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AN INSTITUTIONAL FRAMEWORK FOR ANALYZING ORGANIZATIONAL RESPONSES TO THE ESTABLISHMENT OF ARCHITECTURAL TRANSFORMATION

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Abstract

The need for constant transformation of enterprises is omnipresent. A discipline that has been proposed to support the coordination of enterprise transformation is Enterprise Architecture Management (EAM) which has grown to a mature discipline in academia and practice. However, it can be observed in practice that it still is a challenge to introduce such an architectural coordination approach for supporting enterprise transformation. This may be due to the reason that the institutional context of EAM is only little understood, that is, the interplay between the pressures EAM exerts on the organisation and the response strategies of this organisation. The paper reviews existing work on institutional theory and confirms by means of a case study that the institutional factors of cause, constituents, content, control, and context are not only relevant for EAM but may be consistently linked to response strategies of acquiesce, compromise, avoid, defy, and manipulate. Moreover the case study implies to add additional institutional factors for EAM, namely trust and participation.

Keywords: Enterprise Architecture, Institutional Theory, Analysis Framework.

1 Introduction

The need for constant transformation of enterprises is omnipresent (Rouse, 2005). Transformation here stands for a number of large-scale transformation programs and many smaller but still important change projects running concurrently with possibly common objects of transformation like specific products, business processes, or information systems (IS) (Aier et al., 2011a). It may not be obviated that these programs and projects have conflicting goals which constitutes the need for coordination of transformation activities.

A discipline that supports the coordination of enterprise transformation is *Enterprise Architecture Management* (EAM) (Harmsen et al., 2009).¹ A wide set of EAM methods, tools and best practices have been researched, developed, and applied (cf. e.g. Buckl & Schweda, 2011; Mykhashchuk et al., 2011). It is understood that successful EAM requires situational adaption as opposed to a one-size-fits-all approach, and different forms of EAM practices have been identified (Aier et al., 2011b). Despite of these achievements, it can be observed in practice that it still is a challenge to introduce such an architectural coordination approach. This may be due to the reasons that (1) EAM ultimately aims at utilising potential synergies by *restricting the design freedom* of various stakeholders (Dietz, 2007) and that (2) the *institutional context of EAM* is only little understood, that is, the interplay between the pressures EAM exerts on the organisation and the response strategies of this organisation.

Understanding the context of application, and potential sources of resistances and support, respectively, is valuable for any transformation approach. Indeed, some institutionalists argue that being able to cope with and manage the institutional (legitimizing) environment is a key success factor of business endeavours (cf. Oliver, 1997). With respect to EAM, this poses a particular challenge for two major reasons: (1) due to its intra-organizational nature, EAM is subject to pressures originating primarily from the inside of the focal organization. One example is the need of EAM to constantly justify its own right to exist; (2) EAM is concerned with overarching transformation affecting the organization as a whole, or large parts of it (Harmsen et al., 2009). As such, one can expect (and observe) that a high quantity and diversity of stakeholders are affected by EAM (Dijkman et al., 2004). In order to implement such transformation approaches successfully, respective pressures and response strategies have to be explicitly dealt with.

We argue that EAM approaches do not only have to be methodically sound, but, in order to be adopted successfully across an organization, they also need to respect an organization's institutional context. Based on previous work on institutional theory, we discuss *institutional factors* that are relevant for the choice of *response strategies* taken by EAM stakeholders. Based on four case studies we extend existing analysis frameworks based on institutional theory towards a more EAM specific toolset. The resulting framework allows for analysing and shaping the so far often neglected intuitional factors for successfully implementing EAM in an organization. Therefore our research questions are:

- (1) *Which institutional factors are relevant for the implementation of EAM?*
- (2) *Which response strategies can be observed for specific values of each institutional factor?*

However, it is not the goal of this paper to develop more effective EAM methods, models (March & Smith, 1995) or design theories (Walls et al., 1992; Gregor & Jones, 2007), but to contribute to the so far lacking theoretical grounding (Goldkuhl, 2004) of EAM by making institutional approaches accessible to EAM research. Specifically we contribute factors and ranges of favourable factor values that need to be observed when implementing an EAM function in an enterprise.

