

# Strategy and Architecture – Reconciling Worldviews

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**Abstract.** The relationship between strategy and enterprise architecture is troublesome in many organizations. It seems that this cumbersome relationship is similar to the more ‘traditional’ tension that seemingly exists between business and IT. This paper explores three underlying causes of this tension, most notably (1) overlap in domain of expertise, (2) different languages and (3) different underlying worldviews. It is argued that there is no single solution to resolving this tension. Instead, the tension should be seen as a polarity that must be managed continuously. Only by ensuring that both groups of practitioners have a shared understanding of the issues that the firm faces and are committed to resolving them together can the tension between these groups be relieved.

## 1. Introduction

Business and IT have had a long and troublesome relationship ever since computing entered the business realm. The initial promise of IT was to make life easier by automating repetitive tasks, as well as to improve speed and accuracy. Living up to this promise has turned out to be difficult to say the least. Initially this may have been caused by the instability of computing machinery. However, as these machines became more and more stable it turned out that the complexity of large software systems was the biggest issue. These days, it appears that the complexity lies in managing a portfolio of many such systems.

Since that time a multitude of articles has been published about that cumbersome relationship by professionals and academics, focusing on concepts and philosophies to solve the issues. This includes purely technical solutions such as component based development, object orientation and SOA [1,2,3] to management approaches to solve the issues at hand. One of the first approaches to dealing with the issue of aligning business and IT, both at the strategic level and tactical/operational level, goes back to the late 1980s [4,5]. The fact that this issue still is highly relevant in many organizations is illustrated by the following example:

**Example 1** - *In the Netherlands, there are 25 autonomous (local) police forces as well as one national force (the KLPD). The police make heavy use of IT systems to support their work. In the 1980s and 1990s it became apparent that synergies could be gained by organizing IT support centrally. As a result, around 2000, a “demand organization” (responsible for finding out what the police forces need, and translating this into projects) and “supply organization” (responsible for developing and maintaining systems) were created. Several years of mixed successes later, these two organizations merged into a single organization (vtsPN) which has the mission of “to help make the Netherlands safe”. Even in the new situation, a tension between flexibility of the local police forces on the one hand, and fixing IT systems on the other remains.*

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A more recent approach to aligning business and IT is the concept of Enterprise Architecture (EA) [6,7,8,9,10,11]. The field of Enterprise Architecture emerged in the mid 1990s and has led to a series of publications, active communities with both practitioners and academics, and conferences (e.g., NAF<sup>1</sup> and LAC<sup>2</sup> in the Netherlands). The necessity of seeing the firm as a holistic entity in which business and IT must be managed integrally is an important aspect of the DNA of enterprise architects.

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<sup>1</sup> <http://www.naf.nl>

<sup>2</sup> <http://www.lac2008.nl>

Unfortunately though, the EA community is still struggling in living up to this promise which was exemplified at the 2008 edition of the LAC conference. In the first keynote by Daan Rijsenbrij it was pointed out that enterprise architects still have the image of being ‘only about IT’ which could be one of the reasons why EA as a discipline is not always regarded highly by ‘outsiders’. Secondly, the conference book mentions in its preface that it is remarkable that the topic of business/IT alignment has had a negative connotation for years, and that the time is ripe to study the fields of enterprise governance, enterprise engineering and enterprise architecture from a broader perspective; not only from the point of view of IT, but also from a business point of view [12].

In line with these observations, the general consensus at LAC 2008 seemed to be that the ties between enterprise architects and strategists (i.e., the boardroom level) should be strengthened, especially in tracks such as *Enterprise Architecture: strategic specialism for informed governance*<sup>3</sup>. In acknowledgement of this fact, the Open Group has articulated that effective management and exploitation of information through IT is the key to business success (competitive advantage), and that a good enterprise architecture enables firms to achieve the right balance between IT efficiency and business innovation [11]. Unfortunately however, the evidence in the form of large-scale quantitative research, to support this statement seems to be lacking still.

In my view, the tension between business and IT has been transposed to a tension between strategists and enterprise architects as these groups seem to be most involved with this issue. In this paper I will explore the underlying issues that cause these tensions and make a suggestion on how to deal with them in day to day practice. However, the following section starts with a brief survey of literature related to strategic management on the one hand, and enterprise architecture on the other.

## 2. Definitions

This section provides a brief overview of current literature on enterprise architecture and strategic management as the groundwork for the discussions to come.

