A Pathology of Public Sector IT Governance: How IT Governance Configuration Counteracts Ambidexterity

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Abstract. Public sector organizations are invariable stuck in a contortionist position in regards to how they approach digitalization. Centralized delivery models for IT drive efficiency in the short term, but at the same time they have been identified to potentially counter-act innovation. This study utilizes an interpretative case study of 21 Swedish public agencies and their centralized IT function to analyze how existing IT governance configuration impacts organizational ambidexterity. The empirical base consists of 31 interviews and studies of secondary material in the form of steering documents. The findings show that IT Governance is experienced as decreasing the level of innovation in the organization and hence negatively impacting ambidexterity by systematically skewing the balance between efficiency and innovation. These findings are discussed in relation to previous research, and propositions for future research for better understanding IT governance configuration in the context of ambidexterity are presented and discussed.

Keywords: Ambidexterity · IT governance · Public sector

1 Introduction

In the past all the people who tried to build a science of the normal without being careful to start from the pathological […] have ended up in often ridiculous failures. [1, p. 285]

Digitalization involves the utilization of digital technologies in the parallel strive for efficiency and innovation [2]. As such, a public sector organization set on a path of digitalization needs to balance these two intentions and make sure that the appropriate pre-requisites are in place that avoids trade-offs [3]. Unfortunately, with the long-term dominance of bureaucratic governance models [4], the bulk of existing governance and control is geared for efficiency rather than innovation [5]. Hence, IT governance legacy has been identified as a constricting factor for achieving ambidexterity [6–8].

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Ambidexterity, here referred to as the simultaneous handling of established business activities and rapidly changing new activities [9], infers that the organization needs to strive for an instrumental balance between efficiency and innovation in its digital initiatives. In terms of the link to organizational ambidexterity, we follow [10] and equate exploitation with efficiency, through seeing it as continuous improvements of existing services and processes. Exploration is equated with innovation through seeing it as initiatives for the acquisition and development of radically new knowledge and service concepts.

In line with recent findings from the field of organizational ambidexterity [11] balance is regarded as a dynamic process rather than a fixed state. Any public sector organization striving for sustainable advantage and performance needs to continually re-balance between efficiency and innovation. In times of increased dynamism in the environment, more emphasis (i.e. more resources) have to be devoted to innovation than in times of decreased dynamism [12]. Hence, an organization acting in an environment with shifts in dynamism needs to be equipped with not only capabilities for efficiency and innovation, but also for balancing [13]. In other words, instances of IT governance configurations that "tip the scale" through a built-in balancing bias may be referred to as pathological in that they counteract the long-term intent of the organization.

Most sectors have experienced an increase in dynamism through emergent digitalization [14]. The once relatively stable expectations of the customers are increasingly becoming influenced by digital services from challenging actors, where the pace of new services as well as the ease-of-access drives the industry towards increased digital intensity [8]. At the same time, governance in said organizations is designed to counteract risk and fluctuations over time, resulting in a sub-optimal fit [15].

In lieu of this, there is a need for increased knowledge in terms of how existing governance practices counteract organizations' abilities to realize the benefits of digitalization. Through understanding the limitations of existing governance, i.e. the *pathology* of IT governance to return to the opening quote, we hope to inform future research and practice. Provided this rationale, the research question that this paper addresses is:

How do current configurations of IT Governance impact organizational ambidexterity?

This answers the calls from research such as [4] and [8] on the need for new types of IT governance that do not counter-act the need for agility and pace in digital development. The study was operationalized through an interpretative qualitative case study conducted in the spring of 2019. The organization in question, the County Administrative Boards of Sweden, is a collection of 21 public agencies with a centralized provisioning and joint governance of IT.

This paper is organized accordingly: After this brief introduction, we continue with the precursory findings and theoretical framing, addressing issues such as the governance of IT in the public sector and ambidexterity. This is followed by the research approach and results, where the findings are presented in conjunction with the identified themes of counteracting governance and propositions for future research. After this, we discuss the findings and said propositions, as well as implications for practice.