¹ While acknowledging that coordination of transformation is supported by a variety of disciplines, we have chosen to illustrate our ideas using EAM because it provides a number of mature methods which are widely applied in practice. Although *standardization through coordination of transformation* may be seen as an ultimate goal of EAM, there are a number of foundational services like providing transparency, planning, defining and enforcing rules etc. which EAM has to deliver. In the paper at hand, however, we focus on EAM as a means for *coordination of transformation* from a more global perspective.

The remainder of the paper is organized as follows. Section two lays the foundations by introducing the essence of institutional theory as well as related work. Section three presents the framework used for analysing responses to EAM implementations. We then apply the framework to four cases of EAM implementation in organizations (section four), and discuss our findings and the validity of the analysis framework in section five. The paper ends with a conclusion.

2 Conceptual Foundations and Related Work

Scott (2001) defines institutions as “social structures that have attained a high degree of resilience”, that is, they embody the more durable social structures, made up of multifaceted elements such as material resources, symbols, structures, rules, norms, routines and social activities. These elements are usually maintained over long periods of time without further justification. As such, they may both increase stability and effectiveness, but also hinder critical reflection and the detection of more efficient ways of organizing (Zucker, 1987). In an organizational context, Selznick’s (1948) influential work is regarded as the initiator of an extensive amount of research on institutional frames influencing organizational behaviour and decision-making. In this respect, institutions are often considered the rules of the game whereas organizations are considered the players (North, 1990).

Widely accepted is the perception that institutions are composed of three related albeit distinct pillars, a *regulative*, a *normative* and a *cultural-cognitive* pillar (Scott, 2001). Most prominent is the *regulative* pillar, which underscores how institutions constrain and regularise behaviour through explicit activities such as rule-setting, monitoring and sanctioning (DiMaggio & Powell, 1983): Individuals and organizations complying to respective rules, laws and sanctions do this out of expedience and self-interest, as well as a fear of punishment and a hope for reward, respectively. From a *normative* perspective, institutions rest on values and norms which prescribe how an individual or an organization should act. Norms define legitimate means for the valued ends. As such, normative systems define general goals (e.g. making profit) but also designate appropriate ways how to pursue them. However, values and norms are not enforced by coercion as in the regulative pillar, but by a code of conduct along with moral and social obligation. The *cultural-cognitive* pillar calls attention to the underlying shared conceptions and beliefs that constitute social reality. While the first two pillars are generally subject to debate, cultural-cognitive aspects are seen as the much more embedded words, signs and gestures that shape the meanings a social group attributes to objects and activities. These cultural-cognitive interpretations are embraced by the mechanism of mimics based on taken-for-grantedness and shared understandings.

In an IS context, institutional theory has been considered in many facets. Boudreau & Robey (1996), Markus & Robey (1988) for example argue that and how theories, including institutional theory, can contribute to questions of information technology and organizational change. In a similar vein, Orlikowski & Barley (2001) elaborate on the interplay between IT and organizational research, suggesting that transformations cannot be understood without considering their institutional contexts. Also, from a macro perspective, it has been analysed which institutions influence (IT) innovations and how institutional pressures influence the adoption of respective systems (e.g. King et al., 1994; Teo et al., 2003). Another stream of research deals with processes of institutionalization of IT in organizations, with institutionalization and de-institutionalization processes and respective forces that drive such endeavours (cf. e.g. Baptista, 2009). While being far from complete, this brief review shows that an institutional perspective is being considered important in the context of IS and (strategic) management.