### 2.1 Enterprise Architecture

As mentioned in Section 1, the field of Enterprise Architecture emerged in the 1990s as a “successor” of the business/IT alignment initiatives of the 1980s. Over the last few years a heated debate has taken place on the question of what EA *is*. Indeed, a wide variety of definitions, frameworks and approaches have been developed and it seems that the community has reached the point where pragmatism (getting things done) takes precedence over definitions. The following quote by Jan Bosch [13] illustrates this aptly:

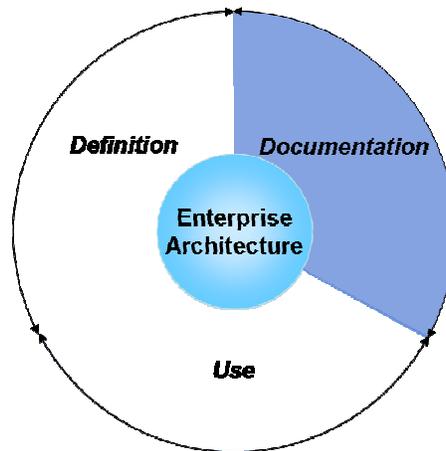
*It's amazing the debate is still going on ... Why is it, that in IT, we tend to hijack a word from another industry, and give it an altogether different meaning? ... The IEEE working group did a very good job in defining those terms back in 2000. Architecture is a property of a system reflecting its internal cohesion; its harmony with its surroundings and its design principles ... If only IT people would accept (and practice) the difference between an architecture description, a view as part of the architecture description (either made during the design of the system or afterwards) and the architecture itself, much confusion and mystification would be prevented.*

Following this line of reasoning, it can be argued that a distinction should be made between (a) the definition of architecture, (b) documentation of architecture, and (c) the use of architecture in practice (see Figure 1). The IEEE definition of architecture [14] states that architecture is a property of a system. In the case of EA, the system under consideration is an enterprise (thus assuming that architects have a systemic view of enterprises). The architecture of this system is its fundamental organization and the principles underlying this fundamental organization.

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<sup>3</sup> The Dutch name of the track is: Enterprise architectuur: strategisch specialisme voor inhoudelijke sturing.

Paraphrasing the FRISCO report [15], it can be argued that since each architect has a unique perception of the enterprise under consideration, each architect sees the architecture of this enterprise differently (in FRISCO terms, an architecture is a special model which exists in the mind of an actor). Therefore, in order to gain a shared understanding of what constitutes this architecture, it is essential to communicate about architectures. This is also argued in e.g., the Archimate approach which introduces a modelling language to help facilitate easier communication about architecture between different (types of) stakeholders [10].



**Fig. 1.** Dimensions of enterprise Architecture

This brings us to the issue of architecture documentation which seems to be the focus of most of the big architecture frameworks and architecture languages such as IAF, Zachman, Archimate, et cetera. With respect to architecture documentation a distinction must be made between two schools of thought. First of all, there is the style of architecture blueprints in the form of (semi) formal diagrams which depict a possible (current or future) state of the firm in terms of processes, information flows, roles, information systems, infrastructure, et cetera. Based on recent experiences in discussions with managers it seems that this is what most people expect from architects: large plots of e.g. the application landscape.

To a certain extent the Archimate language for architecture description is a proponent of this school of thought. In Archimate, the fundamental organization of (some aspect of) the firm is modelled in terms of static and behavioural elements (services). Frameworks such as IAF add to this the ability to reason about conceptual, logical, and physical services.

The second school of thought pertains to architecture principles (ignoring the distinction that is sometimes made between 'principles' and other types of regulations such as 'rules', 'guidelines', et cetera) which focus on restricting design freedom consistent with the xAF definition of enterprise architecture [9]. This school of thought seems to benefit a great deal from the business rules community [16,17].

Neither style is right or wrong. Both are equally valuable, depending on what one wants to achieve; the diagram style is predominantly descriptive in nature whereas the regulation style is predominantly prescriptive in nature. For example, the blueprints tend to provide a lot of information and insights that may be used for decision making whereas principles may be used in Project Start Architectures [18] to guide projects within the enterprise.

The last issue pertains to the use of enterprise architecture in practice. Based on several years of experience with enterprise architecture, [7] lists several key applications of enterprise architecture, most notably:

1. Situation description,
2. Strategic direction,
3. Gap analysis,
4. Tactical planning,
5. Operational planning,
6. Selection of partial solutions,
7. Solution architecture.

