Towards an Explanation for Why Enterprise Architecture Management Fails: A Legitimacy Lens

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Abstract. Enterprise architecture (EA) is an approach that manages complexities such as organizational structure, technology, and business by providing a holistic view of the organization to coordinate digital transformation efforts. While previous research has highlighted several challenges in taking advantage of EA, few empirical investigations explained how organizations should manage EA attempts to avoid failure. This paper aimed to explore the root causes of organizational challenges for EA management (EAM) by conducting a case study. Our findings illustrate inadequate legitimacy as a root cause of the organizational challenges, such as lack of shared understanding, stakeholders' engagement, and financial and management support, that needs to be managed over time. Particularly, we demonstrate that although pragmatic legitimacy can positively affect the EAM at early stages, regulatory legitimacy plays the primary role in EAM success. In addition, contradictory views and organizational bureaucracy are recognized as significant barriers to achieving normative and cultural-cognitive legitimacy.

Keywords: Enterprise architecture (EA) · Enterprise architecture management (EAM) · Organizational challenges · Legitimacy theory

1 Introduction

As organizations continue to invest in digitalization and transformation, IT managers and IS scholars alike seek structured strategies and approaches for managing the increasing complexity of their digitalization initiatives and addressing the uncertainty associated with an enterprise-wide transformation roadmap [1, 2]. Enterprise Architecture (EA) is an approach that has gained great interest in both research and practice. EA is described as the collection of an organization's IT (and business) components and their interdependence, as well as efforts to align local and short-term investments with enterprise-wide and long-term strategic imperatives [1, 3, 4]. Moreover, the holistic process of managing activities such as planning, and development of EA is called enterprise architecture management (EAM) [5–8].

Despite EA's benefits, only a few studies have focused on the enterprise architecting process [9]. Other than that, a large number of studies on EA demonstrate that it is more difficult and challenging [10–18]. Unsurprisingly, the majority of EA-related issues identified in this literature are organizational and social in nature rather than technical [e.g., 10, 12]. Additionally, considering the numerous difficulties associated with EA, the primary question is how can organizations better manage such processes to avoid failure? Moreover, to what extent can EA at all be managed in contexts of emergent use and continuous development of new digital solutions? Hence, this paper aims at exploring *why EAM fails.* We accomplish this through a case study of one of the largest Norwegian municipalities (Gov) wherein EA was introduced to the organization in 2012, and EAM activities are currently stopped.

Theoretically, we use the legitimacy concept [19] from institutional theory to shed light on how EA processes and management need legitimacy at various organizational levels among stakeholders in order to succeed. Indeed, the process of obtaining organizational support for IS projects is referred to as legitimization [20]. As a consequence, achieving an appropriate level of legitimacy reduces stakeholder resistance to IT initiatives, which is a critical factor in achieving IS success [21].

Investigating the EA organizational challenges that led EAM to fail in our case study, we contribute to this growing research area by exploring the root cause of these challenges and illustrating how it led EAM to fail. We also argue that recognizing the root cause of EA organizational challenges is not only essential, but also need to be managed over time to reduce the chance of failure in EAM. The paper's remaining parts include a brief overview of EA's recent history and its challenges, the theory and method sections, empirical findings, and discussion section.

2   Research Background

The existing understanding of EA in the literature is diverse [22]. Moreover, the recognized definitions of EA are not necessarily complementary but sometimes in conflict. It is now well-established from various studies that EA integrates with other organizational practices, while EA itself consists of a variety of diverse activities [23–25]. EA's organizational practices consist of different levels, such as top management level, middle management level, portfolio level, and project implementation level [26].

There are several descriptions for EA practices in organizations, including EA development, which refers to the process of developing initiatives, EA implementation, which refers to the process of implementing models and frameworks, and EA adoption, which refers to the way EA practices are incorporated in organizations [27]. Additionally, enterprise architecture management (EAM) [8, 28–30] is a term that has been used in the literature to refer to the management activities associated with the installation, maintenance, and development of an organization's EA [16]. Indeed, EAM is a management approach that provides a holistic understanding of the EA and coordinates EA activities such as planning, developing, and controlling [5, 31] to ensure organizations meet EA principles properly [6, 8].

