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# Governance as condition for creating business value from Enterprise Architecture<sup>1</sup>

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**Abstract.** IT Governance is often viewed as an important factor for creating business value for firms. However, there is limited work investigating the relationship between architectural governance and the contributions of enterprise architecture (EA) to firm performance. Based on a study of more than 15 cases the analyzes shows that architectural governance is a condition for the ability to create business value from the EA function. The cases also show that architectural governance depends on the context and there is no best way of EA governance that fits very situation. Architectural governance complements enterprise architecture and should ensure that EA efforts are coordinated and used by the business to improve firm performance. In many cases EA and architectural governance were found to be strongly connected, making it difficult to separate them. This strong dependence suggests that a change in EA influences the governance and vice versa. Architectural governance introduces more bureaucracy and administrative work, but paradoxically can result in the creation of more business flexibility and agility.

**Keywords:** IT Governance, architectural governance business value, architecture, enterprise architecture, contingency approach.

## 1 Introduction

Enterprise architecture (EA) has been heralded as an instrument to create business value for organizations [1, 2]. Architecture is about abstraction of the enterprise and its environment and acts as a means of communication and decision making regarding that environment [3]. Enterprise architectures define and interrelate data, hardware, software, and communication resources, as well as the supporting organization required to maintain the overall physical structure required by the architecture [4]. EA uses frameworks, enterprise models, architectural principles and standards to direct the IT function. Although EA is considered as a silver bullet by organizations [5], there is discussion about the value creation of EA, and this is even considered as a myth [6]. One reason for this myth is that EA does not create value by itself, but only support opportunities for value creation or the ability to realize them [6]. Governance should ensure that the EA models, principles and standards are actually used and are translated into firm value. In this paper we investigate the role of governance to create value form EA. We label this type of governance as ‘architectural governance’. Architectural governance is needed for both the *development* of the EA models, principles and standards and the *use* of EA by organizations to create business value. Governance has been linked to increased organizational performance [7, 8]. IT governance mechanisms, or governance mechanisms for short, focus on decision making authorities and processes for aligning business and IT. IT-governance has various definitions, including “framework for decision rights and accountabilities to encourage desirable “ ([9], p. 261) and “all the mechanisms for preparing, making, implementing and executing decisions” ([10], p.8). Architectural governance can be viewed as a type of IT-governance which is focusses on ensuring the proper working of the EA function. The EA function can be defined as the “*organizational functions, roles and bodies involved with creating, maintaining,*

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*ratifying, enforcing, and observing Enterprise Architecture decision-making – established in the enterprise architecture and EA policy”* ([11], p. 105). The EA functions develops models, principles and standards for use by IT development and maintenance.

There has been limited research about EA governance. In other domains, like organizational networks, governance has been recognized as a critical variable that influences strongly their performance and effectiveness [12]. In this research the relationship between the EA function and EA governance and its influence on the creation of business value is investigated.

## 2 Background

IT governance systematically determines who makes each type of decision (a decision right), who has input to a decision (an input right) and how these people (or groups) are held accountable for their role [13]. There are two separate streams of governance that have followed parallel paths of advancement [14]. One stream deals with IT Governance forms and the other stream focusses with IT governance contingencies [14].

The first stream is based on the notion of centralized and decentralized decision-making. Allocating decision-making authorities to central or decentral organizational parts changes over time and can be viewed as a ‘pendulum swing’ [15]. The first stream deals with how to create best of both centralization and decentralization [14]. This stream classifies governance into forms like business monarchy, IT monarchy, feudal, IT duopoly, Federal and Anarchy [16].

The other stream investigates on the governance fit with the environment. In this stream it is investigated how multiple, interacting contingency factors influence the modes of governance and identifies factors like economies of scope and absorptive capacity, and IT knowledge of line managers [9] but also firm size, industry and organizational structure [14]. Contingency approaches stresses the context awareness of the development of applications [17].

The combination of streams result in a contingency approach and looking at governance structures. Brown and Grant [14] found that the merging of these streams resulted in the contemporary view on IT-governance as represented by Weill and Ross [7]. IT-governance should reflect the realities of complex organizations and therefore at governance mechanisms should be looked. Types of governance mechanisms include processes, structures and relational mechanisms [15] and decision, communication and alignment processes [13, 16]. We will use these types of mechanisms to investigate the architectural governance.

