Enterprise Architecture in Government: Fad or Future?

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Abstract

Enterprise Architecture (EA) has been promoted as a key tool for transformation and modernization of government. In this paper we study what has driven the use and adoption of the EA concept in the Danish central government. Based on analysis of focus group and ‘guru’ interviews with government CIO’s, enterprise architects, and consultants, as well as extensive document studies, we find that there are two streams in public sector EA programs: a stable element of it-architecture and a fashion driven business architecture element – used in parallel, but with different focus, approach and artifacts. We conclude that EA in government to a large extend is driven by fashion. Finally, we discuss the role of EA in the future and point out that EA can not transform government by itself. Fundamental transformation to the tasks performed in public organizations is only achieved if institutional forces promote transformation.

1. Introduction

Enterprise Architecture (EA) is the new buzz word for information systems (IS) planning in many governments around the world. [1]. Similar to trends in the past such as Management by Objectives, Total Quality Management and Business Process Reengineering, the EA reform agenda in government promises to break down the ‘traditional bureaucracy’ and create a ‘service oriented’ public sector with citizens and businesses at the centre. [2; 3; 4].

Traditionally IS planning is conducted by organizations to ensure that IS resources are effectively utilized [5]. EA, however, promises a new line of thinking with the transformation and modernization of government institutions – as a new public management reform tool [6].

John Zachman [7] introduced the first framework of EA in the late 1980’s with the purpose of moving away from an isolated IS development focus, and instead moving to an enterprise-wide documentation, analysis and planning approach. Since then several studies have clarified the definition - including [8; 3; 9; 10].

Common across various definitions of EA is the alignment of IS resources with an organization’s business strategy. The definition of EA that we will use is based on [3], where EA is the organizing logic for applications, data, and infrastructure technologies, as captured in a set of policies and technical choices that form unifying principles and practice across projects and lines of business in an enterprise. The vision is to create an interoperable infrastructure to guide the integration of government operations and services at all layers of government [11]. Thus, EA is part of a reform paradigm in e-government, where IS is perceived as a central vehicle in administrative reforms and transformation [12].

There is no doubt that the EA rhetoric of transformation and modernization is appealing to many public managers. Announcing reforms, criticizing bureaucracy, praising new management techniques, and promising improved services to citizens and business is popular in government [13]. Adopting EA is ‘doing something’ and it can attract favorable attention to the politicians and bureaucrats who espouse it. But it might also be exaggerated to ignore powerful forces of path-dependency and self-dis-equilibration – that is the capacity of management reform initiatives to produce the opposite of their intended results [14].

Very little research can be found that documents the value of EA [3; 15; 16]. Past experiences with administrative reform suggest two possible paths in which a reform initiative like EA can be influential [13]: One is the ‘incubated’ path where reform ideas do not come into full effect until long after their original instruction. Another path is an ‘acute/rapid’ innovation pattern, in which reform programs peak early and then breaks up quickly. Topics such as business process engineering and enterprise resource planning have been described as “fads” [17; 18]. And other researchers have noted that waves of “fads and fancies” tend to characterize IS/IT [19]
Based on Abrahamson’s management fashion theory [20; 21], this paper investigates the formation and adoption of EA in the central government of Denmark. Empirically grounded in focus group interviews and interviews with key informants, we answer the research question: 

What is the purpose of EA and what has driven the use and adoption of the EA concept in Danish central government?

The remainder of the paper is organized as follows. First we lay out our theoretical foundation including a neo-institutional perspective focusing on management fashion theory. In section 3 we give a thorough account of our research method and show a detailed example of the analytic induction method we have used. In section 4 our finding are categorized and explained. Section 5 discusses the finding and section 6 concludes and answers our research question. Finally at the end of section 6 we discuss the future of EA.

2. Theoretical Framework

We apply Abrahamson’s management fashion theory to answer our research question. Other researchers have used the management fashion theory to compare the strength and duration of selected fashion waves [22]. We look at one specific “fashion” – EA – to see if this particular IS technique is a fundamental improvement to traditional e-government challenges with Information Systems (IS) in public organizations.

Building on neo-institutional theory [23; 24] and theories of innovation and diffusion [25], Abrahamson describes a management fashion, not as simple spontaneous diffusion of guru-driven techniques, but as shaped by culture, society and economics [20].