2 Precursory Findings and Theoretical Framing

2.1 IT Governance

IT Governance, here understood in line with Weill and Ross [16] as the decision-rights and accountabilities for IT-related investments, has a long line of inquiry dating back to the 1960's. Starting from the turn of the millennium, there was an increased emphasis on understanding the intricate integration of issues of IT in the general governance of the organization [17]. This in turn spiked a re-visiting of contingency studies for normative contributions into how IT Governance should be designed [18]. Despite being a rich and popular field, IT Governance has been criticized by several authors for an over emphasis on formal controls [5], a functional perspective on IT [3] and its isomorphic tendencies where firms display increasing similarities in their governance configurations despite having widely different operational logics [6].

More recent contributions to the study of IT Governance have explored the new types of control that may be aspirational. In [19], this is re-conceptualized following a liberalist approach where IT Governance is continued to be treated according to an internal market logic. In [8], the functional perspective is replaced with a platform approach focused on services rather than assets, resulting in what the researchers deem a better fit with practice. Core to the stream of research within IT Governance is the perception of governance as manifested in a set of mechanisms [17]. Through focusing on the contingencies for particular configurations of mechanisms, research has explored the combination of structures, process and relational mechanisms as advocated by [18, 20, 21].

In line with Wiener et al. [5], the notion of control configuration has been criticized for not amply considering the enactment of governance. As noted by [13], it is not merely in the design of organization and governance that we govern, but ultimately through how these frameworks are *enacted* by front-line managers. In this study, we posit that despite governance enactment being a promising path of inquiry, this does not mean that additional studies of IT Governance mechanisms and their configuration are not warranted.

2.2 Organizational Ambidexterity and Analytical Framework

Following the organizational ambidexterity stream of research, we acknowledge that organizations that wish to achieve long-term performance and relevance to its stakeholders need to balance between exploration and exploitation [9, 12]. This means that in order to achieve long-term success, organizations need to be ambidextrous, i.e. equipped with the capability to dynamically balance between exploration and exploitation over time [11, 13]. Following [10] as well as [22] operationalization, we equate exploration with innovation and exploitation with efficiency. In relation to digitalization, researchers such as [23] have called for "digital ambidexterity", i.e. the capability to dynamically balance the intent and focus of their consummate digital initiatives in terms of efficiency and innovation.

From the organizational ambidexterity perspective, initiatives directed towards exploitation (i.e. efficiency) versus exploration (i.e. innovation) together form a consummate whole. In other words, efficiency and innovation are discriminate constructs,

without overlay, resulting in the assumption that when combined, said initiatives equate the total body of resources of the organization. To summarize, there are two theoretical assumptions (TA) that form the basis for our argumentation in this paper:

TA1: Ambidexterity is a measure of the dynamic balancing between efficiency and innovation.

TA2: The level of innovation and efficiency are mutually exclusive, i.e. an increase in the level of innovation will invariably lead to a proportionate decrease in efficiency.

These two theoretical assumptions are combined into an analytical framework as seen in Fig. 1 under Results.

3 Method

The researchers were contacted by the County Administrative Boards of Sweden (CAB) in the fall of 2018 for a potential commissioned research project underlying this paper. After initial discussions concerning a potential research collaboration and the challenges identified by the representatives of the organization, the focus fell on how IT was currently governed. With this being in line with the research interests of the involved researchers, the case was selected on account of fit and convenience. We designed a qualitative, interpretative case study [24] to address the research need. CAB consists of 21 independent agencies with a total of 6.000 employees. The agencies are distributed across Sweden and are tasked with weighing in on decisions related to a wide are issues such as fishery, agriculture, environment, housing et cetera. They are Sweden's oldest agencies, dating back to the 1600s, and in the event of a major crisis such as war they are designed to function as self-governed and -sufficient kingdoms [25].