EAM is not only a technological issue; it is also a social and political one to a large extent [28]. Due to the broad scope of EAM, a large number and diversity of

stakeholders are involved in EAM processes [32, 33], which has impact on EAM's institutionalization in organizations. As a result, organizations find various challenges in achieving the benefits of EAM. Thus, actually paying attention to the quality of the EAM product, EAM infrastructure, EAM service delivery, and EAM organizational anchoring are identified as critical factors need to be considered for the success of EAM [34].

Researchers have been interested in EA challenges, and several have been identified, including a lack of management commitment, insufficiently experienced architects, difficulty of understanding requirements in EA teams, insufficient tool support, rapidly changing environmental conditions, EA consultant-related issues, outdated organizational statutes, and communication challenges [10, 12, 26, 35]. In addition, the root causes of the EA challenges in the public sector are also discovered as problems related to organizational structure, problems from the political influence, legislation and policies problem, and users' readiness problem to adapt EA products [36].

Although extensive research has been carried out on EA challenges, little attention has been paid to discovering how EA organizational challenges accumulate and sometimes lead to EAM failure. Indeed, this knowledge can provide us a fundamental insight into the most effective ways of EAM, as adopting IS innovations are always surrounded by different challenges that need to be managed.

Following studies on other IS phenomena [e.g., 37, 38–40], institutional theory has gained considerable attention in EA research to explore assimilating and institutionalizing EA practices in order to achieve the promised outcomes of EA [e.g., 41, 42–44]. Along with previous studies, we also examine the concept of legitimacy [19], which is central to institutional theory [45]. Legitimacy is widely recognized as a vital concept for accepting IS phenomena/practices in their context [e.g., 46, 47]. Organizations must establish an appropriate level of legitimacy for their IS initiatives to secure the acceptance of initiatives in their context. To demonstrate how EAM fails in an organizational, we use four types of legitimacy criteria to develop our theoretical framework.

2.1 Theoretical Framework

Legitimacy can be classified into four genetic stages: accepted, proper, debated, and illegitimate [48]. The accepted state denotes a more passive evaluation state that reflects taken-for-grantedness, while the proper state denotes conclusions made by a more deliberate process. This distinction demonstrates that accepted organizations, in comparison to proper organizations, are those that are not evaluated actively or recently. The term "debated" refers to a state in which there is an ongoing disagreement within the social system. Disagreements often occur in this state between conflicting stakeholders or between dissident stakeholders and organizations. Debated also includes stakeholder questions or challenges regarding the organization's activities or underlying values. Finally, an organization is deemed illegitimate when the social system deems it inappropriate. In this case, the organization should be fully reformed or terminated.

Internal and external stakeholders determine and assess the legitimacy of the subject, whether consciously or unconsciously, by contrasting them to specific criteria or standards [49]. The term "legitimacy provider" refers to stakeholders that assess legitimacy [20, 50], while the term "legitimacy seeker" refers to those who attempt to legitimize a particular phenomenon [51]. In IT projects, legitimacy seekers include project

executives, project team members, and the project leader, while legitimacy providers include the IT project's beneficiaries, which include business partners, users, and top management [20]. To evaluate legitimacy, four basic types of criteria are used including regulatory, pragmatic, normative/moral, and cultural-cognitive. Different types of legitimacy (e.g., moral legitimacy) gain when specific criteria (moral value) are commonly accepted upon within the social system [48].

Regulatory Legitimacy: Considering that legitimacy is established by associating a social object with a specific feature of the institutional field, regulatory legitimacy is established by associating a new activity with symbolic systems [49]. This alignment is typically accomplished by establishing new practices that conform to the domain's existing legal and quasi-legal rules and regulations [52]. IS scholars have used regulative legitimacy in a variety of ways in their research, for example, by emphasizing that innovation succeeds when it is consistent with government and/or international IT policies and directives [53], or by emphasizing that it aids in gaining agreement with relevant non-IT regulations and alleviates pressures placed on the adopter organization by resource-dominant organizations [47].