Focused on the relationship between institutional theory and EAM the work by Hjort-Madsen stands out. Hjort-Madsen investigates how EA implementation (2006) and adoption (2007) is dependent upon and shaped by institutional forces, noting that this issue is underrepresented in EA research so far. Looking at public sector organizations, Hjort-Madsen points out that interoperability and IS planning, which can be facilitated through EAM, is not only a technical issue, but economic, political and contextual factors are just as important. Related to different institutional settings, he identifies adoption patterns that describe how EA is adopted by agencies. By considering formerly ignored institu-

tional pressures, he contributes to understanding and advancing EA as a transformation approach. However, his work stays on a descriptive-explorative level. In contrast to this, we intend to apply an institutional framework to the EA discipline, outlining influencing factors that lead to certain EAM response strategies or, for that matter, adoption patterns. Overall, we found that a concrete structuring of institutional factors influencing EAM approaches in an intra-organizational context is lacking so far.

3 Research Design and Analysis Framework

3.1 Overview

For the purpose of investigating institutional factors and response strategies of EAM, case study research was chosen, as it allows to examine contemporary phenomena at an early stage of research in their real-world context (Benbasat et al., 1987; Yin, 2003). The course of the research follows the five guiding points proposed by Yin (2003, pp. 20-27): As outlined in section 1, the paper addresses the (i) research question as to which *institutional factors* are relevant for the choice of *response strategies* to the implementation of EAM. The case study explores a phenomenon which is still relatively unexplored and therefore sound theoretical research propositions are hardly available (Yin, 2003). However, Yin (2003) stipulates (ii) to design a conceptual framework that guides the investigation. In section 3.2 we describe our conceptual framework. A definition of the (iii) unit of analysis is important as it sets the boundaries of the scope of the analysis. In the paper at hand, the unit of analysis is *EAM as a coordination approach*. The conceptual framework works as the (iv) logic which links the data to the propositions and it forms a lens through which the individual cases can be studied and compared. Finally, (v) criteria for interpreting the findings are derived from the institutional theory perspective. The interpretation of findings results in propositions on EA specific institutional factors and their values for desired response strategies.

3.2 Conceptual Framework

Based on institutional and resource dependence perspectives, Oliver (1991) developed a typology of strategic responses to institutional pressures and presents ten institutional factors that affect the occurrence of alternative response strategies. When setting up an overarching, coordinating institution for enterprise transformation, such as EAM, one will most certainly face many different reactions from the various stakeholders affected. While some may follow almost blindly, others will perceive it as constraining (as it actually is (Dietz, 2007)) and unnecessary, thus trying to defy and manipulate respective endeavours. The following response strategies and its corresponding tactics represent these reactions (cf. Oliver, 1991).

Acquiescence is the least resisting form of responding to new requirements. The related tactics (*habit*, *imitate* and *comply*) basically resemble blind adherence to new propositions. *Habit* refers to an adherence based on already taken-for-granted norms and values. If, for example, the process for enterprise modelling is to be institutionalized across the organization, and a division is already doing this long-since, then this division may actually follow that guideline invisibly out of habit. The tactic of *imitation* implies that a successful entity is more or less consciously imitated or taken advice from. *Compliance* means to actively decide to comply with an institutional pressure as a result of a range of e.g. self-serving, legal, social, and economic considerations.

Compromise: While still being in the spirit of conforming to and accommodating (new) corporate demands, stakeholders following this strategy are more active in promoting their own interests. By employing the tactics of *balancing*, *pacifying* or *bargaining*, involved stakeholders seek for a reflected and after all satisfactory solution on all hands. *Balancing* refers to the “accommodation of multiple constituent demands” (Oliver, 1991) which may oftentimes be desirable: Given for instance the decision to migrate to a unified IS, it may be crucial that stakeholders not simply acquiesce, but review current usage practices, and articulate potential conflicts and requirements. *Pacifying* refers to placat-

ing and accommodating certain elements. An example might be a particular business unit getting more time or a different scope for realizing a transformation programme. *Bargaining* is the most active form of negotiating compliance to institutional pressures.