Since 2009, CAB has employed a centralized and standardized delivery model for IT in the form of a shared service center. The founding idea was to create economies of scale and facilitate homogenization in terms of quality of service between the different geographical areas in Sweden. The central IT department is seated in Gothenburg with three smaller branches scattered throughout Sweden. CAB adheres to a supply/demand configuration with organizational entities devoted to supply and demand management. In terms of portfolios, there are two (development and maintenance), with resources distributed with a lion share in maintenance.

Data was collected in two forms. First, steering documents and secondary material was collected (a total of 35 documents, including IT strategy, Digital strategy, governance setup et cetera). The selection of this data was done in close dialogue with the steering group from CAB, with the explicit intent of gathering data of relevance to understanding the current setup of IT Governance. Second, a total of 31 interviews were conducted with a total of 21 respondents during the spring of 2019. 24 interviews were conducted with individuals from the Shared Service Center (SSC), and seven interviews with people from operations in roles from all hierarchical levels. Each semi-structured interview was conducted by at least two individuals, and all interviews were sound-recorded and fully transcribed. The respondents were asked for consent on using the interviews for

continued research, and promised anonymity. Using multiple empirical sources is clearly in line with qualitative and interpretative research [24]. Interviewing respondents face-to-face also gave us a good opportunity to ask follow-up questions and be open for emerging thoughts and responses, enriching the data utilized in this paper. The interview transcripts were coded using the qualitative analysis software Nvivo Pro in two iterations [26]. The first iteration of coding was done inductively, looking for themes in the responses. This resulted in a total of seven identified themes. The second iteration looked for second-order constructs, resulting in four constructs which form the basis for our presentation of results below. The analysis followed an integrated and iterative approach to analysis [24, 27].

4 Results

CAB is unanimously presented by respondents' through the interviews as an organization with a very low level of innovation. There are substantial shortcomings in the innovation capabilities displayed in the empirical material, and the respondents are clear in identifying current configurations of governance as the main rationale behind an expressed lack of innovation. In order to attain ambidexterity, a substantial re-balancing towards innovation is needed and acknowledged by the respondents. Figure 1 summarizes the identified themes in relation to the analytical framework.

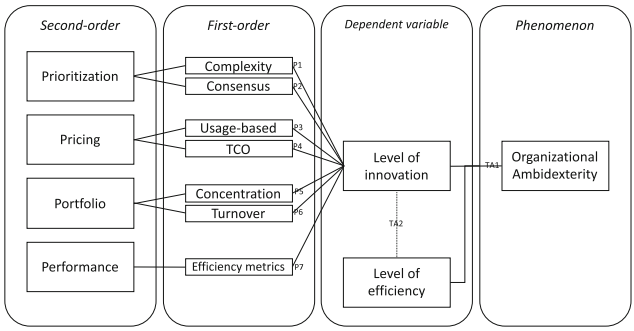

Fig. 1. Summary of research findings

The study identified four overarching second-order themes as constraining factors for ambidexterity (Fig. 1). These are presented below in conjunction with the empirical data, along with propositions for future research expanding on the identified relationships with ambidexterity.

4.1 Prioritization

Prioritization refers to the process through which new investments associated with IT are handled in the organization. As such, the process is signified by being highly complex and cumbersome (multiple steps), and, building on consensus as a pre-requisite for go-ahead on investments.

"I don't think any other agency has an as-a-complex governance model as we do." County Governor

In terms of the *complexity* identified in the case, the primary driver of complexity is the underlying model for how an investment gets prioritized and approved. CAB works with a standardized model (PM3) and the associated process has 25 steps. The result is a process where the high workload for associated documentation and the long lead-times result in stagnation.

"It takes too long for them (suggestions) to reach those higher levels. Employees cannot push ideas all the way up to decisions. It is too difficult simply, it takes too long." Employee, general organization.

In addition to this, there is a built-in need for consensus regarding all digital initiatives to gain approval. This consensus goes all the way up to the CEO level, where all 21 CEOs have to be in accord in terms of which investments to fund.

