

# **Enacting Digital Ambidexterity: The Case of the Swedish Public Sector**

*Completed Research*

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## **Abstract**

Digitalization brings with it a necessary parallel quest for increased efficiency and innovation. In line with the foundational literature on organizational ambidexterity, this corresponds to the balancing between exploration and exploitation. With ambidexterity perceived as a dynamic process rather than a state, research has called for additional studies on how ambidexterity is enacted. This study utilizes data collected in a survey of digital ambidexterity in the Swedish Public sector in 2018, with 2,000 respondents from 70 organizations. As part of the survey, individual respondents were asked about recent or currently active initiatives that were seen as positive for increased ambidexterity. These accounts are used as a basis for analyzing the enactment of digital ambidexterity in the public sector. The findings show that there are three clear patterns in the enactment of digital ambidexterity. First, there is a strong focus on technological rather than strategic or organizational initiatives. Second, there is a heavy emphasis on initiatives for increased efficiency rather than innovation. Third, the bulk of initiatives are directed towards increased digital ambidexterity, rather than first dealing with the digital heritage. These findings are discussed in line with the ambidexterity literature, to identify avenues for future research into the continued study of the enactment of ambidexterity.

## **Keywords**

ambidexterity, enactment, digital government, digital ambidexterity.

## **Introduction**

The increased digitalization of society has been rigorously addressed in literature. From the foundational literature (Yoo et al. 2010; Zuboff 1988), we understand digitalization as the parallel increase in efficiency (e.g. automation) and innovation (e.g. new digital services). From this perspective, digitalization is associated with both increased operational excellence, i.e. better fulfilment of our current objectives as well as changes in business models and value offerings (Nardi & Ekbia 2017; Nambisan et al. 2017). In other words, digitalization requires us to not solely exploit existing opportunities but also, in tandem, exploring new opportunities.

Within the public sector, digitalization has been highlighted as a significant challenge. Previous research has identified the dual nature of e-Government (Janowski 2015), instilling the organization with both new avenues for operational excellence while simultaneously disrupting the very basis of operations through new value offerings (Trong Tuan 2017). From this respect, digital government (Meyerhoff Nielsen 2017),

here understood as digitalized government operations, invariably requires organizations to both exploit and explore, i.e. both automate and innovate.

The parallel strive for exploitation and exploration has been studied within the research stream of organizational ambidexterity. Here, ambidexterity is regarded as the ability of an organization to simultaneously exploit and explore (March 1991; Raisch & Birkinshaw 2008). In other words, research on organizational ambidexterity challenges the previous assumption that there are trade-offs between economies of scale and scope, i.e. decreasing margin cost per unit vs decreasing cost of variation (Stettner & Lavie 2014; Benner & Tushman 2003). There have been numerous additions to the stream, with studies related to the positive performance effects of ambidexterity (Luger et al 2018), as well as studies into how organizations can implement ambidexterity through mechanisms such as functional separation or contextual approaches (Raisch & Birkinshaw 2008).

At the same time, organizational ambidexterity has been criticised. The bulk of criticism is related to a low level of construct validity (O'Reilly and Tushman 2013; Ask, Magnusson & Nilsson 2015), and to what may be referred to as a static perspective to ambidexterity (Luger et al. 2018). Here, earlier works focused intently on establishing prescriptive findings on how organization should achieve a balance between exploitation and exploration (Raisch and Birkinshaw 2008). More recent findings clash with this static equilibrium perspective and instead propose a more dynamic approach, where ambidexterity rather than referring to a fixed state of balance is the actual process of balancing (Zimmermann et al. 2018; Luger et al. 2018). If balance is not static, then the process for *how* to balance becomes the primary objective of research.