Putting these in a broader perspective, the book argues that the key point of enterprise architecture is to govern the process of enterprise transformation. Summarizing, it can be said that EA is about defining the desired future architecture of the enterprise, developing scenarios to achieve this future architecture, and governing the process of getting there; a process that is frequently dubbed *transformation* [19].

## 2.2 Strategic management

Similar to the field of enterprise architecture, the field of strategic management is also characterized by many debates. These debates focus both on what strategic management is, and how strategic issues should be resolved in practice. In [20] a solid overview of the field of strategic management is given, that builds on the work of classical works on strategic management (such as [21,22,23,24]). For each of the well-known issues from the field of strategic management, the book presents two diametrically opposed perspectives and relates these to influential scientific material without passing judgement (i.e., for the issue of competitive advantage, a resource-based perspective as well as a markets-driven perspective are presented). Due to the comprehensiveness and subjective nature of its analysis I will base my overview on the overview presented in [20]. The book makes a distinction between four dimensions of strategy: strategic processes, content, context, and organizational purpose (see Figure 2). Furthermore, different topics (pertaining to a strategic issue) can be distinguished in each of these dimensions. Summarizing, this boils down to:



**Fig. 2. Dimensions of strategy**

1. **Strategy process:** pertains to the flow of strategy activities. This relates to the *how*, *who*, and *when* of strategy. The topics with respect to this dimension are strategic thinking, strategy formation, and strategic change. These three topics do not constitute entirely separate subjects; they are not phases, stages or elements of a process that can be understood in isolation.

Strategic thinking deals with the question whether strategic processes are primarily rational (i.e., strategic alternatives are evaluated based on logical analysis, frequently involving cost-benefit analysis) or generative (i.e., in order to come up with the winning strategy it is necessary to think 'out of the box') in nature. Strategy formation deals with the question whether strategic processes are executed deliberately and lead to well-documented strategic plans, or whether strategy is considered to be emergent and can only be discovered in retrospect by analysing the decisions made by upper management. Lastly, the topic of strategic change pertains to the magnitude of change; should change be continuous (i.e., an evolutionary perspective) or discontinuous (i.e., a revolutionary perspective)?

2. **Strategy content:** pertains to the result of strategy activities. This relates to the *what* of strategy. The main question with respect to strategy content is positioning the organization with respect to its environment. Important questions for firms are: which arena do we want to compete in, and where in this arena do we want to be? In case of governmental organizations this implies that the organization must find ways to compare its performance to others (e.g., measure the performance of the Dutch police by comparing the number of murders solved with e.g. the police force of Belgium).

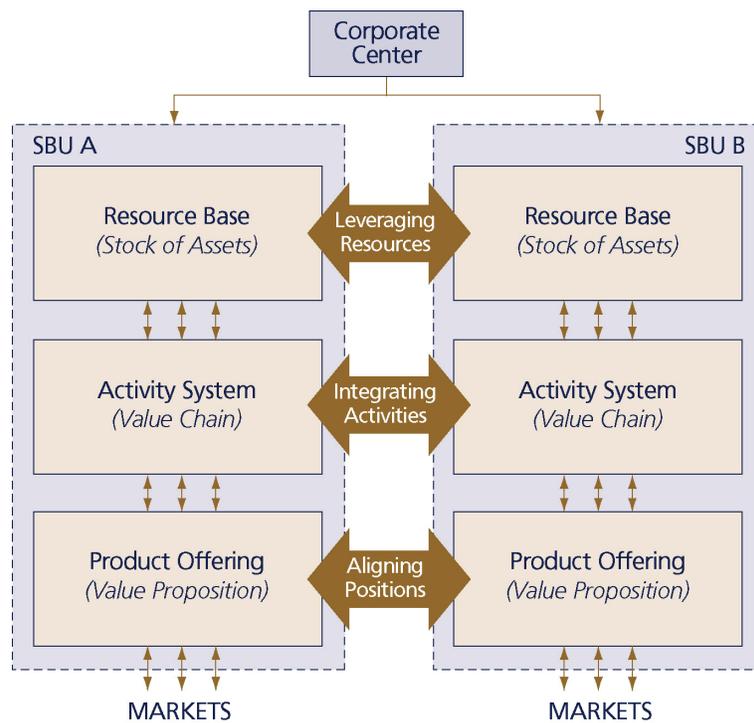
Another aspect that is relevant with strategy pertains to synergies that the organization may strive for: at the level of the resource base, activity system, or product offering (see Figure 3). Finally,

organizations should tackle the question whether they should develop their strategy in splendid isolation, or should move beyond a mere transactional relationship and develop strategy together.