"So, if we are going to start a new project, the whole group of governors, 21 of them need to be in a consensus decision." Manager form the budget group.

The result is a growing inertia in the organization, where digital investments take a long time to push through to an investment decision.

"You can say we´re sometimes paralyzed by our own rules, laws and regulations" Employee, general organization.

On the basis of these findings, we have identified two propositions for future research:

P1: The level of complexity in the prioritization process for IT-related investments will negatively influence the level of innovation.
P2: The level of required consensus in the prioritization process for IT-related investments will negatively influence the level of innovation.

4.2 Pricing

Pricing refers to how IT cost is allocated through charge-back in the form of internal pricing for IT-related products and services. With 50% of the operating budget for the SSC being based on direct funding through sent invoices, the pricing of said services fills two functions. First and foremost, it is employed to create organizational transparency for the resources spent on IT, i.e. legitimacy. Second, it is designed to factor in cost-drivers for the SSC, resulting in plannability and credibility in financial control.

"IT cost is split per user, because in the end it is the user, that creates the cost. If there weren't a user, there wouldn't any cost. It is fair handling of IT cost." Chief Strategy Officer.

"60% of all the funds of the IT part is based on users and that is not supporting, let's say the development, because we are using more and more IT, the best business is requesting more and more as well" Chief Information Officer.

"But if we do not have usage-based pricing, that would mean that people would start using IT much more!" Manager, field-notes from final presentation of findings.

As seen in the three quotes, pricing is paradoxical based on both IT-use being a sound basis for assessing true cost, and through cost directly influencing decreased use of IT. The CAB digital strategy is clear in stipulating that everything that can be digitalized should, and hence there is an inherent conflict between the pricing model and the strategic intent. If the use of IT is assumed to provide increasing returns, then the organization (according to the second quote) should aim for a pricing model that does not promote short-term activity related to decreased use of IT. At the same time, the pricing model is institutionalized and widely accepted in the organization, having been around in a stable form for the past five years. As noted by the department managers, it provides them as customers with transparency, and also with increased plannability in terms of cost.

"…this is quite [a] complex [system] but it is actually working well, and it gives transparency…" Department manager.

From the SSCs perspective, the pricing model works as a basis for managing demand in the organization with the intent of plannability and efficiency. Provided the model, they are equipped with a method that reduces variability and fluctuations for 50% of their operating budget, with clear early warning signals as noted by the Financial controller:

"So, we are just working to figure out a mechanism that we can get an early warning if we expect to see significant changes in volumes coming here." Financial controller.

In relation to plannability and the high dependency for the SSC on the revenue generated through the internal billing system, the organization applies a model for total cost of ownership (TCO) over five years in all its digital initiatives. This means that for an investment to be prioritized, it has to be fully funded in terms of both development and maintenance. With the organization working with a significant legacy environment, this results in the maintenance cost for new development of technologies that do not fit the existing legacy will be significant. This places a significant deterrent to new initiatives, where the actual development costs are relatively small compared to the maintenance cost. Pricing new development according to this model results in significant cost hurdles. At the same time, the organization does not manage additional cost attributable to aging legacy, whereby there are no signals in terms of when modernization of the infrastructure is warranted from a development cost perspective.

On the basis of these findings, we have identified two propositions for future research:

P3: The use of usage-based pricing for IT cost charge-back will negatively influence the level of innovation.
P4: The use of total cost of ownership as a basis for prioritization of IT-related investments will negatively influence the level of innovation.

4.3 Portfolio

Portfolio refers to how the total amount of IT-related projects and assets that are jointly managed (bundled). CAB manages two parallel portfolios, one for maintenance and one for development. As seen in the study, there is lacking plannability on account of money being sparse and short-term. This results in the organization not amply managing the lifecycle of its systems in the portfolios.

