Identifying Barriers for Digital Transformation in the Public Sector

Linn Slettum Bjerke-Busch and Arild Aspelund

1 Introduction

The adoption of new technology has always brought organizational changes. However, the last decade has brought an acceleration in the number of these changes because digital tools that solve administrative and commercial functions are becoming ubiquitous and available at reasonable cost. In the private sector, digital transformation is viewed as a source of competitive advantage and an enabler for creating more efficient business models and enabling adaptive, flexible and customized mass production capabilities (El Sawy et al. 2016). In the public sector, digital technology can be used to improve client experiences, streamlining processes and transform operations or the operating model. This is often referred to as e-government, e-governance or digital government/governance (West 2005).

Despite the promises, we do not observe a rapid digital transformation of the public sector. Research suggests that the economic and cognitive path dependencies brought about by legacy systems, global operations, work silos and organizational politics make public institutions more reluctant to transform their physical models into digital models (Weill and Woerner 2013). Economic research on innovation focuses predominantly on competitive market factors as the main driver for digital transformation (Christensen and Raynor 2003). In the public sector, where competitive forces are weaker or even absent, we need a greater understanding of the driver and barriers that are limiting digital transformation (Meijer 2015). This study aims to contribute to increase that understanding by studying the barriers for digital transformation in a typical public organization where there are promising potentials for both increased service quality and higher efficiency by adoption of new digital technologies.

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D. R. A. Schallmo, J. Tidd (eds.), *Digitalization*, Management for Professionals,
https://doi.org/10.1007/978-3-030-69380-0_15

2 Theoretical Background

As digital transformation in the public sector differs to such an extent from the private, there has been some debate on how it should be defined. Based on expert interviews with 40 experts on digital transformation and public service in 12 different countries, Mergel et al. (2019) defined digital transformation in public sector as:

> A holistic effort to revise core processes and services of government beyond the traditional digitization efforts. It evolves along a continuum of transition from analog to digital to a full stack review of policies, current processes, and user needs and results in a complete revision of the existing and the creation of new digital services. The outcome of digital transformation efforts focuses among others on the satisfaction of user needs, new forms of service delivery, and the expansion of the user base. (p.11)

According to this definition, digital transformation in the public sector is not merely transforming analog and manual tools to digital tools, but a broad organizational transition towards new tools, policies, work processes and operations. We will adopt this definition for this study as it fits both the case and the research question.

One way of studying digital transformation in public sector is by the use of an institutional lens (Dimaggio and Powell 1983). From an institutional viewpoint, adoption of new technology is constrained by institutional norms, arrangements, rules and operating modes. However, the adoption of new technologies will also in return influence the organizations (Fountain 2001). Hence, barriers will to a large extent be defined by the technological solutions and work processes that the organization is using at any point in time.

Another view is to look at technology adoption from a change management perspective. From this view the political context of democracy and the juridical context of legislation, rules and bureaucracy is likely to influence the digital transformation process (Kuipers et al. 2014). The context of public sector is therefore relevant when considering barriers to the digital transformation process. The process stages are relevant in considering the events involved in the transformation (Pettigrew 1987). Meijer (2015) defined the different stages of the innovation process as (1) idea generation, (2) idea selection, (3) idea testing and (4) idea promotion. It is reasonable to assume that different public sector context factors will influence the transformation process to varying effects at the different stages in the innovation process.

When studying the public sector, it is important to note that the various public organizations serve interdependently from other public institutions in the sense that they are all supposed to cooperate to create efficient and reliable services to the public. This interdependency of public organizations is very different from what we observe in the private sector where organizations predominantly operate independently in competition with others. For example, in this paper we uncover how the Norwegian Court Administration is integrated in a system of lawmakers, regulators, law enforcers, prosecutors and lawyers, and how they depend on them to efficiently run daily operations.

Hence, digital transformation in public sector affects the whole sector and thus, change will take place at the societal, governmental, organizational and actor levels simultaneously (Hartley et al. 2002). Pettigrew et al. (2001) named these different orders of change. The first order is the subsystem change, the second order is the organizational change and the third order refers to sector change. For the purpose of this study, we find it useful to integrate the perspectives of innovation stages and orders of change in the research framework to identify barriers for digital transformation in the public sector.

