms of tensions and resistance by organisational members.

3.1. Digital Shared Repertoires for Distant Teamwork

When the public sector organisation staff had to switch to complete distant working methods during the first nationwide Covid-19 lockdown in Italy, they started to use shared digital repertoires such as shared folders and shared online documents. The shared resources allowed distant collaboration in teams that previously used to work face-to-face. The use of shared resources survived the lockdown and was also maintained when staff returned partially in presence to the office.

The digital technology in use made it easy for organisational members to work on distributed tasks integrate the different contributions of team members. Organisational staff perceived shared resources promoted inter-teams' cooperation and afforded integration of the work of different team members. However, they indirectly manifested a problem of ownership.

29 th April 2022, 13:04 From: Staff member 1 To: Unit member CC: Unit manager, Staff member 2, Staff member 3
Dear unit member, good morning, Sorry to bother you but considering the last revisions on the plan that we are going to approve I would ask you to transmit the updated version of the document to this Bureau so that we can instruct the required material for the board decision scheduled for next week. Kindest regards, Staff member
29 th April 2022, 13:23 From: Unit member To: Staff member 1 CC: Unit manager, Staff member 2, Staff member 3
I do not think e-mail transmission is necessary. All files are already shared to the intended stakeholders.

Unit member
29 th April 2022, 14:20 From: Unit manager To: Unit member CC: Staff members
Dear unit member, Let's review everything to avoid mistakes. If you send it, I will also check it. Thank you.
Unit manager

Exhibit 1. E-mail exchange on document in a shared folder

Exhibit 1 shows an e-mail exchange among organisational members discussing about a document (*the plan*) to be approved by the board. The document is stored on a Google drive shared folder and all the staff members interested by the e-mail exchange, the unit member, and the unit manager have full access to the shared folder. In the days before the e-mail exchange the document was subject to several revisions by different people. Apparently, none of the organisational members involved know exactly which is the last version of the document, and they are asking one unit member to send the final version.

When the shared documents had to be transmitted to the boards or managers for approval, team members started to request the transmission of documents via e-mail. On the one side, these requests created resistance as they were seen as a worthless activity since the documents were already shared and accessible to everybody. On the other side, a continuous praxis of this kind created confusion, with parallel versions of the same documents circulating over shared folders and e-mails. With this way of working organisational staff started experiencing loss of confidence, fragmentation of knowledge, conflicts in cooperation, and defensive behaviour.

3.2. Digitisation Increases Paper Work

The accounting unit in the public sector organisation manages several monthly reimbursement requests of employees who regularly visit other locations in Italy and abroad. Staff need to be authorised by the unit manager for the mobility, who oversees the overall amount spent every month and year. The reimbursement requests were filed on paper and had to be complemented by the needed expenses justificatory documents (sometimes paper-based, other times digital). Reimbursement requests had to be checked and approved by the accounting unit, which will eventually authorise the bank transfer.

The paper-based process creates tension among the three actors involved: the unit manager, the accounting unit, and the employees. The unit manager would like to receive real-time information on the amount of money being spent for reimbursement, how long it takes for employees to get a reimbursement and would like to be able to authorise the reimbursement with a digital signature online and makes several requests to the accounting unit to have updated reports. The accounting unit personnel would like to have only paper-based documents to respond to central government audits that prefers paper-based documents, hence asking employees to prioritise paper over digital documents. Finally, the employees would like to file their reimbursement requests online without the need to deliver paper documents physically at the office or print digital documents on paper.

The organisation decided to digitalise the process by designing and developing internally a system which all the three categories of actors would have used. During the pandemic, the procedure was extended to the whole organisation. Now employees will file the authorisation requests online, and once authorised, they will prepare the reimbursement request online but send the justificatory documents on paper. Digital native documents must be printed to be paper based. The unit manager will now be able to sign authorisation and reimbursement requests online and get timely reports on the amount being authorised and reimbursed monthly.