Pragmatic Legitimacy: Pragmatic legitimacy is built on the self-interest of an organization's most immediate stakeholders [54]. These estimations can range from a straightforward evaluation of the subject's anticipated benefit to stakeholders to more nuanced objectives [19]. Sometimes, pragmatic legitimacy is followed by an evaluation of the subject's usefulness [54]. Organizational science has shown a great deal of interest in pragmatic legitimacy [e.g., 55]. It has been demonstrated that pragmatic legitimacy can influence the early stages of IT innovation diffusion considerably [e.g., 46].

Normative Legitimacy: Normative (or moral) legitimacy refers to a collection of criteria used to determine whether a new practice adheres to and/or respects moral standards and values endorsed by a specific social audience [19, 56–58]. In effect, the term "normative legitimacy" does not refer to whether a given procedure benefits the evaluator; rather, it refers to the practice being assessed as the correct course of action [19].

Cultural-Cognitive: Cultural-cognitive legitimacy has been deemed the most robust type of legitimacy. Due to the fact that cultural-cognitive legitimacy is based on our in-depth knowledge of practice, it is the most powerful form of legitimacy, but it is also the most difficult to obtain and exploit [e.g., 19, 59]. Cultural-cognitive legitimacy is concerned with acts that facilitate or help in decision-making, resulting in problem-solving. In other words, cultural-cognitive legitimacy is achieved by the internalization of a belief system established by practitioners and scientists to define and codify knowledge about a particular practice [60].Through gaining cultural-cognitive legitimacy, the practice can be taken for granted as a foundation for daily routine activities [e.g., 46]. As such, it is extremely difficult to achieve during the early stages of innovation diffusion [46].

3   Research Method

According to the aim of our research to understand why EAM fails, we opted for a single-case study to have an in-depth understanding of how a phenomenon occurs in a real-life

setting [61]. Thus, we considered the criticality and relevance of the case organization in order to extract illuminating insights [61]. To address our research question, we needed to select a case in which (1) EA practices had previously been incorporated into organizational practices, (2) EA practices were no longer being conducted, and (3) adequate historical information was available, especially through knowledgeable members of the organization.

3.1 Case Description

We chose Gov, a large municipality in Norway, based on the case selection criteria. Since the Norwegian government is committed to achieving the goal of a "one digital public sector", municipalities have committed to providing digital services to their residents as well. Gov is divided into six sections, each of which is in charge of a different aspect of municipal services. The administration section is the central organizational unit that manages and provides services to all other sections. The Digitalization Program is a temporary program established in 2013 in response to a government recommendation to coordinate all Gov's IT projects.

Each organizational section, according to the Gov structure, has its own IT department in charge of managing its IT needs and projects. Additionally, the administration section houses a central IT department. The central IT department coordinates all small IT departments within the various sections and handles the Gov's local projects. The central IT department, and thus the IT manager, has a considerable influence on the administration section manager's decisions due to the operational role. Two other actors who contribute to decision-making in the administration section are the portfolio manager, who is responsible for allocating financial resources to projects, and the leader of the Digitalization Program. The central IT department lacks sufficient internal IT architects to handle all IT projects across various departments. As a result, each project manager has employed a temporary IT architect to work on the requirements of the corresponding local project. A big challenge concerning external IT architects is a lack of organizational knowledge. Over 30 (internal/external) IT architects work with the Digitalization Program to coordinate project activities. To do this, the central IT department collaborates with the Digitalization Program.

Adopting EA to coordinate digitalization processes had been proposed before the establishment of the Digitalization Program; however, the establishment of the Digitalization Program prompted Gov to adopt EA. As a result, EA practices were incorporated into the Digitalization Program's work. Gov employed several enterprise architects between 2013 and 2019 to implement TOGAF principles. However, Gov no longer continues in conducting EA practices. Enterprise architects were hired to take central focus on enterprise-wide topics and to incorporate local IT projects. Nonetheless, they have been more involved in recent years in IT project tasks (as of 2016). As a result, there have been no considerable EA practices conducted since this date.

Numerous changes have occurred in recent years that have affected digitalization processes. For instance, the initial leader of the Digitalization Program was promoted to portfolio manager. He was one of the first to work on implementing TOGAF principles in Gov. Additionally, the IT manager was replaced, and the central IT department's structure was changed. In 2013, there were no subsections within the IT department, and the IT

manager supervised all architects directly. Following the change in IT management, the central IT department created a new subsection called the architecture department to house both enterprise and IT architects.