Studies of barriers to innovation in general and digital transformation, in particular, have been widely studied in the private sector. The studies on the public sector have been few and far apart. Meijer (2015) defines a barrier as "characteristics, either real or perceived, of legal, social, technological or institutional context which work against digital transformation because they constrain efforts to reconfigure access to information, people and services in ways enabled by ICTs". In this study, we will focus on both internal and external barriers.

Considering previous research on barriers to digital transformation in the public sector we observe that at the sector level research points to political system characteristics, socioeconomic forces, elite decision-making and administrative system characteristics as barriers for change (Pollitt and Bouckaert 2004). As mentioned above, the inherited nature that public organizations have a multitude of stakeholders may make digitalization more complex (Perrott 2009).

At the organizational level, Kane et al. (2019b) detected both behavioural and structural barriers that are driven by the mindsets of the organization and manifested in the organizations' systems. According to institutional theory (Dimaggio and Powell 1983), there is a reason to believe that this may be even more evident in public organizations as both systems and mindsets are institutionalized. In addition, research shows that organizations find it hard to combine innovation and daily operations within the same organizational structure (Helfat et al. 2007). Strategy is found to be an important driver for transformation in private sector. In the public sector, strategy is often formed at the government level and this may be a challenge for the public organization that has to implement the strategy they have not created internally (Kane et al. 2015).

Finally, on the individual level we have evidence that different types of leadership affect digital transformation (Kane et al. 2019a). This is especially the case in the collaboration between strategic top-level management and IT (Hsu et al. 2018; Li et al. 2019; Weill and Woerner 2013). In public organizations, it is common to differ between administrative leadership and political leadership, and due to this dual nature it may complicate the relationship to IT further, but little research has been done in this area (Kuipers et al. 2014).

3 Research Question

Due to the lack of research and the need for a better understanding of digital transformation of the public sector, we formulate the following research question:

What are the main barriers for digital transformation in public institutions?

4 Research Design

This study seeks to contribute to the knowledge base on digitalization of the public sector by identifying barriers for digital transformation. It seeks to do so by investigating the Norwegian Court Administration and their digitalization project "Digital Courts". As we are seeking a deep understanding of processes that constitutes barriers to change, a case study approach is appropriate (Yin 2014). The study adopts a constructivist grounded approach and a qualitative research method to gain sufficient depth in the data on the actors' experience of the process (Anderson 2010). We interviewed all six members of the top management group. That includes the top manager, two members of the project management group, two IT leaders and one senior advisor. The respondents were selected by a method of purposive sampling (Silverman 2014).

The interviews were retrospective and designed to provide in-depth objective facts about the historical events, strategic processes and decisions, and relations to stakeholders. The interviews were also aimed at gaining subjective insight on the managers' perceptions on the actions and behaviours surrounding the events and took place in May, June and August 2019. All interviews were carried out in the Norwegian language and were audio recorded and transcribed. As part of the analysis, 11 documents from the project organization were included to illuminate the case.

The data was coded by using a thematic analysis. The thematic pattern was driven by the research question and coded in an inductive way. The data was presented to the participants in order for them to adjust or correct misunderstandings. Further, the data was compared to emergent theories and recoded into a set of main categories (Eisenhardt et al. 2016). NVivo was used as a tool in the coding process.

The study is based on a single-case study and hence has limitations in generalizing the findings to the general population (Anderson 2010). However, findings can be transferable to other public organizations where the context is similar. Ethics approval, in this case, was administered through an agreement with, and informed consent, from participants in the study.

5 Findings

The Norwegian Court Administration (NCA) oversees and supports the ordinary courts and the land consolidation courts in Norway. These add up to 104 independent courts—that is, 63 district courts, 34 land consolidation courts, 6 courts of appeal and the supreme court. NCA serves these courts by providing economic budgeting and controlling function, organization and competence development, communication and ICT infrastructure.

Table 1 Timeline of the digital transformation process at the Norwegian Court Administration

Stage	Year	Important events
Idea generation	2007–2008	Development of an ICT strategy
	2009–2012	Digitalization becomes part of the main strategy
	2011	The Actor Portal is launched
	2011	"Project digital collaboration" is established and an intranet for the judicional sector is developed
Idea selection	2013	Start up for a governmental project proposal and financing plan (Norwegian: satsingsforslag)
	2017	The project proposal and financing plan is accepted
Idea testing	2017	Start up for the project "Digital Courts"
	2019	A new court strategy "Courts 2025" is launched
Idea promotion	2019	The Court Administration reorganizes. The project is merged with the main organization Start up project for reorganizing the courts

The study identifies barriers that are specific to the public sector that contribute to the understanding of why public sectors are more resistant to digital transformation. To structure the presentation of the findings, we will first present the case timeline and then use the framework developed above that uses the innovation stages from Meijer (2015) and structuring barriers according to Pettigrew et al. (2001). First, we present the timeline of the transformation according to innovation stages (see Table 1). The timeline provides an understanding of the main events during the process.