This study answers the calls from Zimmermann et al (2018) and Luger et al (2018) in regards to how ambidexterity is enacted. Following the recommendations of Wiener et al (2016), we regard the enactment of control as the object of analysis. With previous calls for research into the governance of digital in the public sector (Janssen & Van der Voort 2016; Mergel 2018), we are particularly interested in the ambidexterity associated with digital, i.e. what we refer to as digital ambidexterity. The research question guiding this study is: *How is digital ambidexterity enacted in the public sector?*

This question is answered through utilizing data from a study of digital maturity in the Swedish Public sector. Working with an operationalization of digital maturity build on organizational ambidexterity, the study both described the current level of ambidexterity and asked the respondents to share examples of initiatives that had or were impacting digital ambidexterity positively in their respective organizations. This data is then used as a basis for understanding how ambidexterity is enacted in the Swedish public sector, under the assumption that the initiatives are the means through which enactment happens.

The paper is organized accordingly. After this brief introduction, we present the precursory findings and theoretical framing focusing on the quest for digital ambidexterity in the public sector. After that, we present the method of the study, followed by the results. In the results, we present the current level of digital ambidexterity in the Swedish public sector, followed by a focus on how ambidexterity is enacted. The paper concludes with a discussion on the findings, and recommendations for future research.

## Previous research

### *The quest for digital ambidexterity in the public sector*

As seen in Yoo, Henfridsson & Lyytinen (2010) and Archibugi (2017), digitalization ushers in new assumptions. One of said assumptions is that of scale, where digital technology and digital innovation lead the possibility of close-to-zero margin cost (Rifkin 2014). Digital services, as opposed to non-digital services, are theoretically not associated with margin-cost, i.e. the provision of Service X to citizen Y+1 does not infer any additional costs than those for Citizen Y. For government as a service organization, this brings new potential and questions the underlying organizing logic in place. Instead of solely striving for economies of scale for attaining efficiency, digitalization also calls for economies of scope for attaining innovation capabilities.

This strive for addressing both the needs for exploitation of existing opportunities and the exploration of new opportunities has been addressed in the literature surrounding organizational ambidexterity (March 1991; Raisch & Birkinshaw 2008). Here, previous findings point to the possibility of avoiding the trade-offs between scale and scope. As noted in the studies by Adler et al (2009) and Suarez et al (1996),

organizations that have a track-record of high performance are more likely than sub-par performing organizations to be able to avoid said trade-offs and hence reap the benefits of a parallel attainment of exploration and exploitation. Earlier contributions to the field of organizational ambidexterity have been criticized for viewing ambidexterity as an attainable state of balance between exploitation and exploration (Zimmermann et al. 2018). This state of ambidexterity is possible to achieve through strategies such as structural separation or contextual awareness (Raisch & Birkinshaw 2008).

More recent contributions to the field criticize this steady-state perspective and instead focus on ambidexterity as a capability for, or a process of, balancing (Luger et al. 2018). Here, researchers call for additional studies of how ambidexterity is enacted rather than how it is achieved (Zimmermann et al. 2018). Linking the development within digitalization and that of organizational ambidexterity, we posit that digitalization requires a certain type of ambidexterity. We refer to this type of ambidexterity as *digital ambidexterity*, i.e. the balancing of exploration and exploitation in the practice of digitalization.

### ***The Enactment of Ambidexterity***

Wiener et al (2016) highlight the dearth of studies directed towards understanding how different forms of control are enacted. As they found, the vast majority of previous research on control has been focused on how control was configured, rather than how it was actually enacted. This is somewhat counter-intuitive, given previous findings from the Scandinavian Neo-institutional research stream (Czarniawska & Sevón 2005) that show that frameworks and models are translated rather than imported straight-off-the-shelf. In other words, we can assume that how we control has less to do with which configurations we put in place and more with other organizational factors. This idea is picked up by Zimmermann et al (2018) in their study of how ambidexterity is enacted in innovation activities. According to the findings, the ambidextrous intentions of the senior managers have very little to do with the actual ambidextrous capabilities of the organization. Instead, this is directly dependent upon the enactment of ambidexterity conducted by front-line managers. In this respect, we can see a sharp delineation between the intent and enactment of ambidexterity, where the actual enactment happens in the outskirts of the organization rather than at the executive level.