> *"We work in cycles that are too short. As of now, we procure new applications and systems simply because we have the money for it. Then we use it for a while and eventually a forget about it and buy a new one instead." Employee, IT-department.*

The lack of lifecycle management also results in the organization not amply addressing the need for decommissioning systems in a timely manner. CAB lacks an overview of the total amount of systems, as well as the age of said systems. Without this information, there is little insight into what systems should be decommissioned versus modernized versus maintained.

At the same time, the lack of oversight and transparency in both lifecycle and the content of the portfolios results in a problem with amply meeting the demands from the business side. As noted above, there are significant lags in the process from ideation to actual deployment, which results in significant frustration from the business side.

On the basis of these findings, we have identified two propositions for future research:

P5: The level of concentration of the IT portfolio will negatively influence the level of innovation.
P6: A low rate of turnover over time in the IT portfolio will negatively influence the level of innovation.

4.4 Performance

Performance refers to how the performance of the IT function in the CAB is measured and managed.

> *"So, I think it is important for us to show that we all the time more efficient in IT department to leverage the economy of scale because that the mission given to us and we try to optimize our IT all the time." Chief Information Officer.*

As noted by the CIO in the quote above, the IT department is deeply rooted in a perception that they should be as efficient as possible. This is also visible in the performance reporting done, where the sole focus lies in staying on-par with budget. Through this, the idea of the IT department being proactive in meeting new demands from the business becomes counter-productive to the performance on what they are measured. Increased fluctuations of demand would invariably lead to a decrease in efficiency.

> *"It's deeply rooted in our DNA to be reactive, not proactive and I think that's not good. The CABs do not need the reactive IT, they need proactive IT." Chief Strategy Officer.*

At the same time, this reactiveness is experienced as something that goes against both sound economic thinking (i.e. straining resources) and the experienced value of the IT department as noted by the Head of Strategy. Several respondents identified the opportunity cost of not amply being responsive towards new demands from the business, at least in the longer run. The focus on merely cost in the short-run is highlighted as a counter-productive practice in the long-run, where the organization is now striving for expanding the performance measurement and management with functional metrics such as SLA compliance et cetera.

> *"So, I guess cause you talked about that the mission is focused a lot on delivering cost efficient services to users… …we made some SLAs but we presented them to a small group (3 people)… and there has been very low interest from the other 20 counties…." Department manager, user support.*

On the basis of these findings, we have identified one proposition for future research:

P7: A sole function on efficiency metrics for performance management of the IT function will negatively influence the level of innovation.

5 Discussion

This paper has sought to answer the question of how IT Governance configuration impacts ambidexterity in a public sector organization. As the findings show, there are multiple instances of configurations that have a negative impact on the level of innovation, hence acting as a bias for increased efficiency at the expense of innovation. This phenomenon has previously been addressed as an efficiency creep [4] or increased emphasis on exploitation [3, 28], yet our paper is the first to identify specific configurations in IT Governance that act as mechanisms for said biases. This is important as an original result within the e-government field in this paper.

Prioritization acts as a deterrent for innovation and hence shifts the emphasis in ambidexterity towards efficiency. Both the level of complexity in the and the requirement for consensus at the two upper levels of management act in direct conflict with the underlying digital strategy of the agencies. Any new digital initiative needs to be chaperoned through a prioritization process placing high demands in terms of work-load for the champion of the investment. At the same time, the requirement for consensus places high demands on political activities. These challenges have previously been identified in the literature [19], yet propositions 1 and 2 need to be further addressed. Considering the context of Scandinavian public sector, the value of consensus and democracy, are really important values in institutional life.

In regards to the issue of pricing, previous literature has identified a need for increased transparency in IT costing [29]. The underlying rationale is that if there is a clear line of sight between the cost driver (use) and the cost (price) then the organization will be equipped with decreasing cost. Unfortunately, the underlying assumption of this is that the value of use may be less than the cost, and that the value of use is strictly contained within the P&L of the user. Both of these may be seen as troubling (and/or dated) assumptions. With the value of IT often being organizational wide, and the digital

strategy of the case organizations being one of increased digitalization this is found to be counteracted by the pricing scheme. Previous literature is full of critical reflections on pricing IT services, yet full charge-back is still the dominant model in practice [30], whereby we conclude that there is a need for research into propositions 3 and 4.