The administrative unit will receive the reimbursement requests online but still needs to collect paper-based justificatory documents from employees and will still print and store all the digital documents received by employees to be compliant with potential central government audits which would expect paper-based documents. The employees, on their side, will file a digital request and manually send justificatory paper-based documents to the accounting department. Some of them eventually print electronic forms and file paper copies of the digital documents to the administrative department. Instead of reducing the paperwork, digitalisation increases it for the parties involved.

So, paper did not disappear as expected. For instance, Exhibit 2 shows a reply to an inquiry sent by an organisational member about the reimbursement of expenses for an international travel. As the e-mail reads, the staff member of the international office, in charge of reimbursing the travel expenses, is requesting the employee to provide all the data on the information system (ePaper), in hard copy, and also to fill in a reimbursement table that contains the same data the employee inputs in the information system.

2 May 2022, 09:14
From: international office staff member
To: employee
Subject: reimburses of travel expenses

Dear *employee*,

The procedure to get the reimbursement is as follows:

- Upload on *ePaper* all the invoices and receipts and the declaration of the hosting institution. Please indicate me as account holder for the reimbursement;
- Send me with internal mail the hard copy of all the invoices and receipts along with the attached table printed on paper, filled in and duly signed.

Thanks a lot,
International office staff member

Attachment: Attachment z reimbursement expenses table.docx

Exhibit 2. E-mail received about reimbursement request

3.3. Information Integration and Fragmentation in Teams

The praxes of using direct messaging apps among selected team members were already customary before the pandemic. Communication through direct messaging merged with official e-mail communication and informal, face-to-face communications, happening also liminal during coffee breaks, lunch breaks, or down the corridors.

During the Covid-19 lockdown of 2020, with more than 95% of the public organisation personnel working from home, direct messaging and e-mail became the unique communication channels across organisational members, with liminal face-to-face contacts no longer taking place. The lack of a standard lead to a plurality of communication channels, and proliferation of messages. Integration among messages across different channels remained on the shoulders of voluntary boundary spanners who took care to propagate messages across the network of contacts fragmented across different communication channels. However, communication patterns that followed the formal organisational structure and the office building layout and work shifts were replaced by patterns based on interpersonal ties and group ties, with limited possibility of sharing information informally across the group.

With time, the new communication mechanism, which remained partly in place after the lockdowns were over, led to a fragmentation of information circulation and organisational memory. Information was lost in the fragmented and verbose communication channels. An increasing number of people

started to complain for not having been informed about the topic of discussion – while instead others had – or that they were called to make decisions without receiving prior notice.

3.4. Information Systems Adoption and Organisational Change

In a large digitalisation project, the public sector organisation replaced a custom-developed administrative system with a market standard alternative. It started a migration activity that lasted for ten months circa. The custom system was designed tailored to the praxes and processes in place in the public sector organisation. The market alternative came with standardised processes. Some were aligned with organisational existing processes, others not. In the case of interest, the lack of alignment concerned a process that was designed to be executed by a single unit in the system. In contrast, in the organisational setting, it is executed by two independent units, a central unit and a peripheral one, under two different reporting lines.

To avoid misalignment or costs for coordination among the two units, adopting the system would have allowed the organisation to assign the process responsibility to a single unit. The software vendor informed the managers of the public sector organisation that their information system was not designed for such purpose.

“We migrated several similar public sector organisations to our system. Only in one case we encountered a public sector organisation using a custom system prior migration, and also in that case there were misalignments, but they have redesigned their processes to better work with our system” (Business analyst, Software vendor)

However, the manager of the public sector organisation believed it was not the task of a technology provider to dictate the structure of the organisation. The top management considered indeed this option but did not take the envisioned course of action because moving the workload from one unit to the other would have required internal discussions to reach common agreement. Second, the top management considered the cost of coordination of the two cooperating in the process lower than the cost of reassigning the responsibility. Third, they considered the shared duty would still work if both units shared the access to the whole process in the information system.