Apart from this, three distinct types of organizational plans are used to coordinate organizational activities: long-term, mid-term, and short-term. The 12-year long-term plan has a major effect on the Gov's digitalization strategy. As of 2020, Gov is preparing a new long-term organizational plan.

Gov collaborates with another public sector organization on a large-scale collaborative initiative that resulted in creating a new organization. Due to Gov's responsibility to support this new organization, one enterprise architect has been assigned to implement Gov's requirements for the project (new organization). This enterprise architect is responsible for adhering to the Gov's principles and standards. It's worth noting that Gov only had one enterprise architect at the time. Currently, an information architect holds the title of the enterprise architect. S/He is handling several tasks and therefore cannot allocate sufficient time to EA practices.

3.2 Data Collection

The data collection period began in September 2019 and finished in October 2020. We gathered data through semi-structured interviews and focus group workshops (primary data collection), as well as existing documentation (secondary data collection).

The collection and processing of internal and public documents on digitalization, architectural practices, and principles was the first step in the data collection process. Internal documents totaled 600 pages and contained project reports, presentations, historical emails, and the internal portal. Public documents contained statements, regulations, and policies by national authorities relating to digitalization from 2009 to 2020, focusing on the last three years. This step gave us the historical background for EA practices, especially at Gov and the Norwegian public sector.

In addition, we collected data through semi-structured interviews [62]. To begin, an informal interview with the Digitalization Program's leader provided us with background for the case. 14 semi-structured interviews ranging in duration from 80 to 150 min were performed in total. Every interview was recorded and transcribed. Before the interviews, informants were given a consent form as well as an outline of the key topics of the interview questions. We began the interviews with one enterprise architect and then selected the remaining informants using snowball sampling [63]. We explicitly contacted informants involved in implementing EA practices in Gov because information about the previous seven years (since EA was implemented in Gov) was needed. Finally, among the informants were the Digitalization Program's leader (1), portfolio manager (1), project managers (3), architecture department manager (1), IT architects (5), and enterprise architects (3).

We have organized three focus group workshops in Gov. These workshops aimed to supplement our understanding of the case by fostering discussion among a variety of informants on relevant topics. The first two workshops focused on sharing our interpretation of the case situation based on the study of Gov's documents and recent discourses in the EA literature. Later in the study, we held a third session in which we presented our findings to participants and requested their input. We conducted 6 h of workshops with

15 participants (11 individuals), including the portfolio manager, the Digitalization Program leader, IT architects, the architecture department manager, and project managers. Furthermore, with permission, these workshops were recorded and transcribed.

3.3 Data Analysis

We collected and analyzed data in parallel using our qualitative approach [62]. That is, the early analysis of the first step interviews prompted the posing of new or additional questions in the following round of interviews. Nonetheless, because of our theory-informed approach based on the notion of legitimacy in institutional theory, data analysis was guided throughout by a coding scheme built from our theoretical framework. We also developed a coding guideline (based on the coding scheme) that includes definitions and examples for each of the coding scheme's constituent items.

To code the data, we imported all of the interview and workshop transcripts, as well as any relevant existing documentation, into NVivo 12 pro. The coding scheme was used to guide the data coding. In addition to the constituent items of the coding scheme, we categorized architectural practice data into two categories: project and enterprise. At the project level, architectural practices assist in fulfilling the requirements of local IT projects. At the enterprise level, architectural practices give suggestions and decision-making materials for IT strategy and portfolio management processes that are ready for signature. As a result, we were able to follow the reasons that caused architectural practices at the enterprise level (EAM) to fail. After reaching an agreement on the definitions of each of the coding scheme's constituent items, the coding was carried out by the main author. The co-authors then played the role of the devil's advocate, proposing alternative interpretations and counterarguments. The data coding was completed once a sufficient level of agreement was reached.

4 Empirical Findings

Lack of common understanding of the EA practices was the first serious challenge observed in this study's earliest stages. When asked about EA, the participants were not unanimous in the view that what the responsibility or application of EA for Gov was. In particular, we identified several diverging views. On the one hand, the portfolio manager commented that EA must come from the business side, and then IT capabilities should support the business goals. On the other hand, the IT department believed EA is part of the IT strategy, and it comes from the IT side to help organizational goals. Moreover, enterprise architects' opinion was something in between those ideas. Although in this study, enterprise architects worked in the IT department, they had different views from most colleagues in the IT department. Therefore, when we mention IT department opinion, we mean the general idea supported by influential people in this department, while enterprise architects had their own idea.