Abrahamson defines management fashion as: “The process by which management fashion-setters (consulting firms, management gurus, researchers, etc.) continuously redefine both their own and fashion followers’ collective beliefs about management techniques which lead to rational management progress” [21]. He describes the phenomenon as “rapid, bell shaped swings” in management techniques where norms of managerial progress represent societal expectations that managers use as forms of improved management techniques.

Figure 1 below illustrates how Abrahamson’s theory first seeks to understand the creation, selection, processing, and diffusion by suppliers of management fashion through certain rhetoric and techniques. The suppliers are represented by consulting firms, business schools, gurus and mass media organizations [21].

![Figure 1: Management fashion setting process [20].](image)

The left side of figure 1 represents the supply for management fashion. The arrow leading out implies that during the processing stage, fashion-setters seek to identify the best-selling rhetoric to carry the selected techniques. This rhetoric is then used in the diffusion stage where the selected techniques are launched into the management fashion market.

The right side of figure 1 represents the demand for management by fashion users. The arrow leading out indicates that during the creation stage fashion-setters, sense the up-coming preferences that will guide the demand and create management techniques to satisfy them. In the next stage, they select those techniques which they perceive as bestsellers.

In the processing phase, the fashion-setters elaborate on different rhetoric to convince the management fashion market and the fashion-followers that their techniques are both rational and at the forefront of management progress. They aim to do so by attempting to create beliefs that there are organizational performance gaps and that the created techniques facilitates the process of reducing these gaps. In many cases, fashion-setters exploit techniques that are being used by a few currently successful companies, and present their success to justify their claims.

According to Abrahamson [21], the techniques chosen in the creation stage do not have to be better, nor more efficient than already existing techniques. Instead, the central issue is that they differ significantly from them. Hence, the major assignment for the fashion-setters is to form collective beliefs that their particular managerial techniques are not only innovative but also constitute a substantial improvement in relation to state-of-the-art in management. This belief, though often based on early adopters’ anecdotal success, generates increasing...
pressure on every organization to adopt the innovation, because organizational stakeholders expect managers to employ modern and efficient techniques to manage their organizations [23].

In some cases these “fashion beliefs” may be accurate, however in many situations the techniques represent nothing but old techniques that have been reinvented or rediscovered by the fashion-setters.

The powerful use of neo-institutional theory in Abrahamson’s theory asserts that norms of both rationality and management progress influence managers to adopt management techniques perceived as progressive. By arguing that there is a management fashion-setting community which shapes transitory collective beliefs among management fashion-followers that certain techniques are rational and at the forefront of management progress, Abrahamson overcomes what he calls the “pro-innovation” biases in the traditional innovation diffusion literature [21].

Many researchers have argued that IS is an instrument to drive administrative reforms and transformation [26; 27]. Others have, however, found few empirical studies to document the impacts of IS on public administration, and it has been argued that most government managers want to keep things the way they are [28; 29].

As noted in the introduction, not many public or private organizations have been able to reap the benefits of EA planning [3; 15]. And with few exceptions [e.g. 30] IS research has yet to answer how institutions influence the design, use, and consequences of IS planning initiatives, either within or across organizations.

Abrahamson’s theory offers a vantage point for conceptualizing EA formation and adoption as an emergent, evolving, embedded, fragmented, and provisional social production that is shaped as much by cultural and structural forces in the organizational context, in which they are implemented, as rational, technical and economic ones.

3. Research Design

To answer our research question on the purpose and drivers of EA we used two research approaches. In the first part we gathered two focus groups, one with CIOs and one with chief enterprise architects. In the second part we interviewed two experts – or “Gurus” to use the language of Management Fashion Theory – and analyzed official documents, newspapers and official websites. Thus we triangulated sources of evidence and methods for data collection [31].

Focus groups are a qualitative research method where the group of people in focus is asked about their attitude towards an idea, a concept or a product [32]; here we had EA as the focus. In the group meeting we phrased questions to the group. Participants were free to talk and discuss with other group members. In fact we encouraged as much discussion in the focus groups as possible.

To organize the focus group discussions we had prepared a semi-structured interview guide. In Table 1 we have shown the overall structure and main questions from this interview guide.

