International Symposium on Digital Transformation
August 21-23, 2023, Linnaeus University, Växjö

DIGITAL TRANSFORMATION MODELS: A LITERATURE REVIEW FROM AN AGILE PERSPECTIVE

Linda Bergkvist[1]* and Monika Magusson[2]

[1]*Information Systems, Karlstad Business School and Service Research Center (CTF), Karlstad University, Sweden, linda.bergkvist@kau.se*
[2]*Information Systems, Karlstad Business School, Karlstad University, Sweden, monika.magnusson@kau.se*
(*Main presenter and corresponding author)

ABSTRACT
The ongoing digital transformation (DT) of society is fundamentally changing the game plan for many businesses by altering market conditions, customer expectations and customer behaviour (Verhoef et al., 2021). Digital technologies are also a key enabler of innovation in products and services and in creating new business opportunities (Vial, 2019). Therefore, an organisation's ability to handle DT is of utmost importance. Unfortunately, there are indications that as many as 84% of DT initiatives fail (Libert et al., 2016). A key issue for failure stressed in previous research is the disconnection between DT strategy and implementation (Correani et al., 2020; Li, 2020), and many executives struggle to understand how to implement their digital agenda (Barthel & Hess, 2019; Gimpel et al., 2018).

DT denotes "A fundamental change process, enabled by the innovative use of digital technologies accompanied by the strategic leverage of key resources and capabilities, aiming to radically improve an entity and redefine its value proposition for its stakeholders." (Gong & Ribiere, 2021, p. 12). To grasp the potential of DT a holistic approach is argued for (Berger et al., 2020; Vial, 2019) where business strategies and business processes are continuously developed in interaction with technology (cf. Urbach & Röglinger, 2019), and in collaboration with key stakeholders.

The number of research publications on DT has increased rapidly in recent years (Plekhanov et al., 2022). However, Lynne Markus and Rowe (2021, p. 275) conclude that "Digital transformation is not yet, we believe, well theorized." Overall, (empirical) research on DT seems still in its early days (Li, 2020; Warner & Wäger, 2019), and more research is needed on how to implement and realize a DT strategy (Barthel & Hess, 2019; Correani et al, 2020) and how to balance the exploration and exploitation of digital technology (Kohli & Melville, 2019). Moreover, the models presented in research are mainly high-level models (e.g. Gimpel et al., 2018) that provide little support in explaining how DT can be operationalised in new products, processes or relationships (Vial, 2019), or how the necessary interplay of changes in business models, business processes, competencies, culture, digital technology and data could be managed (cf. Berger et al., 2020).

ISBN: 978-91-89709-81-2

DT has accentuated the need for organisational agility (Gong & Ribiere, 2023), i.e. "the capacity to respond, adapt quickly and thrive in the changing environment" (Holbeche, 2018, p. 302). The agile values and principles expressed in the Agile Manifesto (Beck et al., 2001) comprise four foundational values and twelve supporting principles. These are well understood and implemented in software development but are only adopted to a low extent in business development, despite attempts to introduce agile models and methods at the organisational level (Gustavsson & Bergkvist, 2019; Gustavsson et al., 2022). Many organisations lack organisation-wide agility (Horlach et al., 2020; Laanti & Kettunen, 2019) and research on how agile values and principles can be deployed for DT and organisational agility is called for (Dikert et al., 2016; Parida et al., 2019; Verhoef et al., 2021).

To-date integration of agile values and principles in DT models is modest (cf. Bellantuono et al., 2021). Little attention has been devoted to how such integration would affect the organising and implementation of DT. An agile way of working is recognized by flexibility, continuity, cross-functional learning, autonomy, customer collaboration, and value creation (Beck et al., 2001), characteristics that fit well with demands of DT and consequently could bring important contributions to theories and models of DT. For example, in line with Sjödin et al. (2020) and Verhoef et al. (2021), we believe that the agile values of close customer collaboration and responsiveness to change are relevant also for value creation in DT. Also, the agile principles of creating cross-functional and self-organising teams consisting of both business people and developers are interesting (cf. Sjödin et al., 2020) as DT encompasses changes at the strategic, business process, and IT levels (Urbach & Röglinger, 2019). A state-of-the-art overview of the field shows that a holistic approach to agile DT is still missing (Bergkvist & Magnusson, 2022). Therefore, the purpose of this paper is to investigate if and how existing DT models consider agile values and principles.

A literature review (Webster & Watson, 2002) is being conducted to identify existing DT models supporting transformation at the organisational level. Peer-reviewed literature is retrieved from databases such as Web of Science, Science Direct, Scopus, and Google Scholar. The overall question guiding the review is "What are the existing DT models (frameworks, methods, development processes) and guidelines for supporting the implementation of DT at the organisational level", with a particular interest in the integration of agile ways of working. Among the keywords used are "digitalisation or digitalization" or "digital transformation" in combination with concepts such as "framework, model, method, process, approach, guide, guideline, roadmap, organis*/organiz*, implementation, agile". Selected papers form the basis for backward and forward reference searching. Literature review results are to be analysed under the lens of agile values and principles to identify if and in what way the identified DT models take use of agile ways of working. Based on the analysis, shortcomings of existing DT models are discussed from the perspective of agile ways of working, and research questions to advance the field of DT will be presented. Our preliminary results indicate that more research is needed on (holistic) models to

support organisations in what aspects or areas to focus on, how to organise the work, and how to integrate agile values and principles. We argue that the integration of agile values and principles could advance DT models and respond to the call for research on new ways of working with DT (e.g. Li, 2020; Magnusson et al., 2021). The paper contributes to advancing knowledge on models for supporting organisations in managing the implementation of DT. Based on the findings, the next step is to design and develop a model to guide DT processes, thereby helping to answer the call for research on actionable knowledge to support organisations in their DT efforts (Barthel & Hess, 2019; Correani et al., 2020).

Keywords: Digital Transformation, Agile Values and Principles, Models, Organisational Level, Implementation, Literature Review

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