Avoid: This strategy aims at circumventing the conditions that make conforming behaviour necessary. This may be achieved by *concealing*, *buffering*, or *escaping*. *Concealment* means to disguise non-conformity behind a facade of acquiescence. *Buffering* refers to reducing the extent of external scrutiny by decoupling technical activities from external contact, which means that the details of implementation are decoupled from the design, whereby only the latter is subject to inspections. *Escaping* is the most dramatic way of avoiding institutional pressures. Here, the necessity of conformity is avoided altogether by e.g. exiting the domain respective pressures exist in. For instance, stakeholders often set up a number of smaller projects in order to escape certain architectural checks bound to project size.

Defy: Defiance is a more active as well as unequivocal form of resistance to imposed processes. In contrast to the avoidance strategy, defiance does not try to cover anything up. Three corresponding tactics are *dismissal*, *challenge*, and *attack*. *Dismissal* means to deliberately ignore explicit rules, norms and values. *Challenge* does not only mean to ignore a guideline, but to follow a path that clearly contradicts envisaged rules, norms, and values. *Attack* is even more aggressive as it tries to assault, denounce or even destroy the pressure exerting entity, e.g. an EAM department.

Manipulate: Through *co-opting*, *influencing* or *controlling* tactics, the manipulation strategy aims at actively altering, re-creating or controlling the power exerting institutions. It is the most active response, which does not take any pressures and expectations as given constraints to be obeyed or defied, but instead regards them as manipulable for the purpose of one's own benefit. *Co-optation* intends to neutralize institutional opposition and enhance legitimacy by means of coalition-building, for example. *Influencing* tactics are directed to generally shape values and assessment criteria. A typical method to this end is to influence other people's opinion and funding decisions through the means of lobbying. *Controlling* represent efforts to exercise direct power and dominance over institutional sources or processes, rather than to influence, shape or neutralize them.

Reviewing these strategies as possible responses to an EAM initiative, it is apparent that the latter three strategies are not helpful. Our proposition accordingly is that any EAM approach (a) should be cautious about these strategies, and (b) will be more successful the better it can provoke stakeholders to follow the strategies of *acquiescence* and *compromise*. Going one step further, though, raises the question what the rationale for conformance or resistance to EAM pressures is.

Predictive Factor	Strategic Responses				
	Acquiesce	Compromise	Avoid	Defy	Manipulate
Cause	Why are organizational units pressured to conform to rules or expectations?				
Legitimacy	High	Low	Low	Low	Low
Efficiency	High	Low	Low	Low	Low
Constituents	Who is exerting pressures?				
Multiplicity	Low	High	High	High	High
Dependence	High	High	Moderate	Low	Low
Content	To what norms and requirements are organizational units pressured to conform?				
Consistency	High	Moderate	Moderate	Low	Low
Constraint	Low	Moderate	High	High	High
Control	How or by what means are the pressures being exerted?				
Coercion	High	Moderate	Moderate	Low	Low
Diffusion	High	High	Moderate	Low	Low
Context	What is the organizational context within which pressures are being exerted?				
Uncertainty	High	High	High	Low	Low
Interconnectedness	High	High	Moderate	Low	Low

Table 1. Predictive factors to strategic responses (Oliver, 1991)

Table 1 gives an overview of the ten hypothesized dimensions that contribute to the willingness or

resistance to conform. The scale from low to high represents the contribution to the likelihood of choosing a particular strategy given a higher degree of a factor. For instance, the strategy of acquiescence is more likely to occur when the proposed programme promises efficiency gains. In the following, we will detail each factor's meaning and influence on strategy choice in the light of architectural transformation initiatives.

Cause: Cause refers to the question why institutional pressures are exerted and why one should conform to them. The first factor, *legitimacy*, refers to the extent the pressure exerting entity itself (EAM) is legitimated within the organization. The higher legitimacy is the higher is the probability that stakeholders chose acquiesce or at least compromise procedures. The second factor, *efficiency*, implies that the higher the perceived efficiency of EAM as well as the subsequently expected efficiency gains for each stakeholder are, the higher is again the probability for conforming strategies.