During the migration process, with the strenuous effort to learn a new system in parallel with the daily workload, the two organisational units that had to cooperate on the process resisted the change, each trying to cross-charge their duties.

“We continuously receive complaints requests from employees on this process. They address the instances to this unit because we follow them through the process, but they shall submit it to the central unit” (Staff member of the peripheral unit)

“We used to take on this part of the process when it was paper based and so it was integrated into our custom system but it is our way of working. Now our new system affords the other unit to take care of all the instances and they should. Employees start the process with us when they are employed or transferred from a subsidiary to here, but then they continue with the other unit, and now that we have this system, the other unit should be fully in charge of taking care of these steps” (Manager of the central unit)

The lack of collaboration among the units was initially hard to coordinate by unit managers as they belonged to different reporting lines and sometimes led to latent conflicts. Moreover, the common shared access to the whole process reinforced the inertia as each unit expected the other to take actions.

This lack of collaboration leads to many inconsistent execution processes impacting the end user’s perception of the process. Adding to the complexity of the situation, the lack of cooperation created several data inconsistencies that had to be corrected by the information systems provider. This state of matters, with the same behaviours reiterated by organisational units, created a situation in which all units started to blame the information systems for faulty business process execution, even when the problem was related to inertia or faulty action of the units.

4. Discussion

The four mini cases describe aspects of the digitalisation of public sector organisations around the pandemic that turn into forms of resistance and conflict. These outcomes result from some sociotechnical clashes that may arise when a bureaucratic public sector organisation faces a digitalisation process. We mainly identify three sociotechnical clashes.

4.1. A Clash on Rules

Bureaucratic structures work on standard procedures (rules) and fixed roles and responsibilities for all organisational members. It is a rational principle of organisational design based on legal authority [21]. However, these structures can also become rigid enough to impede change. Such rigidity of bureaucratic structure can be exacerbated in public sector organisations as organisational change has to deal with problems of accountability, transparency, and universality, which may take longer. Bureaucratic rules may clash with algorithmic rules of digital technology.

On the other side digital technology is flexible and can be designed with different degrees of freedom. However, once a design is chosen, it is fixed and prescriptive. People have a certain latitude in interpreting digital technology's structural features and enacting them into organisational actions [26, 27]. But technology is a source of structure, and these structures – especially in the case of information systems that are prescriptive – are rigid

The literature on the digitalisation of public sector organisations acknowledges that digitalisation goes together with the adaptation of organisational structure. However, what happens when this adaptation does not happen for all potential reasons? A clash of rules is most probably observed in these situations. A clash arises from the misalignment between rigid organisational bureaucratic rules and work practices and custom rules (that are also rigid because they are embedded in such bureaucratic culture) and rigid algorithmic rules embedded into digital technology.

Such a sociotechnical clash opens the issue to two potential alternatives. Either the bureaucratic rules are redesigned to adapt to the information system feature, but that would require bypassing the potential resistance of unit or organisational managers. Or the information systems are redesigned to perfectly match the bureaucratic rules, petrifying the bureaucratic system and reducing the chance of its potential flexibility because done in this way the cost of change is now the result of the cost of organisational change plus the cost of information systems redesign.

4.2. A Clash on Responsibility

One of the design principles of bureaucracy requires hierarchy and roles to have clear, non-overlapping, and contiguous boundaries [21]. Each organisational member in a bureaucratic structure must know their duties and authority, when they must relate to other organisational members, and to whom, for activities that are not on their duties.

Digital technologies, primarily group collaboration support technologies such as shared repositories, collaborative document editing systems, and group communication systems, are flexible and open and are designed to reduce barriers to collaboration among people. Shared repositories or group communication systems may ease the cooperation with other team members but also create the conditions for staff to step on each other's toes by taking on duties that are not theirs.

