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Strategic Responses to the COVID Pandemic: Empirical Evidence of Shifts in Digital Transformation Strategy

Completed Research

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Digital transformation strategy, public sector, digital maturity, digital government

Introduction

The COVID pandemic has accelerated the use of digital solutions in direct response to regulations of social distancing (Ågerfalk et al. 2020; Iivari et al. 2020; Leclercq-Vandelannoitte and Aroles 2020). Through the extant research, we have seen numerous examples of how public sector actors have spearheaded new initiatives such as digital healthcare meetings, new approaches to citizen participation, et cetera (Batra 2020; Iida 2020; Priyono et al. 2020).

For the often highly bureaucratic organizations in the public sector, these initiatives have reportedly been made possible through workarounds and temporary solutions to counteract red tape and inertia (Adler and Borys 1996; Sordi et al. 2021). Organizations in a state of emergency have responded by temporarily reverting decisions to increased centralized authority and downplaying the necessity for often strenuous documentation (Batra, 2020). While this has, to some extent, afforded the organizations higher responsiveness, it has also been a temporary solution to what we argue to be a more significant problem.

Digital transformation refers to organizational change through the increased utilization of digital technologies (Hanelt et al., 2020). With this entry-point, utilization of digital technologies and solutions is not equated with digital transformation but rather the starting point of more fundamental changes to the organization. Previous research on digital government has been criticized for not amply differentiating between the implementation of IT and digital transformation (Mergel et al. 2018). We posit that the debate concerning the accelerating impact of the pandemic on digital transformation suffers from the same shortcoming.

If we equate the increased use of digital solutions with digital transformation, we are bordering on reductionism and technological determinism (Dong et al. 2021; Gleasure and Feller 2016; Weerakkody et al. 2016). The risk associated with this is two-sided. First, this equation counteracts a more sustainable approach to digital transformation (Magnusson et al. 2021; Smith and Beretta 2021), where the long-term effect of use is not considered. Previous research has highlighted the fundamental changes associated with true digital transformation (Menz et al. 2021) and how these are dependent on changes in necessary prerequisites for organizations (Magnusson et al. 2020). A piecemeal approach to digital transformation, excluding the organizational change aspects, runs the risk of building new insights on a murky foundation since we do not yet know the effect of increased utilization.

Second, the perception that organizations have taken a giant leap ahead can further increase organizational inertia (Barnett and Pontikes, 2006; Kelly and Amburgey, 1991; Mikalef et al., 2021), risk increasing the downplaying of necessary initiatives to utilize the benefits of digital transformation. This risk lies in reverting to old ways once the pandemic's state of emergency subsides (Lungeanu et al. 2016). Previous research is clear in the value of a crisis for transformational change (Oberländer et al. 2021) and the tendency for organizations to return to previous states of operations once said crisis passes.

Based on this, we wish to contribute to the discussion on the effect of the pandemic on digital transformation by addressing how organizations in the public sector have enacted digital transformation strategies. This study answers the following research question:

Which digital transformation strategies have public sector organizations enacted during the pandemic?

To answer this question, we utilize data from a national study of digital maturity that we initiated in 2017. Using a scientifically developed framework for digital maturity, we have since 2017 surveyed over 300 organizations with over 15,000 respondents. The framework helps us assess the organizational and technological capabilities and how these have developed during the pandemic.

This study contributes to previous research on digital transformation and the effect of the pandemic by answering the research calls from Chanas et al. (2019) on emergent digital transformation strategies and Wilson (2022) on national strategy.

This paper is organized accordingly. After this brief introduction, we present previous research in digital transformation, digital transformation strategy, and the impact of the COVID pandemic on organizations. This is followed by the method where we present the study's selection and method of analysis. After this, we present the results in the form of two unique digital transformation strategies during the pandemic. The findings are then elaborated further in the Discussion.

Previous research

Digital transformation has become an important phenomenon in the IS literature in recent years (Vial 2019), even more so during the pandemic, where digital technology has proven itself a fundamental cornerstone of new ways of working (Ågerfalk et al. 2020; Aroles et al. 2021). Digital transformation is a holistic effort (Mergel et al. 2019) with profound effects on how organizations' core and processes change as digital technology diffuses (Hanelt et al. 2020), and it has significant repercussions on how firms do business and how the public sector creates value (Scupola and Mergel 2022). As digital technology becomes ubiquitous through consumerization (Gregory et al. 2018), public organizations accelerate their digital transformation, leading to changes in producing and delivering services (Mergel et al. 2019). This, in turn, has implications for incumbent organizations' strategy, structure, and technology (Drechsler et al. 2020). Research on the dark side of digital transformation ranges from organizational agility (Seo and Paz 2008) to black-boxed decision-making that leads to unintended consequences, i.e., algorithmic pollution (Marjanovic et al. 2021) and increased stress (Marsh et al. 2022).