Constituents: Stakeholders within an organization often confront multiple (conflicting) interests and pressures. Constituents like HR, purchase, marketing, production, IT exert pressures on each other with respect to requirements, releases, project portfolios, business development etc. A challenge of EAM is to coordinate and line up with all these pressures. It is therefore hypothesized that a higher *multiplicity* of constituents results in a higher probability for resistant strategies, because, after all, not all interests and exceptions can be respected in a transformation programme. The likelihood of resistance to EAM pressures is also predictable from a *dependence* perspective, hypothesizing that resistance is less likely if stakeholders depend on the pressure exerting party.

Content: Content is about the *what* of obliged processes. The two important factors are *consistency* and *constraint*. If exerted pressures are consistent with already stipulated goals and practices, the likelihood to choose a conforming strategy increases. With respect to constraints, the correlation is the other way round—the more new regulations and processes constrain organizational units in their freedom of decision, the more resistance has to be expected.

Control: Control refers to the enforcement mechanism of imposed pressures. This may happen through *coercion*: If non-conformity leads to punitive consequences, for instance due to a violation of legal requirements, the probability of acquiescence increases, whereas in less coercive situations, stakeholders can be expected to seek compromises for their conformance. *Diffusion* refers to a voluntary adoption of practices. An organizational entity might be particularly convinced to acquiesce in an institutional behaviour, if the behaviour in question can be observed to work elsewhere.

Context: The institutional context, i.e. an organizational unit's environment is likely to be a determinant of strategic response. Environmental *uncertainty* can be defined as “the degree to which future states of the world cannot be anticipated and accurately predicted.” (Pfeffer & Salancik, 2003) It is argued that in turbulent and uncertain times, an organization will exert greater effort to re-establish the illusion or reality of control and stability over future organizational outcomes (Oliver, 1991). In consequence, affected entities (a) are more willing to comply with demands imposed upon them by super ordinate constituents, and (b) tend to mimic other similarly pressured stakeholders. The factor of *interconnectedness* is related to the observation that interconnectedness facilitates the voluntary diffusion of norms, values, and shared information. That is because interconnected environments provide relational channels through which institutional norms and values can be diffused and coordinated.

3.3 Case Selection

We have chosen four cases of companies that have introduced EAM functions several years ago and made experiences with the evolution of these functions. We have chosen these cases in order to cover a broad spectrum of EAM approaches (Eisenhardt, 1989)—each case is archetypical in a certain way. Data for the case studies have been collected with three of these companies since 2006 and with the remaining since 2008. Key stakeholders in IT management, EAM, and business/IT relationship management have been interviewed. In addition to the interviews regular review meetings have been set up to observe state, development, and architectural issues in the companies involved. Three of the com-

panies participated in long term collaborative research projects in IS integration and EAM involving ten companies in the period of 2002–2010. Data presented in the case studies below aggregate research results gained with these companies until summer 2010. Due to company request case studies have been made anonymous.

4 Cases

Company A is a technology group comprised of several, rather autonomous divisions. On a corporate level company A started a central EAM initiative several years ago in order to leverage the benefits of reuse of services or the standardization of platforms and processes worldwide. However, it turned out that achieving a strong position on corporate level with EAM eventually aiming at reducing the design freedom of the divisions is a laborious undertaking. The central EAM function contradicts the reconfirmed autonomy of the divisions where for example the division CIO reports to the division CEO and not to the group CIO. Consequently central coercion to implement EAM group-wide has been limited. Besides this lacking legitimacy of EAM, efficiency has at least in the past only been a minor topic, since company A had a monopoly-like market position with some of its customers. Therefore the enterprise architects at company A followed two strategies: One strategy being to get a buy-in division by division with taking the respective requirements of each new partner into account and helping them to solve some of their most painful problems as a demonstration of EA's utility. The second strategy, however, was to centrally decide on certain EA rules and principles supported by company A's top management in a fast way and thus without further participation of stakeholders in the divisions. Overall, company A's EAM initiative may not be considered successful yet. This is a shared understanding which exists for some time in the company especially, since for the first two years of the EA initiative no EAM results existed at all which compromised the division's trust in the architect's skills and EAM's utility.

