



# Introduction to the special issue: “Performance, management and governance in the digital age”

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In recent decades, a paradigm of “digital-era governance” has emerged, highlighting the central role of digital technologies in the governance, evaluation, and performance management of organizational and human activities (Andrews, 2019; Dunleavy et al., 2005; Mauro et al., 2023). The utilization of information technology (IT) in these governance practices has been significantly boosted by advanced technologies like machine learning and artificial intelligence for generating and managing information (Dunleavy & Margetts, 2010). Additionally, the social web provides an interoperable information platform where a network of diverse users can easily create and exchange experiences and opinions that can be quantified. These technologies facilitate information accumulation, retrieval, manipulation, and transmission for efficient and effective planning and control (Agostino & Arnaboldi, 2017; Andrews, 2019). Also, they enable the automation of processes to such an extent that human intervention and interactions could be eliminated (Dunleavy & Margetts, 2010).

The implementation of digital technologies involves both a “digitisation” procedure in which an assumed 1:1 transition from an analogue to a digital format of objects (processes, forms, products, services, etc.) occurs and a “digitalisation” procedure that changes “the processes beyond [the] mere digitising of existing processes and forms” (Mergel et al., 2019, p.12). Through these procedures, digital technologies might facilitate a digital transformation path with profound changes in human and organisational practices.

The digital language on which the IT machine is based comprises a binary code of a two-symbol system of typically zero and one representing truth positions of false or true of a statement. The binary representations are used to process instruc-

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tions to control computers. It allows computers to perform calculations and produce accounting information and Big Data for decision-making and control. Indeed, it seems judicious to use the digital language of the IT system to represent numerical variables and mathematical operations of the accounting calculative models that are symbolic in nature (Mauro et al., 2023; Nørreklit et al., 2019). However, with complex phenomena of live thinking and understanding, the assumption of digitisation as a 1:1 transformation between the analogue and digital format of objects needs to be revised. Human language and understanding are rich with concepts that often have vague boundaries and multiple layers of meaning. These nuances cannot be fully captured by digital languages' binary, true or false nature (Wittgenstein, 1953; Nørreklit et al., 2019).

The nature of the digital language implies that the digitalisation procedure of creating meaning and using digitised information becomes crucial to facilitate a fruitful digital transformation (Mauro et al., 2023; Nørreklit et al., 2019). If the digital language takes control of complex organizational activities and supersedes the cognitive habits and insights of the local managers and employees, the digital transformation results in dysfunctional human and social practices. An authoritative and unreflective procedure to understand and use digitally produced information in organizations implies that decision-making and performance management become based on de-contextualising data from the specific factual situation and alternative possibilities for actions, which can have dysfunctional consequences for individual and organizational performance. Also, when the specific context and ethics are neglected in organizational decision-making and performance management, a culture might emerge where "truth" is centralized, and the value of truth and trustworthy performance measurement might collapse. To understand the meaning of digitized information, we need a digitalisation procedure where the complexity and nuances of human communication and activities are taken into account in the use of digitized measures for the governance of the construction of organizational activities. Thus, to create successful functioning practices, digitalisation still requires live language games to reflect upon and guide the understanding of the meaning of digitised measures (Nørreklit et al., 2019). The managers' and employees' communication around the production and use of digitised information should be governed by meaningful reasoning and insights concerning the creation of factual possibilities for successful action (Mauro et al., 2023).

In view of this, it becomes essential for research to explore issues concerning the production and use of digitised information for decision-making and performance management in complex situations of specific organizational practices. The articles of this special issue are concerned about the organisational practices during which digitalisation has a good impact.

The issue of contextualization of digital language within local organisational contexts is the theme faced by the first contribution included in this Special Issue, "**Digitisation and accounting language games in organisational contexts**" by Daniela Ruggeri, Antonio Leotta and Carmela Rizza. To prevent the risk of de-contextualising the knowledge from the situation in which the information was generated, digitalisation should promote the spread of a common language between its users, and allow to share rules and principles that lead to the same meanings. The Authors refer to the

concept of the *language game* to study how accounting reports receive meanings according to their use, and how the use of accounting language helps in managing the specifics of organisational contexts. Their research aims to answer the question of how digitalisation, promoting an accounting language game of a "global" organisation, may favor the combination of the accounting language games arising from "local" organisational contexts. This question is addressed by examining the case of the performance measurement of a new product development process in a multidivisional company. The case evidence highlights how a digital platform, by promoting a corporate accounting language game for the whole organisation, succeeded in favoring the combination of divisional accounting language games. Thus, how digitalisation affects the boundaries between local and global accounting language games in the production of knowledge for decision-making is pointed out. Further, the paper shows how digital technology is beneficial if it does not compromise interactions between the different organisational local contexts.

In the article "**Does digitalization mitigate or intensify the principal-agent conflict in a firm?**" Ilya Ivaninskiy, Irina Ivashkovskaya and Joseph A. McCahery analyse the impact of business digitalisation on the principal-agent conflict. While there are several studies of impact of digitalization on corporate governance, the empirical evidence has so far been relatively scarce. As a proxy for the active digitalisation of a firm, the Authors use the blockchain technology, which has the possibility to fundamentally change the distribution of power within an organisation, thus potentially mitigating the principal-agent conflict. By the analysis of a sample of 2813 NYSE, Nasdaq and AMEX-traded firms the results suggest that firms active in business digitalisation overall have a lower level of principal-agent conflict: such firms generally have shareholders that are more active, which indicates an environment less prone to the principal-agent conflict. The results suggest that firms active in business digitalisation—signalled by exploration of the blockchain technology—overall have a lower level of the principal-agent conflict.