Similar findings are found in Luger et al (2018), and their study of the performance related effects of ambidexterity in the insurance industry. Here, the authors differentiate between the notion of maintaining versus re-balancing ambidexterity. They find that long-term performance in a dynamic environment is contingent upon the organizations ability to steer away from equilibrium and balance, and move towards a continuous re-balancing of ambidexterity. Albeit opening up for a critique on muddling the distinction between ambidexterity as a state or process, the findings offer unique insight into how organizations that cannot assume continuity in demand need to be open to signals for re-balancing. In the context of the public sector, we have seen a shift away from a low level of dynamics into an increasing level of dynamics in the environment (Dawson et al. 2016). Several calls for research have been made about how we should design governance that can endow the organization with more agile capabilities (Janssen & Van der Voort 2016; Mergel 2018). In this respect, the enactment of ambidexterity within the public sector is warrant of additional studies.

## **Method**

The research designed involved creating the model, the digital service for distributing the model and the survey. With this work being part of commissioned research where the team was asked by the Offices of the Government of Sweden to design and propagate a new model for digital maturity. We chose to define digital maturity as “the organizations ability to gain benefits from digitalization”, and building on previous findings concerning digitalization, digital maturity was interpreted as an ambidextrous capability. Utilizing the available literature, we identified 18 factors associated with ambidextrous capability, such as Portfolio management, Open development and Benefits realization. A subset of these factors were then formulated as strategic principles for digital ambidexterity, in order to be able to measure how well the respondents of the survey perceived that their organization lived up to the principles (Table 1, references restricted to top three for space purposes, all references can be found through [www.digitalforvaltning.se/references](http://www.digitalforvaltning.se/references)). In addition to the digital ambidexterity, we also included factors associated with the digital heritage of the organization (defined as the sum of previous digital initiatives impact on the organizations ability to maneuver in an increasingly digital world), since previous studies

(Magnusson & Bygstad 2013; Rolland et al. 2018) have shown that this is a contingent variable for successful digitalization (not presented in Table 1). We are aware of the reported inter-dependencies between the identified principles, yet argue that they should be treated as discriminant for the three areas of digital ambidexterity. The rationale for this is the need for creating a model that is sufficiently simple, in order to achieve optimal diffusion and utilization.

<b>Area</b>	<b>Strategic principle for digital ambidexterity</b>	<b>Top three references</b>
Efficiency	A portfolio management that creates excellent pre-requisites for maintenance and development in line with our strategic objectives.	Xue, Ray & Sambamurthy 2012; Xue, Ray & Zhao 2017; Kim, Wimble & Sambamurthy 2017
	A very well-functioning governance of maintenance.	Murphy, Lyytinen & Somers 2017; Rubino et al. 2017; Tiwana, Konsynski & Venkatraman 2013
	Very well-functioning methods and models to run our projects.	Ho et al. 2017; Braglia & Frosolini 2014; Kanwal, Zafar & Bashir 2017
	A very well-functioning sourcing strategy for satisfying our digital demands.	Elia et al. 2014; Gobble 2013; Schneider & Sunyaev 2016; Liang et al. 2017; Schermann et al. 2016
	A sufficient funding to secure an efficient maintenance.	Saunders & Brynjolfsson 2016; Mithas, Krishnan & Fornell 2016; Dow, Watson & Shae 2017
	A very high level of information security and data privacy.	Lowry et al. 2015; Garba et al. 2015; Kwon & Rao 2017
	Adoption of open standards and an active participation in international standardization work.	Mandel et al. 2016; Gil-Garcia & Sayogo 2016; Rezaei et al. 2014
Innovation	Being very good at involving users in the development of new digital solutions.	Von Hippel 2005; Baldwin & Von Hippel 2006; Saidhana, Mithas & Krishnan 2017
	Being very good at working with open data to secure that data is made available for both users and developers.	Dawes, Vidiyasova & Parkhimovich 2016; Vetro et al. 2016; Davis & Perini 2016
	Being very open toward involving external parties in the development of new and existing digital solutions.	Chesbrough 2006; Van Alstyne, Parker & Choudary 2016; Ghazawneh & Henfridsson 2015
	Having a very strong innovation-facilitating culture.	Dobni 2008; McLaughlin, Bessant & Smart 2008; Chou & Liao 2017
	Being very good at always thinking digital first in business development.	Palfrey & Gasser 2013; Yoo, Henfridsson & Lyytinen 2010
	Being very good at scaling digital innovations so that they become enterprise wide.	Huang et al. 2017; Foster & Heeks 2013; Westley & Abtadze 2010
Balancing	Having a very well-functioning process for prioritizing digital investments that creates the pre-requisites for both efficient maintenance and innovation.	Gregory et al. 2015; Xue, Ray & Zhao 2017; Mithas & Rust 2016;
	Having complete control over costs associated with the digital.	Chae, Koh and Prybutok 2014; Sabherwal & Jeyaraj 2015; Cram et al. 2016
	Being very good at benefits realization in terms of digital investments.	Baker, Song & Jones 2017; Fan, Zhang & Yen 2014; Hartman et al. 2017;
	Being very good at continually measuring and monitoring the effect of our digital ventures.	Coombs 2015; Flak, Solli-Saether & Straub 2015; Nielsen, Matiassen & Newell 2014
	Being very good at securing long-term access to relevant digital competence.	Bresciani, Ferraris & Del Giudice 2017; Tiwana & Kim 2015