3. **Strategy context:** pertains to the conditions surrounding strategic activities and relates to the *where* of strategy. The topics with respect to this dimension deal with growing contextual circles with respect to strategic initiatives. For firms these are the organizational context, the industry context, and the international context. For governments these levels can be transposed to a governmental agency (e.g., the police), a city (e.g., Rotterdam), or the entire country (e.g., the Netherlands).

The organizational context can also aptly be dubbed the *leadership* context, and deals with the role of managers in achieving alignment with the environment and what input can be garnered from other organizational members? In other words, should strategic process mainly be top-down or bottom-up? The central theme in the industry context is the question how much influence a firm has in a specific industry. Is the firm a rule-maker (i.e., a leader in the industry) or a follower? Last but not least, the central theme in the international context is the question whether the firm should strive to maximize synergies between different countries with a standard product offering, or whether it would be better to adapt to local circumstances.

4. **Organizational purpose:** pertains to the impetus for strategy activities and relates to the *why* of strategy. In this case the main question is which concerns are leading with respect to the firm's strategy; should the firm seek to maximize shareholder value, or should the firm adopt a strategy with a high level of corporate social responsibility?



**Fig. 3.** Three types of synergies

As can be seen from the previous discussion, different perspectives exist with respect to each of these topics / issues. These perspectives may even be diametrically opposed to each other. Each perspective is 'equally true', and provides valuable insights on how the underlying topics can be resolved in practice. In fact, managers are frequently presented with these diametrically opposed approaches to tackling an issue. Rather than arguing the case for one perspective over the other, the book takes a dialectic approach and suggests that the tension between perspectives should not be seen as an optimization problem, dilemma, or trade-off, but as a paradox where multiple innovative reconciliations of both perspectives should be considered. In the words of [25], the perspectives should be managed continuously as a polarity. We will return to the issue of polarity management in Section 4.

### 3. Analysis

At first sight it may seem that strategic management and enterprise architecture attempt to steer the firm, yet focus on different aspects of the firm; strategic management attempts to control decision making related to the external position of the firm, in terms of alignment with the environment. Enterprise architecture attempts to exert forces on the firm with respect to its inner workings; its goal being to engineer the enterprise in such a way that it achieves its goal efficiently and effectively. If this were true, then both fields would form perfect *complements* and there would hardly be an issue at all. The following subsections list three main causes with respect to the tension between strategists and enterprise architects in practice.

#### 3.1 Overlapping domains

The first cause for a disturbed relationship between architects and strategists lies in the observation that the aspects with respect to the firm on which both fields have something to say overlap. This seems obvious, since the focus is on a single firm. Indeed, in many organizations, strategic decisions (frequently made by upper management, supported by staff from a strategy department) impact the fundamental organization of (the working of) the firm. In other words, strategic decisions may require transforming the firm into a new 'state' which is best achieved by governing the process under architecture (see Section 2.1). The following examples illustrate this:

##### Example 2

- *Assume that a large retailer of electronic devices (most notably computer hardware) traditionally has aimed at the lower end of the market. Its core strategy is to be a price leader and has organized its processes – especially logistics and information management surrounding logistics – in an effective manner. Due to the current financial crisis it perceives a unique growth opportunity: it will target a new segment in which it offers customers the opportunity to customize their products. The company wants to out-source the assembly to a partner organization and leverage its excellent logistic capabilities in order to efficiently organize this mass-customization. This change in strategy may have serious impact on the desired configuration of the enterprise. In order to effectively organize logistics, internal processes have to be aligned with processes of an external party. The same goes for supporting information systems, posing new issues with respect to security, et cetera. Not only do these aspects have to be investigated, the principles underlying the current architecture of the firm should be reconsidered as well.*
- *Consider the same company 5 years down the road. It has successfully entered the new market segment. As part of its growth strategy it wants to further build on its capabilities of and decides to enter a new business. It will sell its home-grown software combined with consulting services with respect to logistics to other companies. Again, prospective changes for the fundamental organization of the firm are potentially huge. Next to entering a new business which requires new staff, new processes, information systems, policies, et cetera, IT staff is suddenly confronted with possibly conflicting requirements from prospective new customers. Even more, working according to a strict release schedule might become increasingly important.*