The article "**Corporate governance in the digital age: the role of social media and board independence in CSR disclosure. Evidence from Italian listed companies**" by Luigi Lepore, Loris Landriani, Sabrina Pisano, Gabriella D'Amore and Stefano Pozzoli explores the role of board independence on corporate social responsibility disclosure and the moderating role of stakeholder e-engagement by social media in the relationship between these variables. The study uses econometric panel data dependence techniques on a sample of 347 firm- year observations related to Italian non-financial listed companies for the period 2017–2019. The results highlight that independent directors, particularly those appointed by minority shareholders, influence positively CSR disclosure, and this relationship is strengthened by stakeholder e-engagement created by social media (SM). In fact, the higher is the companies visibility on Facebook, Linked In, and Twitter, and the institutional pressure felt by its independent directors, the greater is the CSR disclosure. Results evidence that board independence is an important stimulus mechanism for CSR disclosure, especially when independent directors are appointed by minority shareholders. Further, results highlight that institutional pressure due to stakeholder engagement through SM positively influences board independence's effectiveness in stimulating CSR disclosure and that the reputational effects for independent directors deriving from

institutional pressure generated by SM strengthen the effectiveness of board independence as a mechanism for good governance.

The last two articles are research carried out in the health-care setting. The first on **“Enabling value-in-use with digital healthcare technologies: combining service logic and pragmatic constructivism”** by Vesa Tiitola, Maria Marek, Tuomas Korhonen and Teemu Laine discusses how healthcare providers can enable value-in-use (VIU) using digital technologies in complex healthcare service contexts. Technology providers and public healthcare organizations can have difficulties in understanding one another, hindering the possibilities for value-in-use to emerge. The research focusses on how healthcare providers can create value for themselves to improve their operations and justify the price of new technologies while fully acknowledging the value for the patient as well. The paper uses two in-depth interventionist case studies in Nordic health care: automated screening technology for hospital laboratories and medicine dispensing robotics for home care. Authors use a novel combination of pragmatic constructivism and service logic as method theories to understand the value creation. The empirical evidence provides practical examples of how digital technologies can be used to change healthcare practices and how value-in-use can stem from these changes. Using pragmatic constructivism and service logic as method theories it is showed that healthcare providers can enable value-in-use with digital technologies by altering how care is carried out without hindering what the outcome of the care is for the patient. Digital technologies can only facilitate such change, as it still requires intention to change in how the actors involved in care work. While healthcare bears the responsibility for these changes, technology providers can also have plenty of opportunities for interaction to support or even co-create value together with their customers.

The last article **“Anchor practices that guide horizontal performance measurement: an interventionist case study of the financial aspect of new technology implementation in healthcare”** by Tuomas Korhonen, Virpi Sillanpää and Aki Jääskeläinen examines how performance can be managed horizontally in a situation in which a new digital technology is introduced for public service provision. New technologies are often aimed at supporting service integration and can be linked to the collaboration movement in the public sector that attempts to improve performance in health and social services. The authors use an interventionist case study to illustrate a situation in which a Nordic city attempted to calculate the financial impact of introducing new digital technologies into elderly care, and a method theory, i.e. anchor practices, by providing evidence of the usage of multiple simultaneous anchor practices. An anchor practice can be defined as one that becomes more influential in guiding action compared to some other practices in a certain situation. It is showed how economic (financial) and wellbeing are the anchors that influence horizontal performance measurement in such healthcare digitalisation project, thus contributing to the literature on horizontal performance measurement. The study shows that digitalisation can drive the inclusion of horizontal performance measurement in terms of combining financial examinations with the necessary wellbeing aspects, it contributes to the development of the method theory, i.e., anchor practices, by providing evidence of the usage of multiple simultaneous anchors, and it makes a methodological

contribution by showing that interventionist researchers can support operationalising anchor practices.

The set of papers in this special issue provide significant contributions in answering to some of the issues at the base of this collection, namely on how we can develop fair and valid performance management instruments for making organizational actors accountable, how digitalization affect corporate governance and the importance of local contextualization of digital language to avoid dysfunctional consequences for the individual and organizational performance. We believe that more research is needed within this stream, to contribute in the development of a proper conceptualization, design and implementation of performance, management and governance in the digital age.

## References

- Agostino, D., & Arnaboldi, M. (2017). Social media data used in the measurement of public services effectiveness: Empirical evidence from Twitter in higher education institutions. *Public Policy and Administration*, 32(4), 296–322.
- Andrews, L. (2019). Public administration, public leadership and the construction of public value in the age of the algorithm and 'big data'. *Public Administration*, 97(2), 296–310.
- Dunleavy, P., & Margetts, H. Z. (2010). Last Revised 13 July 2014). *The second wave of digital era governance* APSA Annual Meeting Paper.
- Dunleavy, P., Margetts, H., Bastow, S., & Tinkler, J. (2005). New Public Management is dead: Long live digital-era governance. *Journal of Public Administration Research and Theory*, 16, 467–494.
- Mauro, S. G., Cinquini, L., Malmose, M., & Nørreklit, H. (2023). University research by the numbers: Epistemic methods of using digitized performance measures and their implications for research practices, *Financial Accountability & Management*, 2023, 1–27.
- Mergel, I., Edelmann, N., & Haug, N. (2019). Defining digital transformation: Results from expert interviews. *Government information quarterly*, 36(4), 101385.
- Nørreklit, L., Jack, L., & Nørreklit, H. (2019). Moving towards digital governance of university scholars: Instigating a post-truth university culture. *Journal of Management and Governance*, 4, 869–899.
- Wittgenstein, L. (1953). *Philosophical investigations*. Oxford: Basil Blackwell.

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