<table>
<thead>
<tr>
<th>Question</th>
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<tbody>
<tr>
<td>1</td>
<td>Each Participant. Where from, what role, and daily job</td>
</tr>
<tr>
<td>2</td>
<td>Why are you working with Enterprise Architecture EA</td>
</tr>
<tr>
<td>3</td>
<td>Advantages from EA; in projects; across organization; across society</td>
</tr>
<tr>
<td>4</td>
<td>IS EA better or worse than traditional strategic planning</td>
</tr>
<tr>
<td>5</td>
<td>How have you used EA, concrete examples</td>
</tr>
<tr>
<td>6</td>
<td>Anything special about EA in the public sector?</td>
</tr>
<tr>
<td>7</td>
<td>Will EA exist in three years</td>
</tr>
</tbody>
</table>

Table 1: Excerpt from the semi-structured interview guide

Focus group interviews were carried out in March 2008. Respondents were selected based on their official position as CIO’s or chief architects and e-mail invitations were sent to CIO’s that actively participate in the Danish central government’s IT Coordination Forum and chief architects that participate in IT-architecture Committee.

During the focus groups one author concentrated on facilitating a good discussion. The other author took notes, recorded and videotaped the sessions. Each focus group interview lasted between two and three hours. In Table 2 we have shown the participants in the focus groups, their affiliations and role. Furthermore at the bottom of Table 2 we have shown the “Gurus” we interviewed in June 2008 to obtain supplementary interview data.
Table 2: Interviewees in two focus group sessions and two “Guru” interviews

<table>
<thead>
<tr>
<th>Focus Group #</th>
<th>Organization</th>
<th>Role in relation to EA</th>
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<tbody>
<tr>
<td>1</td>
<td>Directorate for Food, Fisheries and Agriculture</td>
<td>IT Development Manager</td>
</tr>
<tr>
<td>1</td>
<td>Ministry of Foreign Affairs</td>
<td>CIO</td>
</tr>
<tr>
<td>1</td>
<td>The Danish Prison Service</td>
<td>CIO</td>
</tr>
<tr>
<td>2</td>
<td>Ministry of Agriculture, Fisheries and Food</td>
<td>Enterprise architect</td>
</tr>
<tr>
<td>2</td>
<td>Ministry of Economic and Business Affairs</td>
<td>Enterprise architect</td>
</tr>
<tr>
<td>2</td>
<td>Public Unit responsible for coherent digital healthcare in Denmark</td>
<td>Enterprise architect</td>
</tr>
<tr>
<td>“Guru”</td>
<td>Gartner Group, Consulting Director</td>
<td>Experienced Consultant in EA</td>
</tr>
<tr>
<td>“Guru” (Earlier in)</td>
<td>Ministry of Science, Technology &amp; Innovation. Main author of [26]</td>
<td>Experienced Consultant in EA</td>
</tr>
</tbody>
</table>

All focus group interviews were tape- and video-recorded and subsequently transcribed in their full length. Interview summaries and quotes were sent to interviewees for clearance.

The interviews were supplemented by examining official documents (strategy papers, white papers, etc), the official web sites of the Ministry of Science, Technology and Innovation as well as the Ministry of Finance, and newspaper clippings about EA in government.

In this way, we made considerable effort creating a historical reconstruction and to try to check the interviewee’s views at some historical time against documentation.

For analysis we used analytic induction [33] which can be described as a systematic examination of similarities between various social phenomena in order to develop concepts or ideas.

In Figure 2 we have shown an example of the coding we made of the transcribed interviews. In the middle of the figure an excerpt of the transcribed text is inserted (in Danish). “bubbles” around the text are shown our coding of the text. After coding the whole text we grouped the codings. This grouping was an iterative process where some codings were grouped in one group, then moved to another group, then back, then copied to both groups and so on. This process continued until we could induce clear findings from each of the group of codings. In the section below we give an account of our findings.

4. Analysis

In this section we present the results of our analysis using analytic induction. To preserve the richness of our data we have illustrated every single point of our analysis with excerpts and citations from the interviews.

Following Abrahamson’s theory of management fashion, we first investigate the supply for management fashion to understand why and how EA was launched in the central government of Denmark. Grounded in our focus group interviews, we hereafter analyze how EA is actually adopted in the central government of Denmark.
4.1 Launching the EA Fashion

The main vision for Denmark’s EA efforts was formulated in a White Paper presented by the Ministry of Science, Technology and Innovation (MSTI) in 2003 [34]. The white paper recommends that the public sector takes more active responsibility for its own EA. A common EA framework was to be established for planning public sector IT systems and ensuring interoperability, and efforts should be concerted to increase knowledge sharing among agencies [34].