The ongoing digital transformation process highlights the importance of organizational agility and the continuous renewal of dynamic capabilities (Warner and Wäger 2019). Warner and Wäger (2019) present agility as a core mechanism for the strategic renewal of an organization's business models and a collaborative approach and culture. Seizing opportunities using existing resources must be considered mindfully as they can be assets or liabilities (Oberländer et al. 2021). Research such as Magnusson et al., (2021a) identifies the tendency for organizations to decouple digital from their going concern, i.e., treating the digital as something innately separate and thereby losing out on more transformative impacts. Leaders within incumbent organizations can spearhead the digital transformation, acting as "institutional entrepreneurs," mobilizing the community and legitimizing the transformation process (Tassabehji et al. 2016).

Digital transformation strategies are what organizations do to enact digital transformation (Bharadwaj et al., 2013; Chanas et al., 2019) and encompass the cross-domain alignment of business and IT strategy components (Queiroz et al. 2020), where digital architectures, organizational structures, and strategy are intermingled and constantly evolving (Resca et al. 2013), emphasizing strategy-as-practice (Whittington 1996) and strategizing. The ambidexterity of simultaneously exploiting and exploring IT resources also affects digital transformation strategies (Mithas and Rust 2016; Nwankpa and Datta 2017). Strategies in

digital transformation are inherently emergent and continuously evolving, changing, and enacted (Hanelt et al. 2020; Magnusson et al. 2022). Digital transformation affects strategies related to internal structures, i.e., decentralized structures and decision rights and changes in task and workforce design (Menz et al. 2021). Changes in task design can lead to platform drifting and have implications for strategy, i.e., the need for redesigning governance policies (Rahrovani 2020).

The COVID pandemic has affected the world and has also engaged the information systems research field (Ågerfalk et al. 2020) and resulted in various scholarly works. The findings range from how schools' abruptly forced digital transformation affects children (Iivari et al. 2020) to how adults can imagine a future working fully remote and digital (Nagel 2020). But the pandemic has also spurred research into the dark side of digital transformation, such as Leclercq-Vandelannoitte and Aroles (2020) that highlight the problem of information systems used to establish control systems and possible forms of resistance and solutions, as well as Mykytyn (2020) that identifies risks related to managing information systems and suggestions for managers to minimize and recognize them.

Method

We utilize longitudinal panel data from an ongoing national survey of Sweden's public sector digital maturity, which predates the pandemic. The research team developed the survey in 2017 to measure the prerequisites for digital transformation (i.e., capabilities) and how these change over time in public sector organizations. The model (Figure 1) was developed as commissioned research by researchers at the Digital Government Research Consortium (Swedish Center for Digital Innovation for the Government offices of Sweden). The model was inductively designed following a literature review of empirical studies on the prerequisites for successful digital transformation. The model formed the basis for a digital service launched in 2018. Since then, more than 300 organizations have utilized the digital service, continually creating data for the research consortium to analyze.

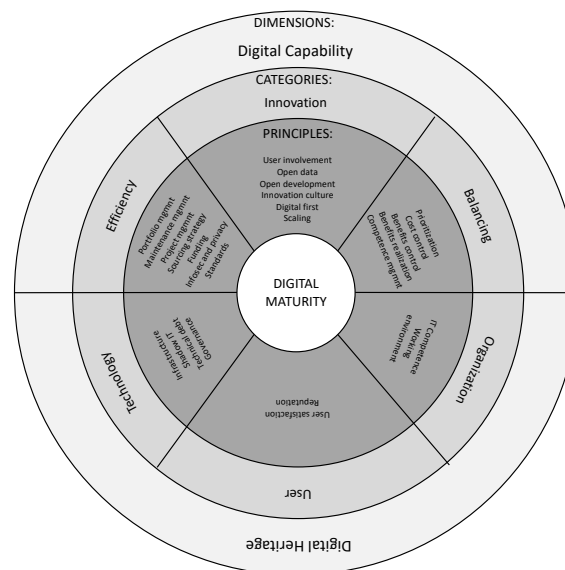


Figure 1. Illustration of the model for Digital Maturity in the public sector (DiMiOS).