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As can be seen from these examples, a change in strategic direction of a firm may lead to a transformation of the firm, and thus to its architecture. Governing this transformation is, as we've seen, part of working under architecture. One of the core assumptions that enterprise architects tend to make in practice, is the fact that the strategy of the firm is a known, and is stable enough to craft an architecture for. However, changes to strategy appear to be more frequent than sometimes hoped. For example, [26] lists several strategic changes to the resource base of a firm (ignoring reasons to make strategic changes to the three other key aspects of a business model: the activity system, product offering, and revenue model):

- The opportunity to address through disruptive innovation the needs of large groups of potential customers
- The opportunity to capitalize on brand-new technology by wrapping it in a novel business model

- The opportunity to bring a job-to-be done focus; i.e., customer-driven rather than product centric
- The need to fend off low-end disruptors
- The need to respond to a shifting basis of competition

Example 2 illustrates the fact that changes in strategy can be both sudden and unforeseen (who suspected in late 2007 that the world would suffer from a financial crisis in 2008?) and of considerable magnitude. Frequent and unforeseen changes of this kind are partly the reason why strategists sometimes have a bad name with architects. Similarly, failure to make real progress in re-engineering the firm (especially in terms of supporting IT) frequently gives architects the name of being inflexible and ignorant of business issues.

So far the discussion has focussed on the impact of strategic change to the (desired) architecture of the firm. However, the reverse is also possible: having a solid enterprise architecture may influence strategy formation. To be more specific, enterprise architectures could potentially play an invaluable role in strategy formation processes. To see why this is true, consider the following example:-

**Example 3** - Consider a multinational company that sells magazines (print), but also is active on the Web. Magazines tend to have websites of their own (country-based), but other websites of said company are targeted at an international audience. Aiming at reaping synergy benefits for its web business, the firm explores its strategic options. These options are evaluated in terms of market attractiveness and resource-base fit. The role of architects in this process could be:

- Give insight in feasibility of certain options in terms of resource-base fit
- Help generate options based on extensive knowledge of current operations (inside-out perspective)
- Provide realistic scenarios in terms of planning, making analysis of when (timing) initiatives start to pay off more realistic.

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In summary, strategists and architects could in theory benefit greatly from each other. In practice, however, it seems that it is insufficiently understood that strategy and architecture are complements, dealing with similar aspects of the firm. As Tom Graves (Principal Enterprise Architect at Tetradian Consulting) puts it:

*It is impossible to do real enterprise-architecture where the “enterprise architecture” unit is dominated by IT, or is under IT governance alone. Functional enterprise-architecture only becomes possible when it has a true enterprise-wide scope, reporting to the CEO or some other enterprise-wide body that has whole-of-enterprise authority. At that point it not so much has a relation with strategy, as that it is strategy and a means of expression of strategic outcomes.*

Rather than argue over ‘who is in control’ the two disciplines should work together to strengthen the firm as will be argued shortly.

### 3.2 Different Language

It seems that strategists and architects tend to use different language; using different labels to address some concept, as well as re-interpret concepts differently. Perhaps the most prominent example of the latter is the word *strategy* itself. In several organizations I have observed that the word ‘strategy’ is equated to ‘plan’. For example, at vtsPN<sup>4</sup>, the organization which helps the (semi)autonomous Dutch police forces as well as other parties involved with public safety and healthcare, the strategy consisted of a voluminous plan to restructure and optimize the application portfolio of the 26 Dutch police forces. Similar issues exist with concepts such as ‘model’, ‘framework’, ‘system’, ‘innovation’ et cetera (Interestingly, within the field of IT a similar situation existed in the late 1980’s and early 1990’s. This resulted in several attempts to create a clear definition of commonly used terminology within this field. The FRISCO framework is a prominent example of this [15]). The following anecdote illustrates how misinterpretation between strategists and architects contributes to poor relations between strategists and architects.

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<sup>4</sup> <http://www.vtspn.nl>

**Example 4** – Consider once more the retailer from Example 2. After successfully transforming the company due to starting a new business (selling software combined with consulting), the company holds its annual strategic planning session. Overrun of the transformation process in terms of budget and planning was minimal and the process is considered to be a big success. For the first time in years the company's chief enterprise architect is invited to join the session. The CIO argues the case for reaping more synergies at the level of the resource in order to make the company as a whole more agile.

The enterprise architect, having successfully led the transformation, reacts by saying that the new processes, information flows, supporting information systems and infrastructure have only just been put in place, humming like a well-oiled machine. Between the lines, he suggests that further optimization hardly seems possible. Several members of the strategy team misinterpret this remark, which seems to suggest that the board member's ideas are unrealistic. Before the situation gets out of hand, the CIO explains that the idea is not to optimize processes or reconsider the application portfolio. Instead, the goal is to reuse knowledge and capabilities across businesses.