**Table 1. Strategic principles for digital ambidexterity**

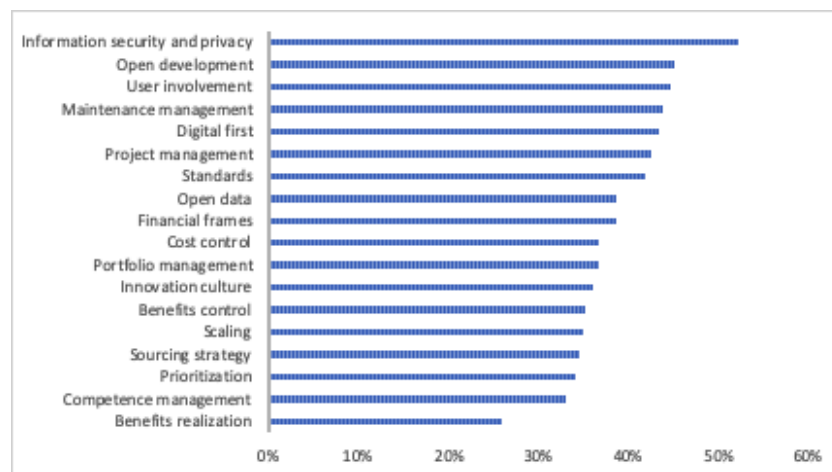
The data collection involved parallel surveying of the organizations. Each organization was given full mandate in terms of selecting respondents, with the recommendation to include only people with a direct relationship with the governance of the digital. This included change managers, executives and project manager for digital initiatives. No ex-post analysis compliance with this recommendation was performed. The surveys were distributed automatically, with the use of the digital service we designed, and the period of measurement stretched from August-December 2018.

The method of analysis of the digital ambidexterity (current status, Result section 1) was done through descriptive statistics on the quantitative results of the survey. The method of analysis for the initiatives involved two sequential steps. First, the initiatives of one dimension were coded by two researchers in isolation and a code-concurrency test was done with 95% conformity. Following this, one researcher re-did the coding of all initiatives (n=256). The coding was done from two perspectives. First, each initiative was coded into the categories “Efficiency” or “Innovation” utilizing the definitions from Benner & Tuschmann (2003) and Xue, Ray and Sambamurthy (2012) where innovation is equated with the exploration of new opportunities. In cases where the overarching idea of the initiative was deemed impossible to understand and hence code, this was omitted from continued analysis. A total of 15 accounts (2%) were omitted. Second, each initiative was coded into the categories of “Technological” (e.g. a new e-service, app), “Organization” (e.g. a new organizational entity for innovation, training programs) or “Strategy” (e.g. a new digital strategy, agenda) related to what the focus of the initiative was.