Such a clash of responsibility reproduces on the digital technologies the potential adverse effects of misalignment between formal and informal organisations. Such clash emerges from the rigid nature of tasks and roles in bureaucratic structures with the openness of group collaboration on digital platforms. Such clash is also exacerbated when organisational members informally adopt these pieces of technologies to improve the flexibility of the public sector organisation.

In bureaucratic terms, such clashes also contribute to the potential change of centrality or power of organisational teams and members due to their control over information or resources. For instance, those who introduce public cooperation digital technology informally or govern them increase their centrality among teams and organisations. At the same time, by having a better knowledge of the

informal systems and an overview of the data circulating through them, they also gain centrality in terms of access and governance of information.

4.3. A Clash on Accountability

Complexity is a characteristic of both organisational systems and technological systems. As *systems*, both are composed of interacting and mutually influencing entities. The number of entities on the one side and the number, types, and frequency of interactions on the other add to the overall system's complexity. In such settings, we may observe complex patterns of sociotechnical organisational actions in which different organisational members perform actions enacting bureaucratic rules and technological structures. When complex systems fail, they fail in complex ways, and diagnosing the reason and root causes for the complexity requires effort and method.

If bureaucratic public sector organisations might be reluctant to change rules to adapt to existing structures of digital technologies, identifying the root causes of these complex failures may long remain on the to-do list. However, tensions and conflicts may arise among organisational units or information systems providers. A continuous state of complexity without a solid effort to address the root causes creates an internal organisational state of continuous scapegoating. Since organisational members in charge of specific duties in bureaucratic structures are and need to be accountable for their actions when individual and organisational actions take place through or with the support of digital systems, faulty organisational actions can be hidden under faulty system action, with the digital technology being the scapegoat of all possible errors and mistake: *“the file disappeared in the systems I do not know why and how but this is what digital technology is it about”*.

4.4. Implications

Such sociotechnical view of the digitalisation of public sector organisations, and the identification of the sociotechnical clashes consequent to the digitalisation raise implications both for the research on the digitalisation of public sector organisations, and for the practitioners and managers engaged in the digitalisation of public sector organisations.

Concerning the research side, further research should progress the understanding of the sociotechnical clashes and explore determinants and outcomes of the digitalisation processes to confirm or confute the clashes identified. Further research can also explore if these sociotechnical clashes are observed only in public sector organisations or could also be observed in other bureaucratic organisations such as large companies. Finally, the sociotechnical clashes provide a different theoretical lens to explore failure or unexpected outcomes in the digitalisation of public sector organisations.

Concerning practice, the sociotechnical clashes suggest that when addressing digitalisation projects public sector organisations shall reflect on the boundaries and subjects involved in the digitalisation process. The literature has already explored the influence that the institutional environment may have in the digitalisation of public sector organisations [6]. However also the internal dimension should be taken into considerations since managers shall consider that when a digital technology is introduced even locally in the organisation, that will produce impacts on units that are distant or not directly involved. A second implication for practice concerns instead the attention needed to include all the interested stakeholders in the digitalisation process to avoid that not including some of them would create tensions on accountability, responsibility or rules that are generated by the sociotechnical clashes. Finally the sociotechnical clashes can also help public sector organisations managers better understand internal tensions that arise from digitalisation, and suggest them to inspect the alignment of roles, rules, and responsibilities among the system and the bureaucratic structure.

5. Conclusion

This paper reflects on the potential sociotechnical clashes arising in the digitalisation of public sector organisations. Based on three pieces of evidence of the experience of the digitalisation of public sector organisations around the pandemic, three sociotechnical clashes arise. These clashes may be addressed

with good practices and known approaches in the digital transformation literature. However, the specific characteristics of bureaucratic public sector organisations increase the complexity and make these issues not just mistakes or results of mismanagement but the consequence of a clash of two different types of systems of values and rules: bureaucracy and technology.

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