Company B is a major transportation and logistics service provider. It offers both cargo and passenger transportation and provides rail infrastructure. A couple of years ago, the inauguration of a new CIO resulted in renewed architecture efforts including the creation of a corporate EAM team. The EAM team is complemented by domain architecture teams. EAM processes have been set up altering existing development processes to reflect architectural issues, e.g. by defining quality gates, which projects cannot surpass without conforming to EA principles. This change in processes is fostered by a broad range of efforts to enhance EAM attention, knowledge, and skills throughout the company. Therefore a broad training program, addressing architects as well as non-architects, was set up. In addition to that, further initiatives were set up. For example (1) EA communication has been advanced by an EA tool providing a broad set of EA artefacts in an easy-to-use web interface, (2) all information required to meet EA principles in the quality gates is available through a well-organized intranet web application. From an EAM perspective, this communication and participation oriented approach has paid off. EAM efforts are discussed, but EAM principles are also widely legitimated and can be enforced. However, if there is good reason there also is a viable process to call for an exception from a principle or for even changing the principle.

Company C is a major financial service provider in Switzerland primarily focusing on standardized retail banking and transaction processing. All architectural levels from business to IT can be found with broad, defined EAM processes. All business related EA artefacts are managed by an organizational unit directly reporting to the CEO. Alignment of business and IS architectures is explicit and facilitated by personal interweavement by having former IS architects included in the business architecture unit. Due to the "experimental" positioning of EAM on business side, the EAM function had a passive role. Their main task was to host the EA repository and to support the integration of existing partial enterprise models (e.g. process models, application landscapes etc.). Also the EA meta model was strictly focused on stakeholder needs and thus was very lean. However, over time this passive set-up also revealed its weaknesses, namely poor coordinative power on interfaces of different stakeholders as well as poor performance/utility in leveraging synergies among various business and IT

projects. Therefore the EAM function developed a more and more active role, e.g. by being involved in all major transformation projects by design. Especially the relationship between the EAM department and the still existing IT architecture, however, became an issue. Both departments address overlapping parts of the EA. While they may have different concerns they redundantly start to define EAM processes, functions and also tools.

Company D is an IT service provider for a large banking network. In its current form, the network is the result of several mergers of formerly independent, regional IT service providers. Every formerly independent company had its own, evolutionary grown banking solution. However, none of these solutions had a predominant position within the network. Therefore the network decided to implement a new and common system as their core banking solution. This merger strategy made it very clear that a major goal of company D is achieving efficiency by realising economies of scale. The development started in 2002 and was finished in 2005 for the time being. The new system design follows a service oriented paradigm in order to adapt and to consistently provide the implemented functionality to every partner. The business architecture design of company D follows the process reference model which has been defined for the banks belonging to the network. Strict EA principles are defined mainly for software, and infrastructure architecture. These EA principles are enforced through coercion in forms of tools, repositories, and processes (e.g. for release management) which are the basis of company D's development. Because of this highly structured and tool supported processes, any development outside this environment is almost impossible and thus non-existent. The lead for different EA topics like processes, mainframe infrastructure etc. is decentralised and attached to the regular departments of the company which fosters the understanding of the necessity as well as the belief in the utility of coordination efforts in the departments. In conclusion, high efficiency gains in the backend and the ability to deliver customized solutions at the frontend made Company D's approach very successful.

Predictive Factor	Company A	Company B	Company C	Company D
Cause				
Legitimacy	Low	High	Low	High
Efficiency	Low	High	High	High
Constituents				
Multiplicity	High	Low	Moderate	High
Dependence	Low	High	Moderate	High
Content				
Consistency	Low	High	Moderate	High
Constraint	Moderate	High	Moderate	High
Control				
Coercion	Moderate	High	Moderate	High
Diffusion	Moderate	High	Moderate	Moderate
Context				
Uncertainty	High	Low	Low	High
Interconnectedness	Low	Low	Low	High
Response Strategy	Defy/Manipulate	Acquiesce	Avoid	Acquiesce

Table 2. Case evaluations according to predictive factors

Although case descriptions had to be short they already indicate varying responses and successes when introducing EAM. Table 2 details the description of our observations with respect to the predictive factors from Table 1. Based on that, the predominant response strategy is determined by summing up the partial strategies related to the predictive factors' manifestations. As we have no reliable and in-depth information about each factor's weight yet, we left impact factors aside.

