

A conceptual framework on users' digitalisation practices transforming their digital infrastructure for work

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Many innovations in digital technologies lead to a digital transformation of and at work. Through vast improvements in mobile internet, computing power and a variety of software applications, nomadic and flexible workspace arrangements, virtual meeting rooms using avatars (Colbert, Yee, & George, 2016) and/or autonomous production emerge from utopian pictures of work gradually becoming reality and by this, transform organisations and work. This transformation, however, is not due to any individual innovation in digital technologies but an implication of their collective interplay. To study phenomena arising from this interplay from an information systems perspective, Tilson, Lyytinen and Sørensen (2010) propose viewing the collective of digital technologies as one IT artefact. They define this artefact as digital infrastructures. Digital infrastructures comprise organisations' digital technologies, organisational structures, facilities and services and constitute what renders organisations functional. Following this definition, digital infrastructures are the foundation of both organisations and their members' work practices.

Viewed in the context of this workshop's theme of New Ways of Working as well as New Modes of Organising, organisations' digital infrastructures constitute – as the term infrastructure implies – the material foundation of work. In other words, an organisation's members' work practices are founded on its digital infrastructure and by this, it becomes part of the material dimension of their work practices. Additionally, it can be derived that digital infrastructures' matter matters also to the social, spatial and temporal dimension of work practices. For example, collaboration between distributed teams working in different locations and time zones is facilitated by their digital infrastructure enabling them to transfer their work into the virtual. By this, their digital infrastructure allows them to link antecedent and/or subsequent work practices and social interactions across time and space. Thus, the digital infrastructure shared by an organisation's members links these members' work practices on their social, temporal and spatial dimension through its material manifestation.

The digitalisation – the socio-technical process of adapting new digital technologies (Legner et al., 2017) – is an adaption process of digital technologies happening on an individual, organisational, societal and global level. Being exposed to and inspired by wider digitalisation trends, an organisation's members engage in digitalisation practices aiming at, for example, integrating and adopting new digital technologies to their digital infrastructure for work or appropriating existing ones. Thereby, they transform, not necessarily in accordance with the approved plan of the organisation itself, the digital infrastructure that is both part of the material foundation of their work practices and their organisation's digital reflection. With extant research on the digitalisation focusing on the formulation of digital business strategies (e.g., Bharadwaj, El Sawy, Pavlou, & Venkatraman, 2013) and/or digital transformation strategies (e.g., Majchrzak, Markus, & Wareham, 2016; Matt, Hess, & Benlian, 2015) as well as business model transformations (e.g., Loebbecke & Picot, 2015; Turber, vom Brocke, Gassmann, & Fleisch, 2014), this study poses a slightly different question of *how an organisation's members' (i.e., users) digitalisation practices drive the digital transformation of their work through digital infrastructure transformations?*

To answer this question, it proposes a conceptual framework (see Figure 1) to study the digital transformation of organisations and work from the users' perspective. The framework emphasises users' digitalisation practices and depicts them as driving the digital transformation of their organisation's digital infrastructure. Moreover, it highlights that an organisation's digital infrastructure holds material, spatial, temporal and social attributes for work practices founded on this digital infrastructure. Consequently, transforming the digital infrastructure of their work, users also transform their work practices. Being conceptual, this study will continue to validate and improve the proposed conceptual framework through empirical data. For data collection participatory observations and qualitative interviews will be conducted at a large German car manufacturer's internal consulting unit which seeks to improve their performance by integrating and adapting new digital technologies for their work.