## Results

### *Digital ambidexterity: State-of-the-art in the Swedish public sector*

The overarching level of digital ambidextrous in the Swedish public sector is currently 41% (n=2000). As seen in Figure 1, this is distributed between the different factors ranging from 50-25%. The highest level of digital ambidexterity is found in the Information Security and Privacy, Open development and User involvement. The interpretation of this is that these factors are directly related to external stakeholders in the form of users and third-party developers. This brings a more natural element of innovation to the practice, where exploration is necessary in order to meet external demands and hence complements the overarching tendency for a sole focus on internal efficiency. The lowest level of digital ambidexterity is found in relation to Benefits realization, Competence management and Prioritization. The interpretation of this is that both benefits realization and prioritization is predominantly designed to support efficiency-oriented projects. Hence, the method for both benefits realization and prioritization is optimized for not handling innovation initiatives, and are devoid of mechanisms for balancing between innovation and efficiency.



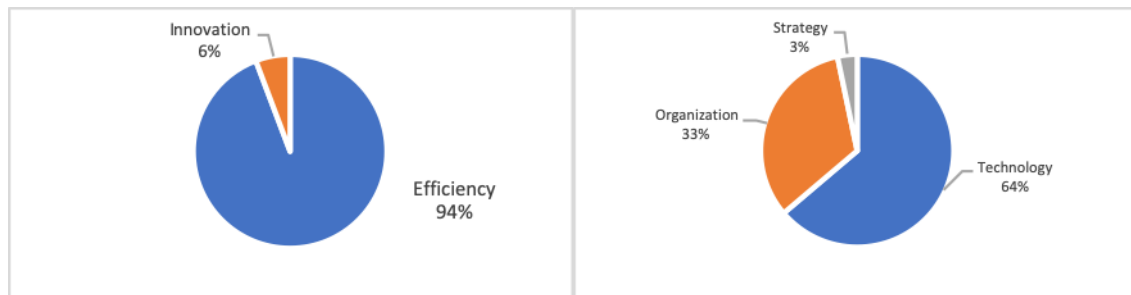
**Figure 1. Overview of current level of digital ambidexterity in the Swedish Public Sector.**

Aggregating the 18 factors into the three areas of digital ambidexterity (Efficiency, Innovation and Balancing), we find that Balancing has the lowest level of ambidexterity, with 33%, whereas Efficiency and

Innovation are at 41 versus 40%. In addition to this, we also surveyed the digital heritage of the target group. The results show 46%, i.e. the digital heritage still not facilitating digitalization (assumed break-off point 50%). This will be followed up in additional studies where the operationalization will be used to explore the linkages between the different factors of digital heritage. At present, the digital heritage is regarded as an obstruction for attaining benefits from digitalization. Digital strategies that do not sufficiently address this deficiency through modernization, will risk accruing sunk cost in their digital initiatives since these cannot be scaled in the existing legacy environment.

**The Enactment of Digital Ambidexterity in the Swedish Public Sector**

Digital ambidexterity is seen as the dynamic balancing of efficiency and innovation in the presented initiatives. Since the unit of analysis in the empirical work is that of an “initiative”, this is analytically equated with a means through which ambidexterity is enacted. This entails that both activities directed towards efficiency and innovation are seen as ambidextrous activities.



**Figure 2 and 3. Overview of categorization of ambidextrous activities.**

As seen in Figure 2, there is a predominant focus on Efficiency among the initiatives. Only 3% of the total identified initiatives (n=265) were categorized as Innovation. From this, our conclusion is two-fold. First, that the near-future direction of digitalization lies towards an increasing focus on efficiency rather than innovation. Second, that this pattern of enactment of ambidexterity is skewed, i.e. not displaying what Luger et al (2018) would refer to as dynamic balancing. Only minor attempts at shifting the balancing point away from a sole focus on efficiency are present, and hence the reported low level of ambidextrous capabilities should be treated as problematic under the assumption that innovation matters in the public sector.