MSTI was looking for new approaches to the interoperability challenges that governments in most countries are facing in the struggle to support the exchange of data and the sharing of information and knowledge across IT-systems and business processes. According to a former public servant in The Ministry of Science, Technology and Innovation (and now EA “guru”), “EA was the solution to many of our problems. Meta Group [now Gartner] introduced the EA concept – a concept that has now proven to work in both private and public organizations”.

Asking the former public servant in the MSTI why EA was pushed so hard in 2003 he also mentions politics: “EA was also a new platform for our ministry (MSTI) which we could use to steer the e-government development with … we needed a platform to communicate from – and EA was bought by everybody from the top and down”.

MSTI is responsible for IT-policy in the Danish central government. But, top-level responsibility for e-government resides with the Danish Ministry of Finance (FM). And EA was therefore also a way to gain political influence for MSTI. FM does not focus on technology and MSTI therefore used EA to push the technical interoperability challenges that information and service sharing and management represents in e-government to create a political platform for the work performed in the MSTI.

In our interviews we also sought to understand why EA is better than previous IS planning techniques like e.g. IS Planning. According to the Gartner director, EA is significantly different from traditional IS planning: “EA is a top-down, business driven approach to IT-management…. We need to tackle the problems of growing IT-investments and inhomogeneous IT-system development with this new approach if we want to be successful in government.”

Denmark has been a leading EA reference country [1]. But as noted by [16], EA has not been a driving force in the development of e-government in Denmark. Different common infrastructure elements like common access management and a new infrastructure for business messages to the government (e.g. electronic invoices) have been initiated outside the EA program in recent years. As a result, there are different perceptions of what NEA is and what it is not.

4.2. Adoption of EA in Denmark

Quite many of our findings concentrated around the adoption process. Thus we sub-divided our findings into groups on organizational demand, the demand for EA, EA work in practice.

4.2.1. Organizational demand for EA. The strategic imperative for the Danish Prison Service to use EA was a vision to integrate everything IT-related. In Denmark all prisoners have an electronic prisoner record (EPR), and all systems are to be integrated with the EPR at the core. Any kind of institution involved in the Danish Prison Service reads and writes in the EPR. The only exception is in cooperation with the Police and the judiciary system which is still paper based.

This new integrated EPR-system for the Danish Prison System was developed as 10 smaller projects. “Nobody dared to start one giant project in 1999” tells the CIO. “Instead we started 10 smaller ones, so if one went wrong, it would not scorch us as much”.

The CIO from the Danish Ministry of Foreign Affairs was not overly concerned with EA; “We are extremely centralized and standardized… and we have built our IT organization around this idea of centralization” was his introductory remarks. “Our main problem is that we are so global; we need to have IT all the way to Afghanistan”. A second problem “is to comply with the security commitments we have made to European Union and NATO partners” he said.

In the Danish Ministry of Foreign Affairs the very centralized IT function is under some pressure “to fulfill local needs without being too tight-fitting”, say the CIO. One way to achieve this is to avoid having an IT specialist as CIO. So the CIO is a career diplomat, who spends 2-4 years as head of the IT function. As an example, the former CIO of the IT function is now working in Berlin as a diplomat at the Danish Embassy. “I think that gives us a focus on the needs that really are there instead of focusing on which IT solutions that are the smartest!”, says the CIO.

The Directorate for Food, Fisheries and Agriculture oversees the development and production to the entire Danish food industry. The Directorate was created by merging many institutions in year 2000. “Together with the merger came an incredible number of independent IT systems”, tells the IT Development Manager. Thus it was decided to build a totally new EA for the Directorate. This new architecture is based
on the idea of Service Oriented Architecture (SOA). Together with the Ministry of Finance a business case was drafted and the ambitions are high: “We are to harvest 15-25% savings by using SOA” explains the IT Development Manager.

4.2.2. The demand for EA. To the question of why EA was chosen, the CIO from The Danish Prison Service mentions pressure from the Ministry of Science, Technology and Innovation as one reason, but also that the parliamentary climate in Denmark has changed over the last 10 years. Back then it was common practice to take weeks or even months to answer a question raised in parliament. Nowadays the same question requires an answer within one week, and the numbers of questions are tenfold. Thus one integrated system is absolutely necessary to answer many questions fast enough.