The process represents a timeline from 2007 where the organization started the process of developing an ICT strategy. This also marks the start of the idea generation phase where digitalization becomes integrated into the overall strategy and the first actions are initiated to involve internal and external actors in idea generation. NCA begins the application process for state funding of the digitalization project in 2013 and proceeds to develop ideas and solutions, until 2017 when the proposal and financing plan is finally accepted and the project "Digital Courts" is launched. In 2019, the new court strategy "Courts 2025" is released and reorganization to integrate the digitalization project with the rest of the organization is commenced. The timeline shows that this has been a long and slow process spanning 12 years. However, it has also been successful. And even though the digital transformation phase is still ongoing, digitalization in NCA is now fully integrated into the overall strategy and all development processes.

We proceed to present barriers according to the combined Meijer (2015) and Pettigrew et al. (2001) framework. Since digital transformation is defined as an ongoing process and digitalization at NCA ultimately became integrated in the main strategy and therefore all major innovation processes, we have added a stage at the end that addresses this issue. We start with the external barriers—referred to as third-order changes by Pettigrew et al. (2001).

External Barriers

Findings suggest that the external barriers are most common in the stages of idea generation and selection. These barriers are linked to regulations, financial models, lack of system integration and lack of technical standardization. The external barriers are less evident in the test stage and the promotion stage, but more apparent after the organization has matured digitally and digitalization becomes the norm. Some of the identified external barriers are likely to be similar in any organization in digital transformation. However, there are some that are distinctively related to the public sector. In particular, barriers identified in the early stages highlight the interdependency that is particular to the public sector. For example, the court administration does not make their own money in that same way as private entities and large-scale development projects are dependent on funding priorities from the government. Moreover, operations depend on coordinated efforts from a range of other independent actors and the process of arriving at similar technical standards is challenging as there is a clear division of roles, but no hierarchy. These barriers provide insight into why the initial phases of this public digital transformation are so slow (Table 2).

Respondents in the study express a need for a change in governmental models, especially on the financial side, to be able to keep up with the speed of digital transformation in the rest of the society. The administrative director illustrates:

> Project funding is only temporarily, but now we <the NCA> have new needs and new opportunities, so we also have a need for money to keep doing interesting things and continue to innovate.

Internal Barriers: Organizational Level

As we move on to the second-order barriers, we observe that they predominantly occur in later stages and particularly during idea testing and promotion. Once again, we observe that funding and resource allocation remains a problem also at the organizational level. However, here we also observe another factor that is particular to the public sector. An organization like NCA is a typical professional public organization in the sense that it is designed to fulfil a specific public need, and hence, constitutes predominantly of professionals within that area of expertise—in this case, competence in law. This amplifies coordination barriers across silos and in particular between managers, IT staff and the workforce (Table 3).

The organizational barriers are most evident at the test phase. At this stage, new ideas and ways of working meet with established routines. At this stage there are both structural and cultural barriers:

> A lot of terms and conditions were absent when the project started. Everything from policies, strategies, platforms and technologies, architectural choices—that all the time led to new barriers. We didn't succeed in getting the resources we wanted, so we had to put an effort into changing our operational processes

Table 2 External barriers found at different stages of the transformation process

Idea generation	Idea selection	Idea testing	Idea promotion	Continuous innovation
• Regulations • Lack of financial cross-funding • Dependancy on the members in the value chain. Different levels of digital maturity • Lack of digital competence and mindset at politician level and department level • Formal and slow processes for financing • Project funding • Letter of allocation focuses on efficiency and savings, not innovation	• Must prove that innovation leads to more efficiency • Project funding • The Judicial system is autonomous and independent from government, but dependent on governmental funding for innovation. Creates a system where the fox guides the henhouse • Formal and rigid communication structures. Requests are overlooked or ignored or do not receive attention • Large power distance between administrative leadership and politician leadership • Lack of arenas for informal collaboration	• Changes in the role from administrator to service deliverer • Lack of technological standardization and system integration in the sector • Lack of flexibility (e.g. for changing rules and regulations) • Differences in decision-making structures across organizations in the value network		• The biggest challenge is the norm and cultural understanding of the way the public financing system is working • Responsibility for lifespan of services across sectorial org, but without funding • The organizations need to fund their own innovations by digitalizing (at the end it ends)