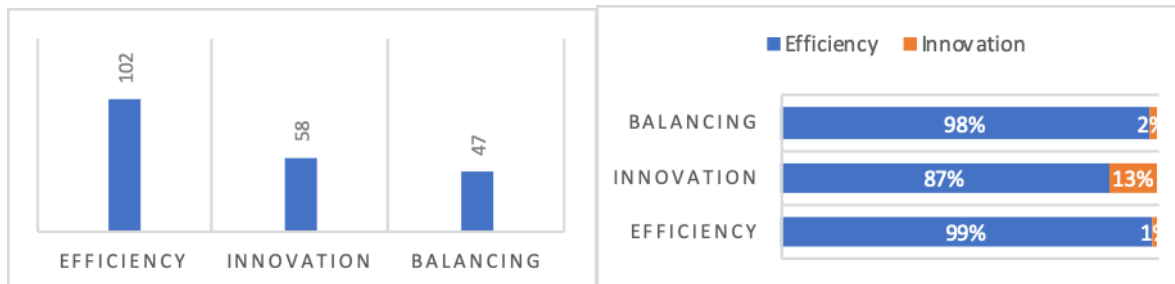
In terms of the means through which digital ambidexterity is enacted (Figure 3), i.e. technology, organization or strategy, we see a majority of initiatives enacted through technology (64%). This may be in the form of anything from a new system for handling errands (efficiency) to a new app for novel citizen interaction (innovation). The enactment through organization (33%) may be in the form of a new organizational entity for Digitalization, a new Project Management Office or an Innovation hub, and Strategy (3%) may be in the form of a new digital strategy or educational initiatives for senior managers.



**Figure 4 and 5. Distribution across ambidextrous capability and digital heritage.**

When comparing the distribution across the two dimensions of digital ambidexterity and digital heritage, we see that the lion share of initiatives are related to Digital Ambidexterity (179 vs 64). The diminutive corpus of initiatives found in Digital Heritage is problematic given the findings presented in the State-of-

the-art section, where the heritage is seen as constricting digitalization. On the basis of this, we would have expected (or perhaps hoped) to see a higher emphasis on initiatives geared towards improving the digital heritage. In terms of the distribution of innovation vs efficiency in ambidexterity vs heritage, there is a slightly higher degree of innovation initiatives in digital heritage. This is equally surprising, since modernization through replacement of platforms et cetera is more related to efficiency than innovation. This requires additional studies, geared towards understanding how innovation activities within the digital heritage are handled.



**Figure 6 and 7. Overview of the three areas of digital ambidexterity.**

When looking at the distribution of initiatives across the three areas of digital ambidexterity, we see that the area of Efficiency stands out. As seen in Table 1, this entails issues related to portfolio management, maintenance et cetera, i.e. the core governance issues of digitalization. This is the primary point of interest for the existing initiatives, yet the main focus of said initiatives are on increased efficiency. Given that this is the actual area, this is not surprising. What is more surprising is the relative low level of innovation activities within the area of innovation. Only 13% of all activities (n=58) in this area were seen as innovation. Our interpretation of this is two-fold. First, that the bulk of activities are still focused on establishing the foundation for being able to conduct innovation in the organizations. This entails working with creating the necessary governance pre-requisites for innovation. Second, this work is conducted along the lines of continuous improvements rather than radical shifts. With innovation seen as a new logic for the public sector, this indicates that governance evolves slowly over time, and may not be designed in an optimal manner for more dramatic shifts in logic (Nambisan et al, 2017).

## Discussion

As noted in the introduction, there has so far been a dearth of research in regards to how ambidexterity is enacted. This is particularly pressing in the context of both the digital and the public sector, where the majority of previous studies have focused on general ambidexterity and other sectors. In this study, we have tried to alleviate this shortcoming by focusing on the enactment of digital ambidexterity in the public sector.

As the results show, the current level of ambidexterity within the Swedish public sector is relatively low (41%). From this respect, and coupled with the more static perceptions of organizational ambidexterity (Raisch & Birkinshaw 2008), we can see that the public sector as a whole so far has not achieved ambidexterity in their governing of digital. With digital government placing significant demands on the balancing of efficiency and innovation (Magnusson et al. 2017), we conclude that at present the pre-requisites for success are not in place, and we will continue to see the public sector struggling with digitalization. The findings show that digital ambidexterity is enacted through a continued focus on efficiency-oriented technological solutions. Instead of focusing on the underlying pre-requisites for scaling (i.e. digital heritage), the focus is on creating new technological solutions for short-term internal efficiency. There is very little evidence of balancing or re-balancing towards a stronger emphasis on innovation rather than efficiency, and hence our conclusion is that the current enactment of digital ambidexterity displays significant path-dependencies, not supporting innovation as part of digital government.

