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# **Accounting and Accountability for the Digital Transformation of Public Services**

## **Abstract**

This paper introduces the special issue on accounting and accountability for the digital transformation of public services. Papers in special issues offer different perspectives on how digital technologies affect performance management, considering the challenges and opportunities that arise when digital data are collected and translated into a set of measures, the complexity of relying on these digital data to enhance transparency and accountability, and the organizational implications of digital data when used to support public-sector decision-makers in a variety of activities, such as auditing or benchmarking.

## **KEYWORDS**

**accounting, public services, digital transformation, big data, public sector accounting**

## **INTRODUCTION**

Digital technologies are continuously transforming public services and the way through which governments leverage digital innovation to manage public service performance. From e-government to e-governance and digital government, there is increasing diffusion of, and interest in leveraging, information and communication technologies (ICT) to create public value (Cordella & Bonina, 2012; Criado & Gil-Garcia, 2019). Technology-driven changes in public services can include more efficient processes, building and exploiting data for decision-making, using data automation and artificial intelligence to improve efficacy in responding to demands and improving online services and interaction (Curtis, 2019).

These digital transformation trends have been further accelerated by the coronavirus disease 2019 (COVID-19) pandemic, which has stimulated a digital shift in public service management (Agostino, et al., 2020; Leoni et al., 2021), underlying the critical role that digital data can have in supporting activities such as predictive analytics, engaging with citizens or enhancing co-participatory practices. Social media, contact tracing systems and other technologies have been widely used to reach a broader portion of the population. However, as Agostino et al. (2020) argued, some dilemmas are still to be addressed in terms of user engagement, planning and control, and costs/financing of the new technologies. Oftentimes, digital government innovations have been adopted acritically notwithstanding the behavioural and ethical problems involved (Roman, 2015).

While a lot of attention has been devoted to digital transformation practices, processes and success factors (Esposito et al., 2021; Gil-Garcia et al., 2018; Twizeyimana & Andersson, 2019), far less attention has been devoted to the accounting and accountability implications connected with the adoption and usage of digital technologies in governments (Petrakaki, 2017; Petrakaki et al., 2009). Most of the research completed so far on the topic targeted the corporate sector and focused on external reporting (Lombardi & Secundo, 2021) and auditing (Manita et al., 2020; Pizzi et al., 2021) or specific technologies applied to accounting and accountants (Bonsón & Bednárová, 2019; Desplebin et al., 2021; Schmitz & Leoni, 2019). There is a lack of comprehensive and critical analysis

of the implications of the ongoing digital transformations for public-sector accounting and accountability. This special issue attempts to address this gap. Attention is thus shifted from the technology and the process of implementing technology to the role of the organizational challenges and the intended and unintended consequences of digital transformation on public-sector institutions and the actors therein.

This special issue enlarges the current literature on public-sector accounting at two main levels.

On the one hand, this special issue brings the data and the challenges connected with the management of (digital data) at the centre of the analysis of the digital transformation process of governments. Implementing digital technology is not only a matter of offering a revised public service or a way of establishing a more engaging relationship with citizens, but it is primarily an issue of managing the flow of digital data. This centrality of data requires new management accounting practices and new professional roles, which relate to how data are collected, translated into information and finally used by the decision-maker. While these new practices are emerging from literature on private-sector accounting, this special issue underlines the specificities and peculiarities of the digital transformation for public-sector accounting, underlying the need to reconsider the management accounting cycle in the light of digital data.

On the other hand, this special issue enhances current understanding of the impacts and implications of digital transformation practices on accountants, decision-makers and citizens. In particular, a trade-off between the opportunities offered by user profiling to support public service delivery (e.g., for better healthcare services) and the invasion of privacy and surveillance is underlined.

These aspects are discussed throughout the papers in this special issue, opening pathways for further research.

## **THE PAPERS IN THIS SPECIAL ISSUE**

The papers in this special issue (see Table 1) provide representations of the multiple perspectives of analysis that digital transformation may offer to accounting and accountability studies.

Agostino et al. (2022) open the special issue with an analysis of the current state of the art and future directions of research on digitalization, accountability, and accounting in public services. In their systematic literature review, they highlight how the increasing digitalization of the public realm will have significant implications for the (i) production of data, (ii) consumption of data, and (iii) their subsequent effects. Based on this analysis, they identify several implications for research (Agostino et al., 2021). On the one hand, technology-driven changes can enhance accountability towards dialogical and horizontal forms, considering the multicentric structures with several agents and principals. As many actors are involved in public service delivery, accountability becomes blurred, as are changes in its boundaries. On the other hand, this blurred accountability raises risks in the translation processes and translators' roles concerning the quality and reliability of data and how data are selected, analysed and communicated via both human actors and technological actants. Digitalisation also has social equity and inclusivity implications that must be paid stronger attention

to. In particular, the digital divide still represents a strong limit for the analogic/digital transition that needs to be considered.