Each dimension contains three categories and various principles, as shown in Figure 1, depending on where the original research identified support in previous empirical studies of a relationship between a prerequisite and digital transformation success. For additional details on the model and the underlying theoretical support, see Magnusson et al. (2019). Based on measuring each principle, the model affords a positioning of digital maturity along the two axes of the dimensions (digital heritage and digital capability, i.e., technological and organizational capabilities). The organization then uses positioning to identify risks and areas of prioritization for successful digital transformation. The model is scaled nationally through the Association for Municipalities and Healthcare regions through a digital service.

With the pandemic being associated with community spread and subsequent restrictions between March 9th, 2020, and February 9th, 2022 (Wikipedia, 2022), we selected the data for the two consecutive years of 2020-21. This involved 3,107 responses from 42 organizations in 2020 and 6,028 from 77 organizations in 2021. The responses are distributed across three layers of the public sector, with 89% of the results from municipalities, 7% from agencies, and 4% from regions. The analysis method involved the calculation of averages per year and principle, category, dimension, and maturity. Mean was chosen over median as the dataset has a normal distribution. The average results were then compared between the years to form a basis for how digital transformation strategies were enacted.

Results

When comparing digital maturity in Sweden in the pre-pandemic year of 2019 to the pandemic period of 2020-2021, as seen in Figure 2, the pandemic negatively affected the pace of growth. From previously showing a 6 pp increase during 2019, the increase in digital maturity dropped to 2 pp in 2020. We interpret this as an effect of the disruptive impact of the pandemic, where most organizations entered a state of emergency, focusing all their resources to swiftly adapt to the new environmental determinants rather than working with developing their business proactively for the long-term benefits of the citizens, i.e., increasing their capabilities. Instead, the sector experienced an “all hands on deck” situation, where previous plans, e.g., revamping governance, were put on hold to ensure the continued operations of public services.

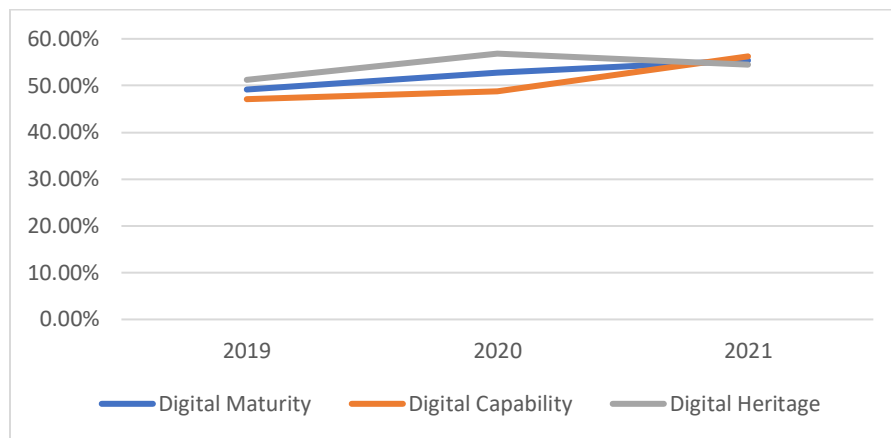


Figure 2. overview of the development of digital maturity and its two dimensions 2019-21.

During the beginning of the pandemic (2020), we saw a decrease in the categories of Innovation and User (see Figure 1 for details). The development of Innovation- and user capabilities were halted due to the state of emergency inferred by the pandemic leaving little room for innovation since all resources were tied up in operations. Efficiency was prioritized, along with the capabilities associated with balancing efficiency and innovation. At the same time, there was a significant emphasis on increasing the category of Technology on account of this being perceived as critical for continued operations (e.g., scaling infrastructure for online meetings).