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This example shows that misunderstanding may lead to tension between both groups of practitioners. Misunderstanding is not so much the issue; the consequences from misinterpretation can be, though.

### 3.3 Different Worldviews

It seems that, in general, strategists and architects tend to have different worldviews with respect to organizations, similar to the observations made in [27]. Strategic management is a socio-economic topic and as a result the predominant view of strategists with respect to the firm is organismic / societal. On the other hand, enterprise architecture is generally considered to be an engineering discipline in which the predominant view with respect to the firm is systemic. This can readily be seen from the IEEE definition of architecture [14]. In this light the work of Stacey is particularly interesting, as [28] provides a systemic view of the firm and relates this to the field of strategic management.

In the organismic worldview, the firm is seen as a society of individuals; these individuals organize themselves and *are* the firm. These individuals opt to join forces in (changing) alliances to achieve common goals. As such 'the firm' can be seen as a social construct, a vehicle that assists in achieving goals of its participants. The strong point of this view of the firm is that it successfully explains the non-deterministic behavior of the firm, taking into account the political aspects related to any type of society. Even more, the work of Simon has greatly improved our knowledge of how decision making in societies take place, particularly in uncertain situations (e.g., [29]). In this view, however, the boundaries of 'the firm' seem unclear and, due to the focus on social constructs, issues such as efficiency of the firm in achieving the goals of all its participants are difficult to measure / analyze.

The perspective of the systems' worldview has as its strong point that the firm is seen as a deterministic system; free to shape as one desires. Manipulation of the enterprise is seen as complex, yet relatively predictable. Human behavior / preferences are mostly ignored in this perspective which leads to reduced complexity. This has the advantage of clear lines of control, easier governance and a clear boundary of what constitutes the organization. However, due to the fact that human behavior is mostly ignored, the politics that are present in organizations are largely ignored (e.g., shirking). Even more, inertia is also ignored which may makes decision making harder than is actually assumed, e.g., because it is unclear when certain measures will start to actually affect people within the organization.

It seems that these differing worldviews mainly exist due to the way our educational systems are organized; strategic management is typically taught at economics departments and business schools whereas enterprise architecture is mainly taught at informatics and computer science departments. It remains to be seen whether it makes more sense to teach enterprise architecture as a joint venture between economics departments and computer science / informatics departments to alleviate some of the pressure. It may very well be that the other two causes for the tension between strategy and enterprise architecture that have been identified in this paper are a direct result of the fact that the worldviews of participants differ. The following example illustrates how the two differing worldviews lead to different conclusions in a situation in practice.

**Example 5** – Consider the situation in which a firm has a portfolio of 25 semi-autonomous business units in separate geographical locations. Each unit has its own processes and information systems which are very much alike. In some cases these systems once were duplicates, but have evolved differently over the last few years. In this situation, it makes sense from an engineering (architecture) point of view to strive for standardization, especially in terms of information systems. This will ease the maintenance burden, makes it easier to implement new requirements from top management (lower development cost), and even makes it easier for personnel to switch from one region to the next. Considering this situation from a societal perspective, however, may lead to the insight that the local businesses may be attached to their systems and may not want to switch systems due to organizational inertia, political reasons, or even loss of specific (local) functionality.

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#### 4. Resolving the Tension between Strategists and Enterprise Architects

Given the tension between the worldviews ‘the enterprise is an organism’ and ‘the enterprise is a system’, the question for managers is how to deal with these different perspectives. In polarity management [25] it is asserted that managers should continually manage this issue and strive to use the best points of both worldviews. In [20] a more elaborate view on this question is presented. In general there are three ways to deal with tensions: issues are seen as a dilemma, a trade-off or a paradox. The following list summarizes these views on tensions and illustrates them with (IT-related) examples:

- As a *dilemma*: a dilemma is a vexing problem with two possible solutions. In dealing with a dilemma, both ‘sides’ will enter a debate an attempt to convince the other of their wrong. In practice it turns out that the pitfalls of the chosen perspective will manifest, leaving the decision maker with the uneasy feeling that the upside of the perspective that is not chosen are ignored, despite the good arguments in favor of this side. It may be tempting to ‘switch sides’ and conflict between two camps is often the result.