*Table 1 around here*

Digital transformation not only affects accounting and accountability but also the accountants involved in the process (Schmitz & Leoni, 2019). Two papers in this special issue address the way accountants accommodate, leverage and/or oppose digital transformation et al., 2022; Lino et al. (2022). Carlsson-Wall et al. (2022) explore the extent to which a cloud-based enterprise resource planning (CERP) system affects the role of public-sector management accountants. Accountants, in the role of management accountants, were able to mobilise their specific expertise through CERP. The substitution of manual work with automated work increased transparency and made the different actors feel more comfortable with the numbers. However, management accountants belonging to different organisational levels (central versus localised) had a very different approach to the digitalisation of their work, despite belonging to the same occupational group. Central management accountants valued more pre-defined/standardised high-quality information, while local management accountants preferred more customized information for their local needs. Counter-intuitively, the results show that cloud technology may make accounting and control processes unduly inflexible and cumbersome at the local level.

Lino et al. (2022) bring to our attention the challenges that the digital transformation conveys to the accountability process in public-sector organisations, especially during the information generation phase. Looking at the local government's accountability process in Brazil, as a typical example of a context in which multiple accountability forums increased demands for data due to digitisation, the paper addressed how the digital demands in the accountability information phase affect accountants, in particular, and the accountability process as a whole. The authors drew on literature on organisational pathologies such as accountability overload and red tape. The findings reveal relevant insights on how digital transformation of accountability forums increased the accountants' perception of the added burden of compliance with rules and the feeling of wasting resources and time to comply with the rules and norms of the accountability forum. At the same time, the accountants perceived a lack of functionality during the information generation. They were unable to perceive the value-added of their accountability task and adopted a resigned posture, complying with the accountability forum's requests, without much attention to the quality of the reports. Consequently, the degree of accuracy of the reported data may endanger the whole accountability cycle. This finding has strong implications both for the professional education of accountants, in terms of technical knowledge and use, and for the implementation process of this technology in the accountability system. As Petrakaki et al. (2009) argued, technology innovation may not necessarily lead to an improved form of accountability. Instead, it may lead to a narrowing down of accountability and the adoption of instrumental rationality by accountants.

The agency of accountants in digital transformation is as relevant as the agency that the localised technologies perform. Chua et al. (2022) investigate the influence of digitalisation on public-sector benchmarking and, in particular, the peer selection process. They portray an example of contrasting

relevance in the selection of benchmark peers between algorithms and human actors (e.g., politicians, managers and citizens). While algorithms selected peer groups to identify “pure” performance comparators, human actors continued to prefer benchmarking against neighbouring municipalities. These findings have strong implications. First, digital transformation always involves a mutual interplay between the digitally generated data and the human understanding of complex social contexts. Social and political understanding in the decision-making process is relevant in creating meaningful data and analysis. Second, the paper wistfully shows how the “truth” generated by algorithms can be contested and resisted but at the end of the day, accepted. The ability to let “digital” and “analogic” epistemic maps coexist contributes to the legitimacy of new technologies.

The complexity of digital transformation in professional accounting practices has also been addressed by Otia and Bracci (2022). This paper focuses on the ongoing transformation of the external environment of Supreme Audit Institutions (SAIs) and the possible implications of digital innovation on auditing practices. Otia and Bracci (2022) propose a framework for understanding digital transformation in a holistic manner considering the following five factors: strategy, people and culture, technology, organisation and process. In their analysis, they show the limited diffusion of digital transformation in most SAIs. Most SAIs focus merely on the technological and process dimensions of digital transformation. Other aspects such as organisational culture, people and strategy are given less attention. Audit automation and big data analysis, as examples, remain at an experimental, laboratory level in a few proactive SAIs. Despite the efforts, the understanding of the meaning of digital transformation and its implications for auditing is not uniform across SAIs. Most of them understand digital transformation as the introduction of a specific technology and not as a holistic cultural and organisational process of change. This may not allow to reap the full benefits which may come from digital transformation in the absence of a rethinking in auditors’ identity and roles (Justesen & Skaerbaek, 2010), as the corroborative evidence shows that there is still a lack of cultural change among them that serves as a barrier to innovation. This will require new skill sets from auditors, thereby posing a new challenge in the education, selection and training of public sector auditors.

Digital transformation in government represents a two-way road where both public service organisations, citizens and clients are actively participating. This has strong implications for the success of public service innovation processes, which Polzer & Goncharenko (2022) address. In their study, they portrayed the attempt made by the UK government to introduce a Contact Tracing App (CTA) during the COVID-19 pandemic. This study analyses the social media discourse to understand the co-production of a digital public service in an emergency. The study shows how the public concerns and lack of trust in the government heavily affected the diffusion and efficacy of the CTA. The public distress over the potential violation of democratic freedoms and misuse of the data collected by the app limited the diffusion of the innovation. This finding has a strong implication on the consequences of digital transformation acceptance on the behaviour of citizens or clients. Governments and researchers alike need to pay attention to the potential societal concerns over digitalised services, which may cause a corresponding resistance from the public to engage in and support co-production.