Several participants mention resource allocation as an important barrier. Important resources are defined by the participants as a digitally skilled workforce, a workforce with a digital mindset and a workforce with an entrepreneurial mindset. In terms of professional culture, this barrier became visible at first through differences in conceptual languages, which was a hinder for collaboration across disciplines and for the ability to adopt new ideas into the organization. Both are critical for digital development:

> What I experience as most challenging is that there is a lot of confusion surrounding concepts. Digitalization is being characterized as a goal instead of a mean to achieve goals and visions. This easily leads to discussions that are, - not confusing, but there are different perspectives

Table 3 Internal organizational barriers found at different stages of the transformation process

Idea generation	Idea selection	Idea testing	Idea promotion	Continuous innovation
Institutionalized culture	• Division of labour. Silo structures • Hierarchical leadership structure • Institutionalized roles and behaviours	• Resource allocation is difficult. In relation to finding the right skills, the right amount or reallocating workforce to new tasks • Differences in work processes across silos • Lack of flexibility. Fixed roles and behaviours • Lack of system integration and standardization across different courts • Lack of ability and mindset to finance our own innovations and developments. Budget is fixed on daily operations • Looks at innovation as something separate from daily operations • Differences in conceptual language between IT, managers and workforce • Changing roles	• Volunteer use of digital tools vs. obligatory use • Lack of experienced need for change amongst users • Resistance amongst users. Autonomy issues due to standardization • Resistance to changing roles and work tasks	

Professional employees are autonomous in the execution of their professions to a large degree. A successful digital transformation is dependent on the involvement of professional employees, and at the same time automation will to some degree remove or change some of their work tasks, eventually altering and changing their

professional work identity. In the test phase the participants reported that their colleagues did not see a need for the change, but other resistance responses to change were not detected. The lack of urgency was visible through difficulties in involving employees in the beginning of the development process, and when the employees could choose to adopt digital tools that altered their work tasks or continue work as usual, the latter was preferred:

> We had already developed several solutions, but few of them had been extensively used in the Courts

Internal Barriers: Management Level

In terms of the first-order barriers, we observe a range of barriers until innovations are internalized and move into a continuous innovation phase. The latter might be explained by the fact that professional service organizations, such as the courts, are generally associated with proficiency in driving incremental improvements as long as professional boundaries and work processes are not challenged (Table 4).

Some of the first-order barriers are general factors that are likely to be present in any organization—public or private. However, there are also other barriers that are likely to be specific to the public sector. These barriers are often derived from second-order barriers. For example, strategic decisions are made on the governmental level and communicated to NCA through bureaucratic procedures. Coordinated changes are generally slow and time consuming.

> They (the Justice Department) receive too many written requests. We can use a lot of resources in writing a hearing, and they won't even notice.

The same barrier applies to funding and this creates a challenging task for the leader. Another barrier that is derived from the second order is the relationship with the external stakeholders. Digital transformation of the courts is dependent on coordinated innovation and development processes across a range of other public and private entities, but the legitimacy for orchestrating the transformation process in an ecosystem of all the stakeholders is limited.

Another barrier that was apparent in our study was the role of the top management. In the public sector, managers are often viewed as administrators rather than leaders. Moreover, top managers in professional public organizations are often promoted, and draw legitimacy from, professional merits more than leadership skills. This can lead to direct challenges for leaders of digital transformation in the public sector as the process will depend on influence from other disciplines, e.g. digitally skilled personal, than those that currently dominate the organization. This was also observed in the present case study.