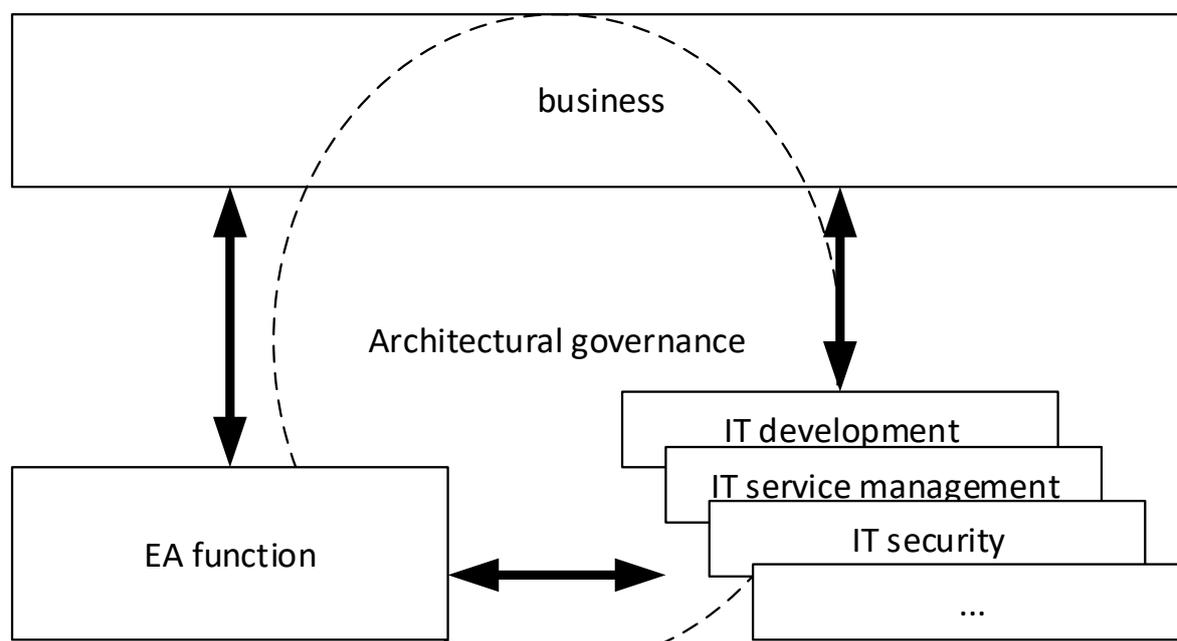
## 3 Research Approach

In this explorative research more than 15 cases were analyzed having various architectural functions and governance arrangements. The architectural functions investigated could be limited or comprehensive, whereas the type of arrangements varied from decentral to central architectural governance. The EA functions of the companies surveyed could cover only a few persons or more than 20 persons. Sometimes there was one single EA department, whereas in other cases enterprise architects were found in multiple departments. Some of the arrangements had hardly any architectural governance, whereas others had very tight governance. Architectural governance could be focused on the use of the EA by other IT departments but also on the relationship between EA function and the business.

To analyse each of the cases at least one interview was conducted. The interviewee could be an enterprise architect, information manager or somebody else in charge of the architecture function in the organizations. Sometimes people from the line management (business side) were interviewed, but not in all cases. In addition, reports and other documentation were studied when available. Over half of the organizations were public sector organizations, whereas the private sector organizations were mainly large companies.

#### 4 Conceptualizing EA and governance

The cases show that EA governance can be diverse. EA governance is a complicated endeavor, as it involves both IT and business departments as shown in figure 1. The governance mechanisms used for interacting with the IT department can be different from the governance mechanisms for dealing with the businesses. The organization and the needs are different for these type of governance mechanisms. Furthermore, these departments having different resources, capabilities, processes and levels of IT-readiness and knowledge. We recommend to make a difference in the interaction with the business and IT-organization.