5 Discussion

The resulting predominant strategies shown in Table 2 fit our overall impression of each case. We also found that the factors' manifestations of Table 1 matched our observed influence on a response strat-

egy. In other words, if a ‘low’ of a factor was predicted to have a negative effect on the response strategy (e.g. legitimacy), this was either observable in the EAM context, too, or we think if we had a ‘low’ it would have influenced a respective case negatively. However, we found that the generic factors (from Table 1) are not sufficient in the intra-organizational context EAM operates in, because they do not reflect the reciprocal relationship between EAM and other business units enough. In typical institutional considerations, the distance between the pressure exerting entity (e.g. government) and other parties (e.g. single citizens) is rather high. Pressures flow unidirectional causing reactions from affected individuals, but direct reverse pressure is rare, indirect and much more delayed. In an EAM context, this is different. Business units frequently have budgetary power to fund EAM activities and stakeholders are in close proximity. As such, stakeholders also exert considerable pressure on EAM if their concerns are not addressed adequately. In consequence, we propose two more predictive factors for the EAM context. The aforementioned cases yield that *trust* and *participation* are further factors that should be taken into account. These two factors shall (a) capture critical issues that could be observed with regard to establishing EAM, and (b) be more concrete and tailored to the EAM context. In the following, the two proposed factors are described briefly, Table 3 illustrates how the factors occur in the four cases and Table 4 outlines the influence on the response strategies.

Predictive Factor	Company A	Company B	Company C	Company D
Trust				
Utility	Low	High	Low	High
Qualification	Low	High	High	High
Participation				
Stakeholder Views	Low	High	High	Moderate
Dogmatism	Moderate	Low	Moderate	Moderate

Table 3. Case evaluations according to predictive factors

Trust: This factor is not about business units not trusting EAM to keep one’s word with respect to certain goals or commitments. This would be against the self-conception of EAM and ruin any faith in the approach. Rather, the basic question of this factor is whether business units have trust in the advocated utility of the EAM approach and the enterprise architects’ qualifications to actually achieve this utility. As EAM programmes are oftentimes operating at a complicated nexus of IT and multiple business units, provocative questions like ‘Wherefrom do *you* know what *we* need or should do?’ are not a rarity and may indicate a low trust in qualification, for instance. Based on such observations and previous work that indeed identified trust as a critical issue (e.g. Aziz et al., 2005), we propose trust as an additional factor with the two sub-dimensions *utility* and *qualification*. This proposition is strongly supported by cases A, B and D. *Utility* refers to the extent affected business units trust in the need for and in the overall usefulness of EAM. However, even if they regard the utility of EAM to be high, they may still respond with a compromising strategy in order to maximize the personal benefit. The factor *qualification* asks whether a business unit trusts in the EAM team as being capable and competent to deliver this utility. The trust factor is relevant, because business units may also opt not to collaborate with EAM and in doing so choose a safe strategy over a risk strategy. The risk strategy would yield higher benefits for both parties, but also imply to give up some autonomy as illustrated in case A. This trade-off is described in the *assurance game* as part of game theory, which provides an informative foundation for our proposed factor (cf. e.g. Aumann, 1985; Camerer & Knez, 1996).