In the Directorate for Food, Fisheries and Agriculture it is pressure for savings from the Ministry of Finance that is mentioned as the first and foremost reason for investing in new architecture. “It has been calculated that 17 million DKK can be saved”, said the IT development Manager. But also the expectations from government were mentioned as a driver by the directorate’s chief architect: The government’s constant promises about massive online services, 24-hour case handling and so forth were a driver”.

According to the understanding of the CIO from the Ministry of Foreign Affairs there is also a competitive element: “Denmark participates in many international assemblies and organizations; the country that is best informed and has the latest information is the country that obtains the most”. Thus there is pressure for new IT systems that can deliver quick and updated information.

Group pressure also takes place at the national level. “If one head of a department takes up a new gadget (here the CIO waves an I-phone in the air to illustrate) during a meeting, then another head may go home and ask: why don’t we have that?”. And one of the architects noted that “Based on conferences [about EA], white papers, and “gurus” within the [EA] field, we drafted our own EA program.”

A common problem was to get the business involved in discussions about IT. The CIO from the Danish Prison Service believes alignment of IT and business is more important than architecture. “It is still not natural for the other managers to think IT”. And many of the chief architects were frustrated that they could not get the business people in their organizations interested in EA. As the chief architect from the Directorate for Food, Fisheries and Agriculture phrased it “We need to go back to the business. It is the business that needs to setup the guidelines for what we [IT] are to do. That is somehow always the same problem.”

It seems that to make a new trend successful, a combination of positive and negative incentives – carrot and whip - are needed. “Five years ago the Ministry of Science, Technology and Innovation was without any influence”, say the CIO from the Danish Prison Service, “But the Digital Taskforce [in the Ministry of Finance] has made a difference … when the person with the whip takes control then it helps. Before, it was just the carrot”. In fact the person with the whip is the Minister of Finance who controls all the financial flows. The view that this Minister made a difference is confirmed by the CIO from the Ministry of Foreign Affairs: “Why architecture is on the agenda? […] I think it is a combination of statements from the Ministry of Science and Ministry of Finance, as well as the result of having consultants who also catch new signals”, she says.

Another thing that is pointed out is that the discussion of EA sometimes is a little academic. The CIO from the Foreign Ministry tells it this way: “We don’t have the resources for high availability, a high SLA [Service Level Agreement] and the more academic [business architecture] part. So when you hear and read what they say [on Enterprise Architecture] from Gartner and the Ministry of Science you think that it cannot be true; it is just not possible with the resources we have”.

4.2.3. EA work in practice. When we asked about EA in the practical management of information systems, the IT Development Manager from the Directorate for Food, Fisheries and Agriculture tells us that she sees it as “kind of old wine on new bottles”. “Some new words have come into play. But for many years I have heard that we should centralize and integrate” she said. So in that sense EA brings nothing new to the table. “10 years ago we developed a common interface to four systems. Off course we could do that then. But what may be new is to break down your business into some logical blocks” she said.

An interesting finding in the focus group interviews with the chief architects was the confusion about the EA concept. While we had expected some confusion about the concept with the CIO’s, we were surprised how different the architects described and perceived EA - not to mention the way they applied the concept.

Two of the chief architects had mapped all the entities within their domain as a starting point for a better Enterprise Architecture. “It has been our thinking in this architectural work that everybody should be able to take a starting point in the
standardized information architecture and data”, told the chief architect from the Ministry of Agriculture, Fisheries and Food. In this ministry they had detailed the entity map more and more all the way down to batch numbers for a single product from a specific producer.

In the Public Unit responsible for coherent digital healthcare in Denmark they were in the middle of the same kind of mapping. They had started trying to cope with registration of medicine in a unified way. The architect told that they aimed for one common medicine card for every citizen. The challenge being that every single system that uses medicine should have an interface to the card.

Another example that was brought up was from the Danish Maritime Authority. Here there was a large and well functioning system which all stakeholders were quite happy with. The chief architect’s problem was that “[the IT-systems] was a black box for everybody in our organization – also for the IT-department” The system was running on old technology so it was destined to become obsolete, “So we had to dig it all up again... That is really the driver today that we wanted to have an architectural overview” the chief architect.

The Enterprise architect focus group was in agreement about the importance of different levels of architecture. “You need to have the architecture go from strategy to the operational” as one of the architects expressed it.

However, the group also agreed that interoperability issues were most important for them. All of them spend the majority of their time looking at interrelationships of different applications, modeling and exchanging data. Going “from strategy to the operational” was seen as necessary, but none of the interviewees seemed to have a crystal clear understanding of this link between business and IT.