**Figure 1:** The scope of architectural governance

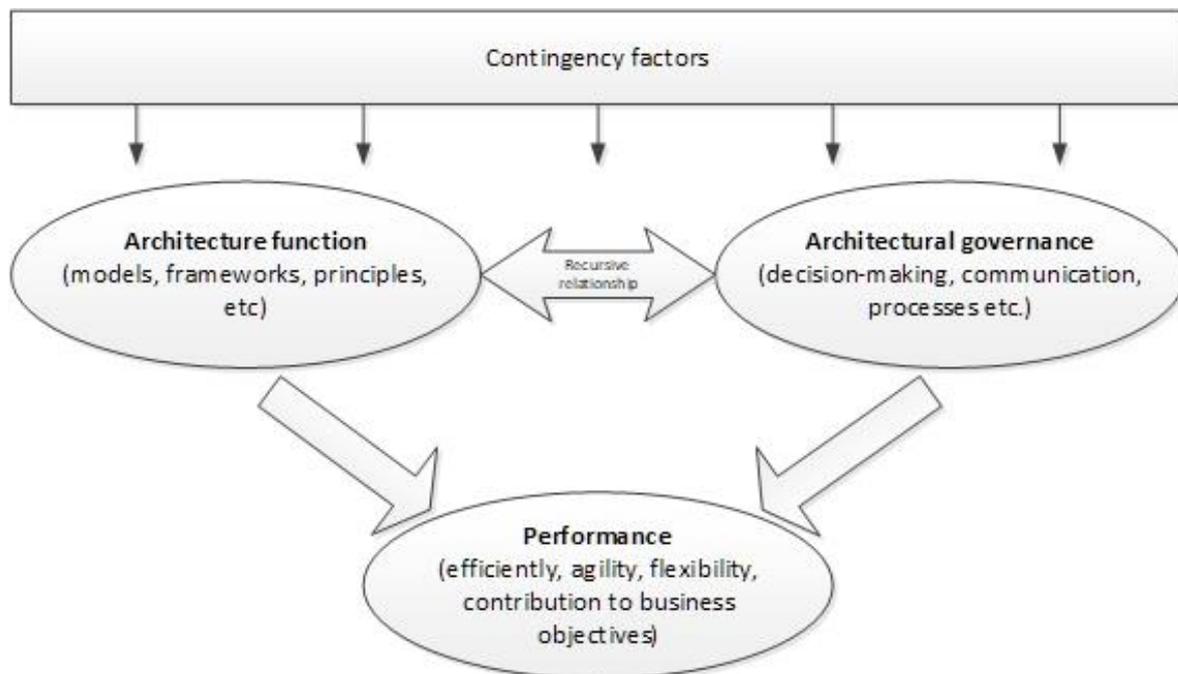
EA governance is dependent on the EA function and the purpose and can be dependent on all kinds of factors, like, role of ICT for business performance, trust, leadership, culture, firm size, IT-maturity and readiness and so on. Therefore we view EA and EA governance as being mutual dependent and having a recursive relationship as shown in the figure 2. Both are needed to contribute to firm performance. Architectural governance without having an EA does not make any sense. If there is only an EA and no architectural governance, then the EA will not be used.

EA Governance does not per se result in firm performance. Therefore we take a *contingency approach* in this research [9, 14]. A contingency approach assumes that that most appropriate style of governance is dependent on the situational context. In such a view there is no single approach that results in the best performance. The contingency factors are shown at the top of figure 2.

Both the architecture function and the governance are influenced by all kinds of contingency factors. Both the architecture function and the architectural governance influence business performance. The architecture functions is influenced by the action and decisions of humans in the organizations and architectural governance can enable or constraint the development and use of EA.

## 5 Findings: Governance as a condition for creating value

The findings in the case study confirm the strong interrelationship between the architecture functions and architectural governance. Sometimes a comprehensive architecture functions was found, whereas the governance was limited and the other way around. Both central and decentral governance can result in the creation of business value according to the interviewees.



**Figure 2:** Conceptual framework for investigating the cases

The creation of value from EA and governance is a complex process which plays at various levels for different problems. A variety of approaches are possible which seems to be dependent on contingency factors such as the sector (industry), size of the firm, leadership, complexity of the IT landscape, organizational culture, IT-readiness and organizational structure. An important factor seems to be the maturity of the EA function. The longer ago the function was introduced the more contribution to firm performance was made. Also if ICT was viewed as one of the core businesses of the organization under study seems to be an important factors.