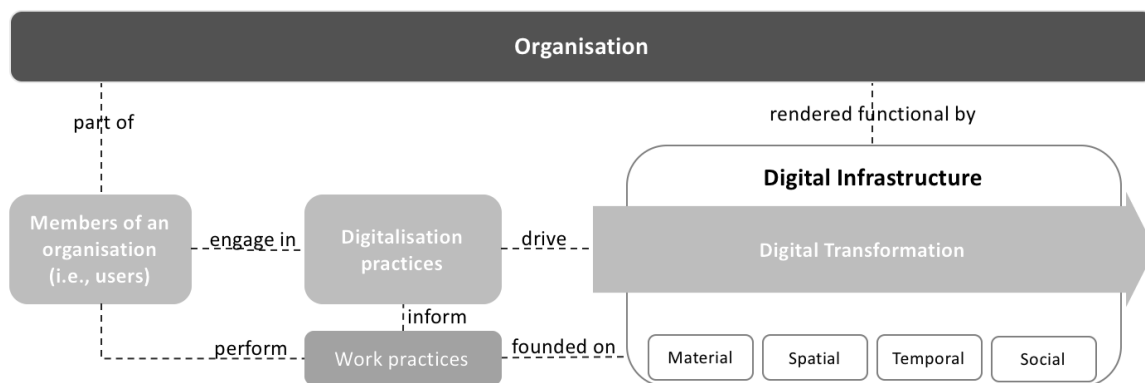


Figure 1: Conceptual framework on how users drive the digital transformation of their digital infrastructure for work

To conclude, with new digital technologies entering the work place, New Ways of Working and New Modes of Organising emerge as the transformation of digital infrastructures transforms the material, social, temporal and spatial dimension of work practices. These new digital technologies, however, are not always introduced or approved by strategy or transformation plans but integrated into an organisation's digital infrastructure by users. Therefore, this study argues for two things: *firstly*, that users' digitalisation practices drive their organisation's digital transformation by transforming its digital infrastructure and *secondly*, that by this, they also transform their work practices as a digital infrastructure's materialisation matters for the material, spatial, temporal and social dimension of their work practices.

References

- Bharadwaj, A., El Sawy, O. A., Pavlou, P. A., & Venkatraman, N. V. (2013). Digital business strategy: toward a next generation of insights. *MIS Quarterly*, 37(2), 471–482.
- Colbert, A., Yee, N., & George, G. (2016). The Digital Workforce and the Workplace of the Future. *Academy of Management Learning & Education*, 59(3), 731–739. <https://doi.org/10.5465/amle.2016.0171>
- Legner, C., Eymann, T., Hess, T., Matt, C., Böhmman, T., Drews, P., ... Ahlemann, F. (2017). Digitalization: Opportunity and Challenge for the Business and Information Systems Engineering Community. *Business & Information Systems Engineering*, 59(4), 301–308. <https://doi.org/10.1007/s12599-017-0484-2>

- Loebbecke, C., & Picot, A. (2015). Reflections on societal and business model transformation arising from digitization and big data analytics: A research agenda. *Journal of Strategic Information Systems*, 24(3), 149–157. <https://doi.org/10.1016/j.jsis.2015.08.002>
- Majchrzak, A., Markus, M. L., & Wareham, J. (2016). Designing for Digital Transformation: Lessons for Information Systems Research from the Study of ICT and Societal Challenges. *MIS Quarterly*, 40(2), 267–277.
- Matt, C., Hess, T., & Benlian, A. (2015). Digital Transformation Strategies. *Business and Information Systems Engineering*, 57(5), 339–343. <https://doi.org/10.1007/s12599-015-0401-5>
- Tilson, D., Lyytinen, K., & Sørensen, C. (2010). Research Commentary: Digital infrastructures: The missing IS research agenda. *Information Systems Research*, 21(4), 748–759. <https://doi.org/10.1287/isre.1100.0318>
- Turber, S., vom Brocke, J., Gassmann, O., & Fleisch, E. (2014). Designing business models in the era of internet of things. In M. C. Tremblay, D. VanderMeer, M. Rothenberger, A. Gupta, & V. Yoon (Eds.), *DESRIST 2014 Proceedings* (pp. 17–31). Miami, FL: Springer International Publishing.

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