On the contrary, Arnaboldi & Diaz Lema (2022) analyse how a social media strategy is shaped and enacted through their day-to-day business and activity in museums. Social media has the potential to extend the reach and value-experience of old and new audiences. It requires a deep change in

practice, praxis and practitioner skills, as well as a strategic shift around the user's approach. The paper helps in reflecting on the duality between the strong professional cultural tradition and the voices/requirements of the citizenry/audience. The intersection between digital and physical when implementing a social media strategy involves the need for new skills for social media strategy implementation. At the same time, the divide between digitalised audiences and traditional audiences has relevant implications on the construction of digital identity.

## **CONCLUDING THOUGHTS**

The papers in this special issue emphasise three main aspects that appear as particularly critical in the current context of digitalisation and may deserve future research efforts.

The first aspect relates to the actual, rather than potential, investigation of accounting and digital practices in the public sector. This moves the debate forward from the expected benefits and challenges of digital technologies to the actual and emergent threats and opportunities faced when governments are “in the making.” The papers in this special issue investigate different digital projects in a variety of countries, from cloud-based ERP systems and digital databases in Nordic European countries to social media in Italy, and from an app in the UK to a digital auditing tool in Brazil. These empirical analyses enhance understanding of the accounting challenges associated with the introduction of digital technologies while identifying future fruitful areas of investigation, such as the complexity behind the functioning of algorithms, the hybrid roles and competencies involved in managing digital data and the need to ensure a balance between the digital and physical spheres.

The second aspect relates to the effects of digital technologies, emphasising the accountability implications connected with the adoption of digital tools. Attention has been devoted to digital users, their engagement and their co-production. Technology diffusion and efficacy entail a duality between the proposer and the user. If this relationship is missing, innovation attempts may be endangered. The empirical evidence provided by two papers in this special issue help us to understand the role of open and transparent communication between government and citizens, and to consider the different values of the actual/potential audiences of a service (Lino et al., 2022; Arnaboldi & Diaz Lema, 2022).

The third aspect relates to the translation process and the agency that is performed by both human and non-human actors in digital transformation (Agostino et al., 2020). This also has strong implications for the process through which digital data are turned into useful information to support decision-makers. The papers investigate and highlight the challenges connected to this activity, which range from the need for professional roles, training and a new educational path to the need for greater transparency and reliability of the information provided and the algorithms used. The diffusion of new technology can be perceived and operationalised in different ways by accountants in the same organisation depending on their role and responsibility level. This has implications for both the design, implementation and diffusion of new technology as well as for the training and cultural change of accounting professionals. Digital transformation in accounting and auditing needs to be understood as a holistic process, not just a technological problem, thus requiring a closer look at the behavioural, psychological, ethical and contextual factors involved.

All in all, the papers in this special issue illustrate the multiple facets of digitalisation processes and their implications for accounting, accountability and more generally, for public services, governments and citizens. They also point to the need to further explore the related challenges and the usefulness of adopting the lenses of accounting and accountability scholarship in doing so.



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**Table 1. Special issue' papers: summary**

Manuscript Title	Author Names	Aim	Theory	Method
Digitalization, accounting and accountability. A literature review and reflections on future research in public services	Agostino, D.; Saliterer, I.; Steccolini, I.	Discuss the current state of the art and future directions of research on digitalization, accountability, and accounting in public services. Through		Systematic literature review
Exploring the implications of cloud-based enterprise resource planning systems for public sector management accountants	Carlsson-Wall, M.; Goretzki, L.; Hofstedt, J.; Kraus, K.; Nilsson, C.	Explore the extent to which a cloud-based enterprise resource planning (CERP) system enabled the role performance of public sector management accountants	Technology power loop model	Single case study
Digitalising public sector benchmarking: credibility contests, proximity, familiarity and emotionality in the mapping of 'similar' municipalities	Chua, Wai Fong; Graaf, Johan; Kraus, Kalle	Investigate the influence of digitalization on different modes of peer selection in public sector benchmarking.	Gieryn's concept of cultural cartography	Field study
Digital transformation and the public sector auditing: the SAI's perspective	Otia, J.; Bracci, E.	Discuss the diffusion and implication of digital transformation in public sector auditing	Digital Transformation	Field study
The UK COVID-19 app: The failed co-production of a digital public service	Polzer, T.; Goncharenko, G.	Analyze social media discourse to understand the co-production of a digital public service in an emergency situation.	Unified Theory of Acceptance and Use of Technology	Netnography and discourse analysis
Red tape as a side-effect of digital accountability overload	Lino, A.; Busanelli de Aquino, A. C.; Neves, F.	Analyze how the demands of a compulsory digital transformation affect local governments' accountants.	Digital Transformation	Survey and interviews
Shaping Cultural Participation Through Social Media	Arnaboldi, M.; Diaz Lema, M.	Explore how social media strategy is shaped and enacted through their day-to-day business and activity	Strategy-as-practice (SaP)	Multiple case study