Participation: In general, participation has been shown to have strong positive effects on change implementations and goal achievement (e.g. Aier et al., 2011b). In our context, it refers in particular to the way stakeholders can influence and take part in EA guideline development and application. Other recent studies on EAM have also identified participation to be a significant dimension (Schmidt & Buxmann, 2011). *Stakeholder views* refers to the openness of the EAM team to consult stakeholders and incorporate their concerns into EA planning and execution. This includes, for example, to have defined processes to gather input and review current practices (e.g. EA principles in case B). *Dogmatism* relates to the way EA plans and principles are followed: High dogmatism means that no excep-

tions are granted at all, even if there might be good reasons to do so. Such a dogmatic application of EA rules may lead to frustration on the part of affected stakeholders and lead to defying or manipulating response strategies. Company B for instance follows a stringent, but collaborative and less dogmatic approach, resulting in about 100 request p.a. to bypass EA guidelines, out of which about 50% are granted.

Predictive Factor	Strategic Responses				
	Acquiesce	Compromise	Avoid	Defy	Manipulate
Trust	What is the trust relationship between organizational units and the EA team?				
Utility	High	High	Moderate	Low	Low
Qualification	High	High	Moderate	Low	Low
Participation	Can organizational units contribute to the EA?				
Stakeholder Views	High	High	Moderate	Low	Low
Dogmatism	Low	Low	Moderate	High	High

Table 4. Additionally proposed factors for the EA context

In due consideration of trust and participation, Table 5 depicts the response strategy scorings of each case and highlights the respective dominating strategies using bold numbers. The scoring without our proposed factors is given in parenthesis.

Case	Acquiesce	Compromise	Avoid	Defy	Manipulate
Company A	1 (1)	6 (6)	8 (5)	9 (6)	9 (6)
Company B	11 (7)	6 (2)	1 (1)	3 (3)	3 (3)
Company C	4 (2)	6 (4)	6 (5)	4 (3)	4 (3)
Company D	9 (7)	6 (4)	6 (4)	2 (2)	2 (2)

Table 5. Resulting response strategies

Evaluating the scorings and the resulting dominating response strategies yields two major findings. Firstly, the framework in general seems feasible to assess EAM initiatives from an institutional perspective. The predictive factors adequately represent the case situations in terms of the dominating response strategies. Based on such an assessment, one may derive fields of action for improving the efficacy of an EAM initiative. As, to the best of the authors' knowledge, an institutional perspective is up to now lacking when regarding EAM initiatives, this work may provide directions towards a respective assessment tool. Secondly, the way we added the additionally proposed factors (*trust* and *participation*) seems to contribute describing the actual situation appropriately: On the one hand, the initial scoring is for the most part emphasized and thus the dominating response is highlighted more clearly. On the other hand, the new factors contribute to a stronger manifestation of the *compromise* response—thus a more differentiated model. According to our observations, this is more realistic, because pure acquiesce responses without any balancing elements could basically not be observed. The effect corrects especially the picture of company B, as compromise is now the second-strongest response.

6 Conclusion and Outlook

In the paper at hand we have investigated institutional (design) factors that should be considered in order to build and anchor an effective EAM approach in organizations. Our proposed assessment framework is theoretically grounded in institutional theory and empirically grounded in EAM cases. The work contributes to understand observable, organizational struggles with introducing EAM. Our case study demonstration suggests that this perspective is worth considering and that the influencing factors are able to provide a fitting picture of organizations' response strategies towards EAM. As such, the framework may be developed to serve as an assessment tool based on a theory to predict (cf. Gregor, 2006).

Having said this, further research should especially cater for a more rigour evaluation of our framework's *utility*. An evaluation of *validity* is less critical as the proposed framework has been developed applying inductive reasoning based on four cases. A certain amount of validity can therefore be expected due to the adopted research approach. As part of a utility evaluation, the following issues shall be addressed, and the proposed framework developed accordingly: Firstly, impact factors for all institutional factors should be identified. It is well perceivable that certain factors have more impact than others, that additional factors have to be added, or that some factors turn out to be obsolete. Secondly, the factors' classification from high to low in relation to the response strategies has to be reviewed. Currently, some factors can only be classified high or low, which might be a too simplistic distinction for our problem. Finally, the framework should be developed from a tool for analysis (theory to understand) into a tool for design (prescriptive/design theory). Therefore the identified institutional factors need to be operationalized towards design principles prescribing the implementation of an EAM function in organisations.

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