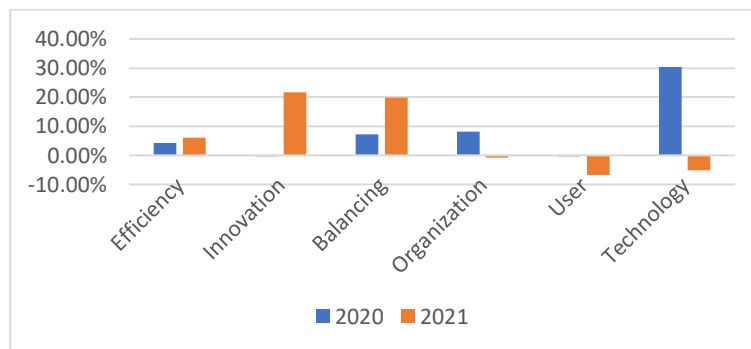
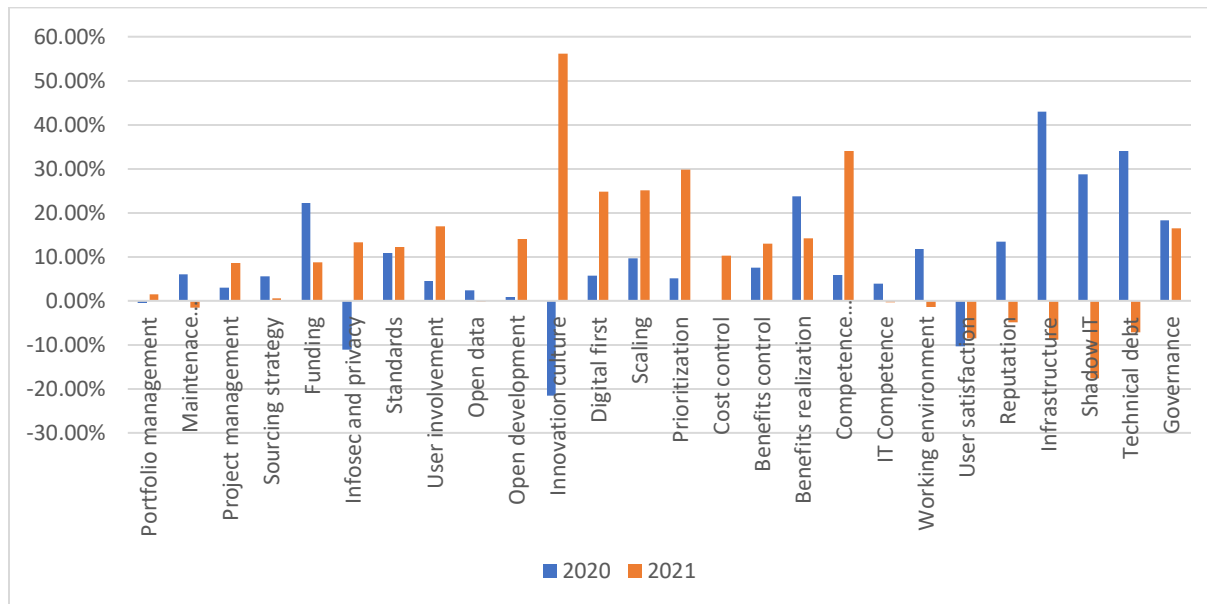


Figure 3. Overview of the development of digital maturity categories 2020-2021.

During the second year of the pandemic (2021), we saw a substantial increase in the categories Innovation and Balancing while a decrease in all categories related to Digital Heritage (organization, user, and technology). In other words, the emphasis during the pandemic shifted from the initial Digital Heritage to the subsequent Digital Capabilities. This provides a basis for describing the average strategy for public sector actors in Sweden for the pandemic as first entailing a focus on assuring improved technological prerequisites (2020) and then shifting over to increased organizational capabilities (i.e., realizing the benefits).

**Figure 4. Overview of the development of digital maturity principles 2020-2021.**

On closer inspection of the principles that constitute the categories, we see a more nuanced image of how the Swedish public sector addressed the disruption of the pandemic. As seen, the organizations downplayed (decreased) the principles of Information security and privacy, Innovation culture, and user Satisfaction during 2020 while emphasizing (increase > 20%) Funding, Benefits realization, Infrastructure, Shadow IT, and Technical debt. This highlights the need to swiftly ensure the proper financial funds for the new situation, making sure that benefits realization occurs while at the same time highlighting the technological aspects of digital transformation.

In 2021, this approach shifted over to a decrease in the principles related to Digital Heritage, instead emphasizing principles such as Innovation culture, Digital-first, Scaling, Prioritization, and Competence development. The implications of these shifts in strategy will be further elaborated in the discussion.

Discussion

As noted by Chaniyas et al. (2019), digital transformation strategies are emergent rather than fixed, i.e., they display tendencies for evolving through “episodes of digital strategy making.” In our study, we see two such episodes that infer shifts in the aggregate digital transformation strategy of the public sector in Sweden. The response of the Swedish Public Sector to the COVID pandemic shifted throughout the pandemic and can be described as two unique digital transformation strategies, as seen in Figure 5.