Pertaining to the issue of the portfolio, the expressed dilapidate state of the existing legacy environment is a constant area of concern for the case organizations. At the same time, it is symptomatic of a governance that traditionally has been geared towards maintaining legacy rather than addressing requirements for modernization. All processes found in Prioritization and Pricing act to conserve and counteract investments that would decrease the digital heritage [7, 31]. As such, the lack of insight into the turnover of systems, the age of systems et cetera is problematic since it does not provide the organization with signals of necessary re-investments [5]. Provided this, we see the need for additional research into propositions 5 and 6.

Lastly, the existing performance measurement and management of the IT function in the public agencies was found to be directly counteracting innovation. With the IT function solely measured on efficiency metrics, i.e. keeping its budget, any type of innovation initiative will invariably negatively impact the efficiency of the function. All new projects are deemed a risk in relation to fulfilling the core objective, i.e. delivering standardized services to operations. Hence, we see a need for additional research, within the e-government and the IS fields, into proposition 7.

With this study focused on understanding the impact of governance configurations on ambidexterity, said seven propositions become instrumental for increasing our insight into a potential pathology of IT Governance. Core to our reasoning has been the necessity for a configuration of governance that is aligned with the underlying strategic positioning of not only the organization(s), but also the intended use of digital initiatives in the quest for digitalization [18, 22, 32]. Here, we believe that the case may be illustrative of potential draw-backs of a governance geared for IT in a time when digitalization was not a core strategic objective for the organization. Hence, for organizations that strive for digitalization, previous research [2, 3, 8] would warrant an increased emphasis on ambidexterity. We hope that the propositions presented in this paper may act as a source of inspiration for future research. There are three main implications for practice. First, organizations that aspire for ambidexterity should strive to avoid the identified IT Governance configurations or at least be aware of the potential shortcomings. Second, there are clear identified trade-offs between efficiency and innovation that should be avoided, whereby the ambidextrous balancing point needs to be used as a strategic mechanism. Knowing which levels of innovation are aspirational for the organization at any given point in time will aid the IT department in configuring their IT Governance so that it is aligned with the organization's objectives. Third, with this balancing point being dynamic, i.e. shifting over time, there is a need for increasing the fluidity of IT Governance mechanisms, where a certain amount of flexibility should be built into the design. For additional insights into this in relation to new demands placed on the organization by digital transformation, see [33] and [34].

With this being a first attempt at a structured investigation into the pathology of IT Governance, it is off course laden with limitations. We acknowledge that the single-case study approach, despite being rich and deep, utilized places significant limitations if

one aims for statistical generalizability of our findings [35]. At the same time, with this being an exploratory study, we deem the approach to be justifiable and acknowledge analytical generalizability. More studies are needed and we hope to see research into the phenomenon in the future. Another limitation lies in the choice of a collection of agencies with a centralized IT function. This is, in the Swedish context, an outlier. At the same time, the current push for digital centralization [36] within the Swedish context will require learning from previous centralized approaches, and here we believe that our study may form the basis for insight. In terms of the transferability of findings between both the private and the public sector and across national boundaries, we are aware of the limitations as put forth in [37].

6 Conclusion

This study has aimed at exploring how current configurations of IT Governance impact ambidexterity in organizations. We have studied this through a case study of 21 agencies in Sweden, with a centralized IT function. Through the study, we identified four areas and seven underlying configurations of IT Governance that were found to be skewing the ambidextrous balance towards efficiency rather than innovation, despite the organization expressing a need for increased innovation. We refer to these findings, and the propositions derived through them as a step towards a pathology of IT Governance, i.e. an attempt at understanding how certain configurations may act as deterrents for achieving the strategic objectives of organizations.

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