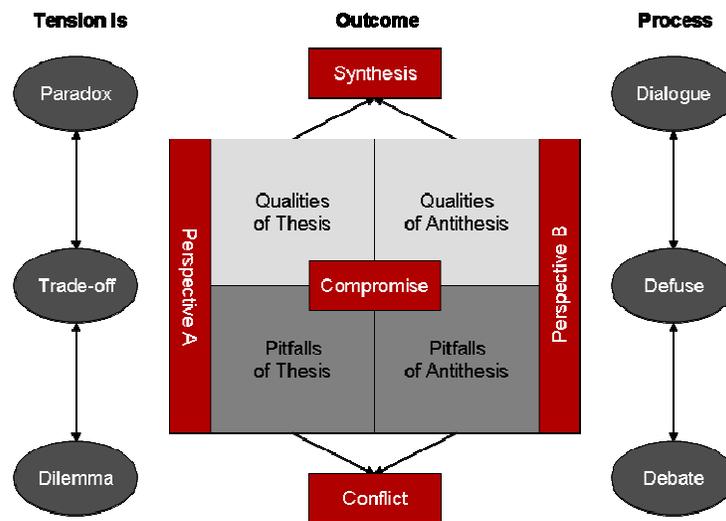
Consider the situation where the entire IT-portfolio of a firm is to be redesigned. With several business units at different geographical locations, both a centralized and decentralized approach are considered. When this issue is considered to be a dilemma then decision makers must *choose* one alternative over the other. Both alternatives may have advantages and disadvantages which must be weighted in the decision. Frequently, however, the decision cannot be made on logical grounds alone. The supporters of both sides of the dilemma will argue their case and strive to gain the upper hand. Satisfying one group may lead to disappointment of the other group.

- As a *trade-off*: a trade-off is a problem situation in which there are many possible solutions, each striking a different balance between two conflicting pressures (in the Netherlands this is often called ‘polderen’). In this mode of decision making both sides exchange pro’s and con’s of their perspective and the decision maker is left with the task of selecting a solution that is acceptable to both sides. Often this leads to sub optimization in the form of a compromise.

Continuing the previous example, when the issues is perceived to be a trade-off then not only the extremes (a centralized systems versus a decentralized system) are considered, but also trade-offs between the two. This may, for example, lead to a situation where each business unit has a *locally centralized system* that is the same for all business units. These local systems are interconnected with a service bus for easier integration.

- As a *paradox*: a paradox is a situation in which two seeming contradictory, or even mutually exclusive, factors appear to be true at the same time. A paradoxical problem has no real solution, as there is no way to logically integrate the two perspectives on the paradox. If this approach is taken, the conflicting between the two opposites is accepted; the two ‘sides’ enter a dialogue in which they attempt to solve the issue. The decision maker is left with the task to accommodate (the upsides of) both perspectives at the same time (e.g. [25]). A resolution to a paradoxical issue is dubbed the synthesis of this issue.

Continuing the previous examples, then the issue is considered to be paradoxical a synthesis must be sought. In this case, one seeks for a situation that has the up-sides of both sides of the polarity. This may lead to a situation where the centralization/decentralization polarity is constantly managed by systems-reconfiguration depending on the needs from a specific business unit at a specific time.



**Fig. 4. Three types of problems + resolutions [20]**

The different modes of dealing with tensions are summarized in Figure 4. As can be seen in this figure, when the issue at hand is considered to be a dilemma where one has to choose between alternatives then the outcome is likely to be a conflict where the pitfalls of both options manifest. Similarly, when the issue is seen as a trade-off then the end result is likely to be a compromise; a sub-optimization which combines some of the qualities and pitfalls of both sides of the issue. When the issue is seen as a paradox then the qualities of both sides can be combined to form a synthesis, avoiding the pitfalls of both sides.

Firms should strive to find a synthesis between the two worldviews discussed in this paper to find an acceptable resolution for the tension between business and IT. That is, they should find a synthesis between the worldviews ‘the enterprise is an organism’ and ‘the enterprise is a system’.

The phrase “finding a synthesis” suggests that the issue of reconciling strategy and architecture is a one-shot issue; something that can be resolved by making the right decision at a certain point in time. This is in fact not the case. The issue of relieving the tension between strategists and enterprise architects is a *polarity* that must be managed. According to [25], a polarity is characterized by two things:

1. *The difficulty is ongoing*: implying that no single decision or change can solve the issue. The issue needs constant ‘solving’, especially since the issue does not seem to have a definite endpoint (solution).
2. *The two poles are interdependent*: implying that the two ‘sides’ can not stand alone, as is the case in e.g., a dilemma. In case of the issue at hand, it may seem that the two perspectives *can* stand alone. However, as has been argued in this paper (see Section 3.1), the two perspectives complement each other.