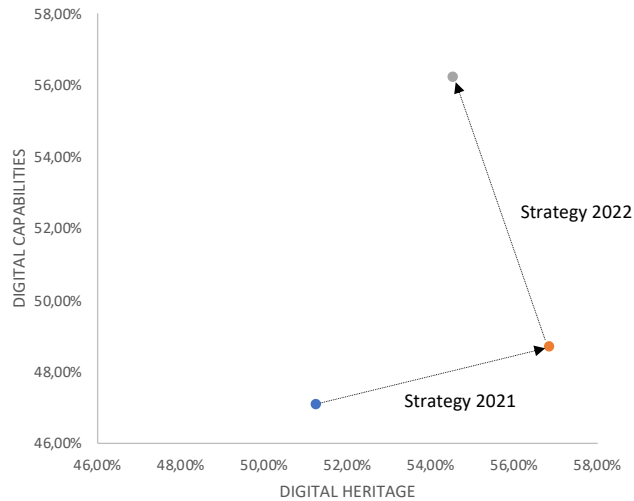


Figure 5. Shifts in digital transformation strategy during the pandemic.

The first episode (Strategy 2020) directly responds to the exogenous, acute changes in context. The pandemic brought increased uncertainty and an increased need for digital services to replace physical (Ågerfalk et al. 2020). The shift over to, e.g., online meetings and digital health consultations spurred a strategic response in an increased emphasis on technological capabilities (i.e., digital heritage). The strategic response resulted in an accelerated maturity in the digital heritage, prioritizing this over an increase in digital capabilities, i.e., more fundamental changes to operations and business development.

The second episode (Strategy 2021) directly responds to the pandemic moving from a disruptive phase into a more prolonged, steady state of acceptance. With the increased understanding that the pandemic would not be over swiftly, organizations changed their strategy to prioritizing organizational capabilities over the digital heritage. Previous rudimentary analog digitalization, i.e., mimicking practices in digital channels, was no longer sufficient. More resources were funneled into business development, searching for new ways of more fundamental changes in processes and services (Oberländer et al. 2021).

The shift in strategy in 2021 also involves a decrease in experienced digital heritage capabilities over the year. This is interpreted as a direct consequence of increased work with business development, simultaneously making the organization aware of the limitations of the digital heritage. The more an organization engages in sensing, seizing, and reconfiguring based on digital opportunities, the more likely it will experience restrictions in its current legacy environment (Khisro et al. 2021). The implication is that the digital capabilities and the digital heritage are intricately dependent on one another. The strategic shift to prioritizing digital capabilities will invariably need to be met with an increased prioritization of the digital heritage to avoid losing out on opportunities (Lappi et al. 2019).

There are two major contributions of our study for research. First, our study supports observing the emergent nature of digital transformation strategies (Chaniyas et al. 2019). Hence, we extend the previous micro, case-based studies of digital transformation to the national, macro-level of analysis, offering both an empirical and methodological contribution to the study of digital transformation strategies. We have seen no change in the formal strategy for digital transformation in organizations in Sweden during the period. Yet, as seen in our data, we see significant shifts in emphasizing different types of capabilities. Second, we contribute to the literature on capabilities by studying the interplay between organizational and technological capabilities (Jacobides 2006; Warner and Wäger 2019)

There are two major contributions of our study on practice and policy. First, practitioners may use the measurement of digital maturity to further inform the strategizing of their organizations in line with Wilson and Mergel (2022). Second, our study offers a basis for data-driven policymaking (Veenstra and Kotterink 2017) by being the first of its kind to assess public sector digital transformation strategies on the accumulated national level at this scale. Policymakers should use the available data and analysis to inform future policies, assuring that these are grounded in a sound understanding of the context.

There are three major limitations to our work. First, with this being a study conducted in Sweden, the study suffers from transferability shortcomings in line with Bannister (Bannister 2007). Sweden is above par in digital maturity and displayed a non-standard response to COVID. Neither of these factors has been controlled for in the current study. Second, the data utilized is self-assessments by individual representatives in the organizations surveyed (Ross 2006). Third, the analysis has been handled on a per-year basis, i.e., we are likely to have missed fluctuations over the year that may be of value to future research.

We see three avenues for future research on the empirical phenomenon identified in this study. First, the dramatic shifts surrounding innovation culture during the pandemic should be investigated further. Previous research highlights the initial response to the disruption being one of increased innovation (Christensen et al. 2018), yet as we see, this is not the case on the national level. Second, the shifts from technological to digital capabilities as strategic paths (Priyono et al. 2020) displayed during the pandemic may also spur additional research. Third, the actual realization of the strategies, i.e., the internal prioritization of initiatives and projects that come in the wake of strategic re-orientations, may offer new insight to research (Lappi et al. 2019).

Conclusion

This study finds that public sector organizations in Sweden display a shift in digital transformation strategies during the pandemic. From initially focusing on increased technological capabilities in the first year to shifting to concentrating more on organizational capabilities in the second. This shift does not correspond to any changes in the formal digital transformation strategies (i.e., steering documents) but is rather a consequence of strategizing.

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