The business oriented approach that e.g. Garner promotes above was not something that the chief architects – nor the CIO’s – were overly concerned with. It was clear that they did not see the major benefits in a business architecture that is more concerned with the business context than the structure of applications and data.

The CIO from Ministry of Foreign Affairs sees EA as “a natural continuation of planning thinking”. “But something has changed” he continues. “Today it is much more natural to involve IT from the beginning of a project. It is becoming natural to relate to the enterprise architecture we have”.

Another issue that was discussed in the focus group was how to implement EA so that people understand it. “We have tried to visualize our IT strategy. We have a number of small movie sequences [multimedia podcasts] that can show functionality”, told the CIO from the Danish Prison Service. “It needs to come from the top” adds the CIO from the DMFA. “When the Director sends the first email, then the head of Department is forced to answer … it doesn’t help that an employee starts sending emails to the Head of Department; then nothing happens”. Later in the focus group discussion one Enterprise architect from a different organization confessed: “the major challenge is involving top management”.

At the end of our focus groups we discussed the how the public sector context influenced EA adoption and return on investment of EA. There was agreement around the table that the public sector was special in some ways. One thing mentioned was that not only profit was the goal. There were many criteria for good performance. Another thing mentioned was the high visibility: “The special thing about the public sector is that any failure gets trumpeted in the press” said one CIO, and all agreed that the private sector could attract better people because they could give higher salaries.

Provoking a discussion with the chief architects about the business case – especially the expected advantages – it was interesting to see that none of the participants would stand up and claim the advantages to be fulfilled. “It may take 10 years to pay back” as one Enterprise architect said. Another one emphasized that cooperation with users of the architectural standard was extremely important. “There is a need for someone testing it and giving you feedback”, as it was said.

5. Discussion

Grounded in our empirical data and Abrahamson’s theoretical framework, our analysis indicates that EA in government is to a large extent driven by fashion.

Interviews with the former public servant (and now EA “guru”) and the Gartner director, indicate that EA was “chosen” as the appropriate tool to strengthen MSTI’s influence on the e-government agenda. After publishing the EA white paper in 2003, the concept enjoyed almost instant fame and attracted tremendous managerial attention in the central government of Denmark, which in turn generated a transitory collective belief that EA was efficient, and at the forefront of “best practice” in IS planning.

The MSTI was successful in promoting technical interoperability challenges as so-called “performance gaps” – the difference between the performance level e-government managers aspire to and the level they actually achieve. EA was new and promised improving executive decisions and resource management.
Governments produce White Papers, statements, and booklets that provide “best practice” advice. However, promotional documents do rarely give us a full and balanced picture of what is happening ‘on the ground’; like any other public management reform [6]. As our focus group interviews reveal EA is not very well understood in the central government of Denmark, and nothing indicates that it is generating administrative reforms in government that would replace traditional hierarchies with leaner structures.

Our analysis suggests that many of the local EA initiatives are partly initiated because of pressures of symbolic meanings (social legitimacy) and pressures to conform to commonly adopted target objectives such as efficiency and productivity gains of using EA planning. Backed by the promises of private and public success stories, we could say that MSTI supplied the EA “fashion” to the agencies in the Danish central government.

The CIO’s and chief architects in our focus groups performed EA as a technical exercise that focuses on the interrelationships of different applications, modeling and exchanging data – and not so much the linking of business and IT. EA is perceived as something “technical” and administrative transformation is therefore not driven by EA planning itself.

Our findings thus suggest an interesting distinction between two elements to EA in government: a stable element of IT-architecture and a fashion driven business architecture element. The two concepts are used in parallel, but they also have distinct differences in their focus, approach and use of artifacts. Table 3 describes these two seemingly different aspects of EA.

Our focus group participants were all comfortable when we discussed application integration, modeling and data exchange – the IT-architecture. But, when we talked about the more high-level issues of applications and data in a business architecture context they were more skeptical. The external view of software that business architecture takes - focusing on business efficiencies and process transformation and not so much on the internal workings of applications - was not perused explicitly by any of our respondents. As one chief architect put it “business architecture is something that we need to have to do EA, but we don’t really do it today…”.