Specifically, in the first stage of idea generation the participants experience the behaviour of the managers in line with an institutional norm of administrative managers in public sector. The IT director reports difficulties in communicating

Table 4 Internal managerial barriers found at different stages of the transformation process

Idea generation	Idea selection	Idea testing	Idea promotion	Continuous innovation
• Traditional governmental administrator management role. Managers role is regulated by rules, institutional norms and "letter of allocation" • Communication with users is "inside-out" • Lack of strategy. Strategy is regulated by "letter of allocation" • Lack of interest and understanding for technology • Lack of cross-competence, especially in between digital technology and strategic leadership • IT is viewed as an efficiency tool, not a mean for creating value • Lack of collaboration and strategic decision-making processes	• Prioritizing process improvement • Lack of trust in the leadership group • Lack of decision-making processes and facilitation of dialogue in the leadership group • Lack of user inquiry and insight • Lack of systematic collaboration with other stakeholders externally and internally	• Public management traditional role and mindset as administrator (as opposed to a leader) • Differences in power relationships • Realization that this is an ongoing project. New priorities. Tech over people • Professional leader hierarchy (not according to line, but profession)	• Power and legitimacy by profession, not by formal position • Leaders are not recruited on leader competence, but professional competence • Lack of competence in change management • Fear of losing influence • Leaders are not recruited on leader competence • Users gain more power in organizational developmental processes	

technological strategic possibilities to the leadership group and to the board members. Similar challenges are also confirmed by other managers. The implications are also apparent in the discourse within the leadership group. Participants report that they were mainly concerned with proceedings within their own field and the distribution of resources between the different departments. They reported difficulties in coordinating strategic discussions and deciding on innovative projects that involved a collaborative effort. A digital transformation may slow down or halt at an early stage, if managers are not able to balance discussions about proceedings and resources with strategy and coordinated decision making.

> The first ICT strategy communicated a need to renew the Courts in line with the development in society. They <the managers> had never heard that before. I had to say it three times. And they wondered what that really meant. It sounded very scary to them.

All the participants mention the recruitment of a new administrative director as a trigger for speeding up the digitalization of the courts in NCA. The director's effect on the process, through challenging the norms in public sector, stands out as a testament to the role of leadership in the digital transformation of a public organization. Particularly in the first two stages of the innovation process:

> One important thing was (the director's) personal courage. To put it that way... he was so lucid. And showed such a strong leadership. That had never happened before in the judicial sector... We were suddenly in charge of our own digital renewal.

6 Practical Implications

This study has contributed to our understanding of barriers to digital transformation in the public sector. We have identified barriers on all three levels of management and throughout the whole transformation process that are specific to the public sector. The most important of these barriers are:

- Dependency on bureaucratic structures and financial models.
- Interdependency on public and private external stakeholders.
- Professional culture.
- Lack of a need for change.
- Institutionalized management practices and understanding.

From these findings and our study of the Norwegian Court Administration, we deduct three specific implications for managers of public organizations that seek to successfully lead their organization through digital transformation.

Digital Transformation in Public Organizations Requires a Sector-Wide Transformation: Form a Peloton!

The findings show that the digital transformation of the Norwegian Courts is dependent on a simultaneous and coordinated transformation of the whole sector. It makes little sense to digitally transform the courts unless it is coordinated with similar transformations in related public and private institutions such as the police, prosecutors, lawmakers and lawyers. Enabling actors to cross-collaborate may work as a driver for digitalization in the public sector according to the argument of institutional isomorphism as argued by DiMaggio and Powell (1983). Public managers should therefore seek to form a peloton—a pack of riders—that together seek to transform the sector through an ecosystem. Such coordinated efforts might

help overcome the funding barriers and identify technical solutions that contribute to efficient and high-quality services from all parties.

Barriers of the Organization: Work with the Norms and Culture!

Public organizations have stronger norms than private sector linked to the understanding of their professional behaviour (Dimaggio and Powell 1983). This study has shown that the focus on profession acts like a barrier to digital transformation and if the public professional organization wants to successfully transform, they need to change their understanding of their role as administrators of a profession to a professional service deliverer.

Management as a Key Factor: Work on Strategy!

The findings suggest that managers in public sector are more likely to succeed with a digital agenda if they challenge the administrative norm of a public manager. Managers that are able to strategically redefine the boundaries to their external stakeholders, and their employees, are more likely to succeed in orchestrating a digital transformation. This requires a close collaboration with public and private stakeholders, a facilitation of multiple perspectives in coordinated strategic discussions, building and involving a digitally skilled workforce in developing new services, and challenging the political agenda. Findings also suggest that the public leadership model needs to be revised to include a more collaborative model of distributed influence.

7 Contribution

Most of the research in economic studies focuses on market barriers. This study suggests that there are some specific barriers for public sector that challenges both the structure and the culture of the government model and the role of public organizations. Further research should look more closely at how public institutions can collaborate to transform together. Research should especially look closer at how managerial capabilities can be developed and used to enable and drive change.

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