> *"When we are talking about TOGAF and EA, people are thinking about IT more. An enterprise architect is a person closer to the management level. It should not be seen as an IT person; it should be more a strategic person. Now architects are*

in the third or fourth (organizational) level, in the IT department, and it is very complicated to bring it up to the strategic level" (Portfolio Manager).

"Enterprise architects needs more power; I see some issues in the projects, and I am sure it can make a problem in the future; But, I cannot stop the project (…) only budget and schedule are important for the project managers" (Enterprise Architect).

This ambiguity in the EA understanding had different consequences. For example, some architects felt that the IT manager supported the EA activities and other managers also understood the architectural concerns very well. Thus, they were satisfied with the architects' position, while enterprise architects, who perceived EA practices beyond IT tasks, deemed EA must be placed in the decision-making process. As such, they felt no one pays enough attention to the consequence of the lack of EA consideration in Gov. Therefore, enterprise architects' role was also unclear in organizational processes.

"The challenges of enterprise architect's role are not just related to where it should work; rather there is a question that we (Gov) really need?" (Enterprise Architect).

Also, in this study, no clear response was achieved when asked about how or who confirmed the enterprise architects' tasks. The Digitalization Program's leader believed the enterprise architects could approve their work, and in case they need approval from the upper level, the IT manager or portfolio manager should do it. However, when we asked Digitalization Program's leader why they did not supervise enterprise architects' work, we received this response: *"Although the IT department manages all architects; I think because the IT department lends the architects to the projects, IT manager does not feel that S/he should supervise their task"*.

Moreover, the portfolio manager, who was not the architects' direct manager, did not supervise enterprise architects' tasks due to the organizational bureaucracy. Despite believing that EA deliveries were major input for his work, he did not engage in the architectural work due to the disagreement with the IT manager on EA positioning.

In addition, in response to the question 'why have the EA practices been stopped?', different answers were given. Digitalization Program's leader felt that the financial limitation was the reason, while the portfolio manager considered that the main issue was related to how we look at EA. One enterprise architect also commented that EA was not a priority for the individuals in Gov.

The evidence from this study suggests that although the majority of individuals theoretically knew the difference between IT architecture and EA, they practically did not differentiate between the architectural activities at the project and enterprise level. We received that due to the IT management's support, the architectural activities at the project level were appropriately accepted. Each project manager assigned sufficient resources to fulfil the architectural needs. In addition, the architectural group also had a great collaboration with the project managers. Yet, the importance of architectural activities at the enterprise level was in a debate which resulted in their being stopped. In this way, the EA practices were neglected, and no one, except enterprise architects, was willing to assign time or resources on them.

Having discussed how EA was understood and individuals reacted towards it, the next part, based on different legitimacy criteria introduced in the theoretical framework section, addresses how it was driven to the current state over time.

4.1 Regulatory Legitimacy

Regulatory legitimacy refers to the situation where the object under the study has obtained its legitimacy from, for example, legal rules. In this circumstance, following the rule is coercive for the organization. From this point of view, the some said the main idea for creating Digitalization Program comes originally from a governmental statement, where it was recommended to follow architectural principles in digitalization projects. Therefore, they argued EA also should be at the core of the Digitalization Program. Yet, based on the historical document analysis, we found that both Digitalization Program and considering IT architectural principles were governmental recommendations. However, nowhere pointed directly to EA.

Despite the fact that EA practices had stopped, everyone noted that continuing EA is essential for Gov. For example, Digitalization Program's leader, who thought the financial limitation was the main barrier for EA, expected by emphasizing the importance of EA's role for Gov's IT strategy, in the new organizational plan, they could provide more resources for EA. However, the portfolio manager, who did not assume the financial limitation as a barrier, asserted the only solution to making EA a Gov routine, is bringing it up close to the management level. The portfolio manager also referred to the latest governmental statement and said now it is the time of "a big change". Since he witnessed a similar organizational structure change for IT information security in the past, he hoped the possibility of a new change became more likely through this statement, which recommended Norwegian municipalities to consider EA principles.