<table>
<thead>
<tr>
<th>Focus</th>
<th>Application interaction and systems development</th>
<th>Business efficiencies and process transformation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Approach</td>
<td>Documentation and analysis</td>
<td>Business process management and change management</td>
</tr>
<tr>
<td>Artifacts</td>
<td>Logical and physical data models, Technical standards, etc.</td>
<td>Business process diagrams, investment business cases, etc.</td>
</tr>
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</table>

Table 3: IT-architecture and business architecture

IT-architecture has its roots in the established software engineering discipline [35]. While business architecture is a more recent phenomena [3; 8]. Both streams take a top-down approach to design interested in the interplay between different phenomena [3; 8]. Both streams take a top-down approach to design. While business architecture hosts the transformative element in EA – the focus on business process management and change management that promises the modernization of government institutions.

Thus, EA has not been able to substitute the pre-existing organizational IS-governance structures in the public agencies we studied. Institutionalized habits and values reinforce existing administrative and political arrangements, and pre-existing organizational structures for ‘traditional’ IS planning seem to oppose the logics of EA planning.

As noted by [12] top managers in government agencies are rarely interested in organizational change, and the EA planning innovation thus gets adopted to underpin the existing organizational structures. Thus, our findings suggest, that it is unlikely that the development in the public sector IS planning will resemble the development in the private sector. Public sector planning is simply qualitatively different from planning in private enterprises or industries. As noted by [26], planning reforms can be driven by dramatic higher profits, promotions, stock price increases, and market shares in the private sector, while this can be a showstopper in the public sector where effective IS planning most often will be rewarded with budget cuts, staff reductions and loss of resources.

Finally, an interesting finding was also the confusing mandate of EA in the Danish government. The governance setup gives the MSTI no power to force EA use. What really changes the way IS planning is performed in government is institutional change at the macro-level. The MSTI push for EA only caused
incremental changes to the IS planning efforts in government entities. It was the “External shocks” created by the Ministry of Financed that catalyzed the diffusion process (cf. section 4.2). EA in the Danish central government was supposed to guide administrative reforms, guide executive decisions, and improve recourse management. But, the transformation was a response to institutional change at the macro-level, rather than the particular new template for IS planning in the organizations that we studied.

6. Conclusion

Summing up our analysis and discussion, we found the causal direction reversed from EA being transformative and prescriptive in its nature to EA being reshaped and adopted in step with the institutional forces in public organizations and their macro environment.

As we have seen, IS planning innovations can change routines, structures and social values in government, but it must be understood in the context of the institutional forces that often resist dramatic changes. Public sector reforms will always be driven by political determination, while IS planning can be the enabling tool.

As for our research question on the purpose of EA and what has driven the use and adoption, our analysis indeed suggests that EA in government to a large extent is characterized by fashions. The EA concept is ambiguous and lacks commonly accepted definitions. Our focus group interviews revealed two elements to EA in government: a stable element of it-architecture and a fashion driven business architecture element. As we have seen it seems that the formation and adoption of EA in government is driven by compliance with central guidelines and imitation of “best practice”.

The hyperbole surrounding government modernization and transformation thought the adoption of EA planning seem to be epochal. An epochal schema of old style bureaucratic IS planning and the new EA planning agenda has considerable intuitive appeal. But our findings illustrate how individual circumstances cannot just be considered invisible or rendered insignificant. Organizational context, imitation and compliance explain adoption patterns better than a universal and invariable recipe of management procedures and techniques like EA. Thus our conclusion is that EA can not transform government by itself. Fundamental transformation to the tasks performed in organizations is only achieved if the institutional force promotes transformation.

6.1. The future of EA in government

The limitation of fashion theory is its weak explanatory power. Using Abrahamson’s theory [20; 21] we can not say how long a fashion like EA will stay fashionable in government or even how long it will take to become unfashionable again.

However, by emphasizing how EA adoption and use is not produced solely by the aggregation of individual and organizational reform agendas but by institutions that structure action, the institutional perspective offers a vantage point for understanding EA planning in government. Our findings points out how EA is not a clear-cut cure that can be adopted by any public organization with similar results. EA implementation must be understood in the organizational context it is implemented in.

Working with many different stakeholders, both leadership and subject matter experts, to build a holistic view of the organization's strategy, processes, information, and technology assets must not be underestimated in government EA programs. Public servants and their consultants must understand the business of government – and the business of their own organizations – before they engage in EA.

To be more than just another fashion fad, future EA programs in government must provide a comprehensive and coherent view across business, information, and technology; not just to guide the design of IT systems – but to deliver business change supported and enabled by IT.

References