The analysis of how digital ambidexterity is enacted offers some insight into how we can expect the continued strive for digital government to evolve. With a predominant focus on efficiency rather than innovation, we conclude that the current level of ambidexterity is not likely to improve in the near future.

The dominance of an efficiency focus, enacted mainly through technology initiatives is interpreted in the context of risk aversion and legitimacy. Digital innovation initiatives are characterized by generativity and a high level of initial failures (Yoo et al. 2010), and instead of being instrumental for increased efficiency, they function through creating digital options for future maneuverability (Rolland et al. 2018). Hence, the allocation of funds for innovation is problematic for an organization used to working with traditional types of capital investments (Baker, Song & Jones 2017). In terms of legitimacy, the public sector displays a tendency for mimetic behavior, where initiatives from one organization is copied to other organizations in a strive for legitimacy. Hence, we can expect to see a higher degree of path-dependency and isomorphism on the sectoral level than in other sectors. Also, the impact of New Public Management can be regarded as prioritizing efficiency above all else, turning innovation into norm-breaking behavior (Osborne et al. 2013).

The implications of these findings are two-fold. First, we can expect to see the equation of digitalization with efficiency and automation to continue to have a strong hold on the public sector. This is problematic, since it refrains the sector from responding to changes in needs and desires from the citizens, and shields the organizations from the full scope of potential benefits of digitalization (Yoo et al. 2010). The result may be a continued decrease in relevance for the sector as a whole, and a continued marginalization of public services in respect to private alternative offerings.

Second, without sufficient digital ambidexterity, the necessary capabilities for re-balancing in times of increased dynamism in the environment that Luger et al (2018) find necessary for performance are not present. The result of this is that as the dynamism for the public sector increases (Gil-Garcia et al. 2016), we will see increasing negative returns for the organizations in terms of their governance configuration. In order to counteract this, organizations should work with increasing their digital ambidexterity, and work actively with balancing how ambidexterity is enacted. This entails understanding the implications of patterns in enactment, with the underlying assumption that ambidexterity is enacted not in the formulation of strategies and imposition of paradigmatic frameworks, but rather in the front-line of the organization.

There are at least two main limitations of the study. First, the selection of respondents was uncontrolled by the researchers. This entails that there may be problems of credibility stemming from the survey being answered by individuals that have only limited insight into the digital ambidexterity. In future studies, we aim to control for this more rigorously. Second, the categorization of initiatives into efficiency and innovation may be regarded as problematic given more dominant perceptions of innovation as encompassing continuous improvement.

In terms of future research, we see three main projects. First, the enactment of ambidexterity has seen some promising contributions during the past year (Luger et al. 2018; Zimmerman et al. 2018), yet is still in its infancy. We believe that the method used in this study is promising, and will continue to utilize the survey as a basis for studying enactment. The survey is bi-annual and the number of organizations utilizing it for measuring digital maturity is increasing, whereas the supply of data is expected to continue. Second, we see the necessity of complementing the field level studies with in-depth case studies of individual organizations. This work has just started, but will in a richer manner be able to answer the questions regarding how digital ambidexterity is enacted. Third, the notion of digital heritage is seen to be highly relevant for understanding the path-dependencies and inertia in terms of digitalization. Future studies will be focused on the contingency of digital heritage for digital ambidexterity. When combined, we hope that these projects will be instrumental in a theoretical contribution in the form of a theory for digital ambidexterity.

## **Conclusion**

This study finds that digital ambidexterity displays a clear pattern in its current enactment in the Swedish public sector. First, it is primarily directed towards efficiency rather than innovation, tilting the balance of initiatives towards exploitation rather than exploration. This is deemed to be problematic for the continued digitalization of government, where previous research has called for an increased emphasis on innovation and the necessity for continuous and dynamic re-balancing of ambidexterity. Second, the principal means of enacting digital ambidexterity is through technology initiatives, primarily targeted



towards increased efficiency. The relative low level of ambidexterity displayed in the Swedish public sector shows no significant signs of short-term improvement, making digital government difficult to achieve.

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