> *"Without solving the challenge between IT and Business view, we can place EA in the right position. We should solve it officially. We had this challenge with IT information security, it was solved by changing the position"* (Portfolio Manager).

4.2 Pragmatic Legitimacy

From the pragmatic legitimacy perspective, which considers the individuals' self-interested calculations in the organization, we received evidence that the prior IT manager introduced EA to Gov and supported it.

> *"At that time (2011 or 2012), the IT manager defined an IT evaluation project in Gov. (…) They (consultants) suggested recruiting two enterprise architects and creating an Enterprise Architecture Section and…"* (Enterprise Architect).

The prior IT manager accepted this suggestion, but the point is that his organizational role changed after a while. The new IT manager also supported the IT department well. However, compared with the prior IT manager, the new IT manager supposed the EA practices as a part of IT activities.

At the time of this study, the enterprise architects were the main individuals who actively tried to highlight EA concerns in Gov. Yet, they were more engaged with the

projects. Indeed, although they preferred to spend more time on EA, rather than project activities, they could not change the condition because they were not part of the decision-making board. More correctly, we can say that Gov did not have any enterprise architects at the time of data collection.

> *"When we contribute to making a better alignment between IT and Business, we do it because we want it, not because it is measured! (…) Many people are measured by, you are very successful by leading the project to live. (…) but how are your successes in EA measured? It is not easy!"* (Enterprise Architect).

One participant commented, architects themself also have a significant role in understanding the importance of paying attention to architectural principles. As he said, one of the architects who worked there several years ago did not deliver any task. That person only attended meetings and gave some feedback to others. After a while, others felt the architectural work is not very important. But, after he left Gov and a new architect was hired, this new person, by doing a great job, determined how architects could help others in the projects' activities.

4.3 Normative Legitimacy

The portfolio manager was the first leader of the Digitalization Program and had an IT background. He started to implement EA in Gov. However, after being assigned to the portfolio manager role, he had spent no more time on the EA. He believed EA practices should particularly include business concerns. Thus, enterprise architects needed to be placed at the management level, and they should actively contribute to the decision-making process. Although the portfolio manager aimed to bring EA up close to the management level, he did not achieve it. The portfolio manager assumed two reasons for not succeeding in convincing the section's manager to make an organizational change to bring EA up close to the management level. First, EA concepts were hard to understand. Second, the term "architect" was used to refer to IT specialists in Gov.

Surprisingly, although both enterprise architects and the portfolio manager presumed a similar role for EA, they had never spoken together about this topic. On the one hand, the architects said they invited the portfolio manager to their architectural meeting, but he did not attend. On the other hand, the portfolio manager mentioned all architects, who worked there, were IT architects. The portfolio manager emphasized that they needed enterprise architects who considered business goals. It was interesting because they both (portfolio manager and enterprise architects) mentioned a similar matter. For example, one enterprise architect offered a virtual structure or a change in the organizational structure. In this suggestion, he proposed the idea of "*The Architect Elevator*" [64], and explained how it could facilitate the digitalization and innovation process in Gov. He told us, after sending the proposal to the IT manager, he received only one sentence as a response that *"it is a good idea, but it is not the right time."* The portfolio manager did not know about this proposal. We understood that the conflict between the IT manager and portfolio manager and how the portfolio manager perceived all architects' tasks and abilities, were significant barriers to developing some organizational rules and standards regarding EA practices.

4.4 Cultural-Cognitive Legitimacy

A recurrent theme in the interviews was a sense amongst interviewees that their outcomes measured their job. Since the consequences of the lack of EA consideration were unclear to the managers, the enterprise architect's job evaluation was challenging.

> *"We should show to others that we (Gov) need EA. The challenge is that without EA, the digitalization processes have progressed. Therefore, this is very difficult to explain to others that, yet in this situation, we need EA. (…) we should show that by bringing EA here, after for instance three years, through standardization, we will obtain more efficiency"* (Enterprise Architect).

Totally, the architectural activities were under discussion at all levels. The architects believed they should fix problems that others had not seen yet. They had to hold different workshops, attend meetings, and participate in the projects to introduce the importance of architectural principles for digitalization processes. However, the overall organizational culture did not support them properly.