Adhering to this view implies that the phrase “the tension between the fields of strategic management and enterprise architecture must be solved” is more accurately phrased “the tension between the fields of strategic management and enterprise architecture must be managed”. Firms should therefore look for *social* solutions in the sense that the two communities should be brought together. A practical ‘solution’ for a firm might entail the following aspects:

- The two groups (strategists and enterprise architects) share an office, or are at least situated close to each other. Interaction between the two groups is paramount to success. As Sumar Ramanathan (senior manager at Capgemini, Detroit area) stated in a recent online discussion: “Any IT or EA organization that is disengaged with business is doomed to fail as proven by many catastrophic failures expressed as big bloopers of IT/EA management in global enterprises”
- Both groups should work together as frequently as possible. That is, enterprise architects should be involved in the strategy formation processes, and strategists should be involved in the process of engineering the firm (i.e., developing end solutions as well as transforming the organization). Plans and

other documents should be formally peer reviewed by the other group before they are submitted to e.g., the board.

- To ease the burden of communication, the two groups should learn the lingo of the other group. This can be achieved by taking (joint) courses, organizing frequent colloquia, sharing literature, et cetera. Note that strategists should not have to *become* architects (or vice versa), the goal is to improve communication, understand the issues that are top of mind, et cetera.
- Both groups should *jointly* be rewarded for successes, as well as commented on when failing.

These suggestions are in line with common business practices. For example, [30] accounts of the successful architecture initiatives at ABN AMRO over the last ten years. Key success factors that are reported are trust, actively participate in strategic sessions, orchestrate frequent sessions for discussion the architecture and keeping it lean and mean.

## 6. Conclusions and future research

It seems that the tension between ‘business’ and ‘IT’, which has been around ever since computing entered the business realm, has been transposed to a tension between strategists and enterprise architects. This seems especially true in firms where enterprise architecture is directly linked / associated to pure IT.

Analysis of the theory of both fields suggests that the fields of strategic management and strategy are complements; strategic management focuses (mostly) on the relation of the firm to its environment, thus setting a course for the firm, whereas enterprise architecture focuses on developing scenarios that conform to the desired strategy as well as governing the transformation process of the firm to actually achieve its strategic goals. If this were true, and all humans would be completely rational, then the tension should not exist.

Reality is different, however. In this paper I have identified three ground causes for the tension between the two groups of practitioners. The first issue has to do with the fact that the two fields are more interrelated as might seem at first sight. Changes in strategic direction (which can be the result of a variety of issues) tend to result in the need for change in an organization which is one of the strong points of the field of enterprise architecture. Similarly, having a solid enterprise architecture may effectively be (part of) a firm’s competitive advantage. It seems that in many cases, strategists and architects perceive this overlap in domains to be a dilemma of ‘who is in control’, which does not improve the working relation between the two groups of practitioners.

The second ground cause lies in the fact that the two groups speak a different language: using different ‘labels’ to address the same concept. This is partly the result of the two groups having different concerns (i.e., different issues with respect to the firm are top of mind), but also due to the fact that the two communities hardly overlap: they share little formal education, hardly read literature with respect to each other’s field, et cetera.

The third ground cause, which seems to preclude the two other causes for the tension, lies in the fact that the predominant worldview of both groups differs. The predominant worldview of strategists seems to be organismic / societal in nature, whereas enterprise architects have an engineering perspective with respect to the firm. These views with respect to the firm are diametrically opposed, which also points in the right direction with respect to resolving the tension between strategic management and enterprise architecture in practice.

I have argued that the tension between strategy and architecture should not be perceived as a dilemma or trade-off. Instead, the tension should be perceived as a paradox, and there is no single decision that can resolve it. Instead, the tension should be managed, conform the idea of *polarity management* as proposed by Johnson [25]. To relieve the tension in a single firm, the two groups should seek to join forces in an attempt to jointly strengthen the firm. Strategists should not have to become architects (and vice versa), but a shared understanding, and resolve to face, the challenges of the firm should be strived for. In the long run, i.e., across firms, the tension between the two fields can only be resolved when the field of enterprise architecture matures and gains respect by repeatedly adding value for firms.

As was stated in the introduction, hard empiric evidence on many topics related to the relation between enterprise architecture and strategic management are missing still. It seems worthwhile to conduct a survey among organizations (both public and private, in the Netherlands as well as abroad).

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