Surprisingly, more centralized organizations did not always have central architectural governance. It could be that the architectural governance was decentral within the departments, whereas the organizational decision-making was central. This could indicate a less developed architectural function. However, this can also suggest that organizational structure and architectural governance are not related.

EA and governance was found to be dependent on the organizational intentions of having an architecture. Facilitating innovating can be a role of architecture, whereas architecture can also be used to standardize and avoid variety. Hence, the architecture use is strongly related to the organizational strategy, which is found to be an important contingency factor. In the past the focus on creating flexible operating models based on modular architectures [18], whereas nowadays the focus is much more on contributing to innovation. This requires a change in focus of the architectural function, as the focus shifts from IT-departments to the business. As the goals of EA are shifting, so should the governance mechanisms. In innovating the capabilities and potential of new technology is explored and architects

should support the creation of new innovations and not on the reuse of existing technology and building blocks. This requires a change in governance and in mindset. In one organization even a different architect was hired to solely focus on business development and innovation.

In addition the life-cycle of the EA function seems to influence the governance. Immature or starting EA efforts have less strict governance, whereas more mature EA functions have more governance mechanism in place. This suggests that the EA function and EA governance influence each other and co-evolve with each other. The level of maturity seems to be explanatory variables for both the EA function and governance.

In our cases the level of governance varies from hardly any governance to detailed and profound governance mechanism. The following variations were found:

- *Over control*: Adding too much governance is counter effective and will only add to the administrative burden. There are too many people involved in decision-making, too many decision-making authorities and too many formalized processes. This results in long-lasting decision-making processes and slow down of the speed of decision-making.
- *Embedded*: the EA is embedded in the organization and all employees know the architecture and understand why making use of them is needed. There are decision-making boards and processes for ensuring that EA is used, but these do not result in large delay or undermine projects. EA is used purposes full.
- *Comply or explain*: Use the architecture, its models, principles and standards, or explain why you use these not This model has the risk of flimsy excuses for not having to use the EA. As such, being firms about the use of EA is important.
- *Known architecture*: everybody in the organization is aware of the architecture and is communicated to all persons.
- *Voluntary use*: Some use the architecture if appropriate. This might be the case when EA is developed form some aspects, but for other parts the EA is not suitable (yet). This model has the risk of neglecting and no further development of EA as the business benefit remains limited.
- *No governance*: architecture is now known by the organizations. EA is a function which is not taken serious. Often architectures might be avoided.

The interviewees indicated that both extremes (no governance and over control) did not result in higher firm performance. Hence, governance mechanisms should be designed and introduced with care. Architectural governance introduces more bureaucracy and administrative work as all kinds of decision-making authorities, governance processes and procedures are introduced. Paradoxically the introduction of more governance can result in more flexibility and agility, but too many mechanism will be counter-productive.

## 6 Conclusions

The findings shows that EA governance can result into improved firm performance and that sound architectural governance is a condition for success. Governance should ensure that architecture is known and the architecture models, principles and standards are followed and translated into firm value. Governance mechanism used were found to be different. As a consequence, the cases were difficult to compare with each other. We recommend to develop a classification of types of architectural governance. Such a classification can help to compare governance mechanism and its effect on firm performance.

Our findings suggests that architectural governance researchers should adapt a *contingency approach*, as what is effective governance is dependent on the context. Factors that were identified include ICT as core business, leadership, organizational culture, industry, firm size, readiness, IT maturity, complexity of the IT landscape, organizational structure, and the maturity of the EA function. In future research the effects of these factors can be investigated.

Governance was not always found to be problem-driven and updated over time. This can easily result in too much governance which in turn can decrease firm performance. As business and IT problems

change, so does the governance. In the current climate the governance needs to be focussed on contributing to innovation, whereas in the past governance was aimed at creating a flexible operating model. The risks is that more and more governance mechanisms are added without replacing or removing previous governance mechanisms. Although new governance mechanisms are needed, remaining the previous one might be counterproductive.

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