> *"People are too busy with tasks they are hired for. This is a big pressure. (They) do not use effort to look at the work outside their work. This is a reason people don't feel willing to do a job that is not part of their job description"* (IT architect).

Together, these findings provided important insights such as understanding how EA came into Gov, the extent to which it was accepted, and why architectural activities stopped at the enterprise level. In the next section, we discuss how EA organizational challenges accrued and led EAM to be failed.

5 Discussion and Conclusion

There is a growing body of research in the EA literature on EA challenges associated with organizational adoption. Several challenges have been identified, including a lack of management commitment, insufficiently experienced architects, the difficulty of understanding requirements in EA teams, insufficient tool support, rapidly changing environmental conditions, EA consultant-related issues, outdated organizational statutes, and communication challenges [10, 12, 26, 35]. However, in order to reduce as many challenges as possible, it is critical to understand the underlying reasons for EA challenges. Consequently, the problems related to organizational structure, problems from the political influence, legislation and policies problem, and users' readiness problem to adapt EA products are all recognized as root causes of EA challenges in the public sector [36]. In complementing the studies about the roots of EA challenges, we examine the root of EA's challenges through a legitimacy lens. Legitimacy is a key element and foundation of institutional theory [19], as it explains how a particular phenomenon obtains or loses acceptance in its institutional context [65].

To do this, we developed a theoretical framework based on four distinct criteria of legitimacy: regulatory, pragmatic, normative, and cultural-cognitive. We evaluated a failed EAM case to determine why EA was unable to maintain its acceptance within the studied organization, based on these distinct but complementary criteria of legitimacy.

The findings reveal that a lack of adequate legitimacy was the primary reason for the emergence of several challenges, including lack of shared understanding [10, 35], stakeholders' engagement [15], and financial [10, 15, 16, 26, 36] and management support [10–12, 16, 35], all of which drove to EAM's failure. However, as IT architectural activities gained adequate legitimacy, they were not challenged with the abovementioned problems.

5.1 Theoretical Implications

Appropriate legitimacy has been identified in the organizational literature as a factor in organizational survival [45] and can be a key element in resource competition [66]. We observed EAM efforts at the time of this study were at a debated legitimacy state, where the disagreement about EA existed among different stakeholders and led to its stoppage. Thus, one can also consider a lack of adequate legitimacy as the root cause of the organizational challenges encountered by EAs in this study. However, the question is how the state of architectural activities, which were previously legitimized at both levels (project and enterprise), has changed over time to the point where they have lost their enterprise legitimacy.

This study's findings confirm that pragmatic legitimacy is important in bringing EA into an organization at an early stage [e.g., 46]. Moreover, whereas normative and cultural-cognitive legitimacy are essential for IS adoption [66], they were never obtained for EAM in this study. Furthermore, this study found that regulatory legitimacy was a major factor in achieving adequate legitimacy. It is observed that regulatory legitimacy significantly reduces organizational actors' pressures when it comes to gaining IT-related innovation [47]. While regulatory legitimacy was never achieved at the enterprise level, this study showed that IT architectural practices gained appropriate legitimacy as a result of the government recommendation.

Although both levels of architectural activities were introduced concurrently to the organization, the lack of regulatory legitimacy hindered the emergence of other types of legitimacy criteria for EA. Likewise, the evidence demonstrates that pragmatic legitimacy is inadequate to sustain enough legitimacy. However, as a result of the impact of regulatory legitimacy on the organizational context, we observed that IT architectural activities could obtain additional types of legitimacy that ensure their survival.

5.2 Practical Implications

The legitimacy lens has significant implications for practice. According to institutional theory, if all regulatory, pragmatic, normative, and cultural-cognitive criteria are met, EA can obtain legitimacy in its institutional setting. This indicates that institutionalization of EA is a function of not only EA governance, principles, and standards, but also of consensus among key stakeholders regarding the expected value of EA and the spreading of architectural thinking to include EA procedures into the organization's norms and routines. This may be evidence of numerous EA failures. In many situations, despite significant effort invested in establishing governance procedures, EA failed to achieve

the desired objectives due to the existence of competing belief systems within the organization or because EA remained in its ivory tower, ignorant to the everyday routines of stakeholders.

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