



UNIVERSITY OF GOTHENBURG

A Profession as Enterprise Architect

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Abstract

The present trend shows that Enterprise Architecture (EA) is an essential resource to improve the organizational efficiency, effectiveness, and agility, both in the business and the technology environment. The Enterprise Architect professionals who are working in this area are thus essential for operations in organizational transformation and development, therefore, vital to understand the ambition of this profession. There are several academic studies available concerning EA. However, there are few empirically based studies which in particular reflect the Enterprise Architect profession. This study, examining the profession of the Enterprise Architect, sheds new light on what these professionals do within their organization on an every-day basis and how this view differs from how the profession is described in existing research. The purpose of this paper is to explore and compare how the Enterprise Architect profession is described both by academics and by empirically collected data.

We perceive five topics that are essential to a comprehensive, rich picture of the profession; the role, competence, power, style of acting and main focus. The study is based on an initial literature survey and an empirically based study based on interviews with Enterprise Architects in ten large Swedish organizations. Our interviews show that the architect's work in several aspects is consistent with the literature but in other respects, an evident dissimilarity is revealed. One of the most obvious differences is the architect's mindset in terms of working in a reactive or a proactive way. Our interviews show that architects are working primarily in a reactive approach both in terms of how their roles are described but also in relation to how the EA function is set up. Although it is evidential that most of the architects' work is based on a reactive basis, the architects claim it would be inappropriate with a purely proactive approach. Nevertheless, the establishment of the EA as a function within the interviewed organizations seems to have been well implemented, where architectural principles are determined as mandatory, while an interesting finding is that major or radical IT investments appears to overrule the architectural principles and is part of top management discretion only.

Keywords: Enterprise Architect profession, Enterprise Architecture, EA, EA role and competence, EA power, EA mindset, EA style of acting, EA main focus.

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1 Introduction

The market changes and expectations of various organizations have appeared in recent years to be more volatile and unpredictable. The business domain is highlighting the need for agility and rapid alignment with the new requirements while the Information Technology (IT) domain is considered weak in reacting on the new necessities of the business. Today's organizations are both dependent on IT from the traditional perspective, i.e. delivering systems and tools to store, calculate and distribute information within the organization and between organizations; and as an enabler for the forthcoming business in rewriting the organizational history for the future to come. Lacity (2012) interviewed Professor Leslie Willcocks at the London School of Economics collaborating with the Everest Group and Accenture in a research initiative on this topic:

“According to our research, one of the keys to the kingdom of high-performance in business process outsourcing is “Technology as a Business Enabler.” Whose technology – and enabler of what? We’re talking about technology deployed by a business process outsourcing provider to enable a client business services organization to deliver better service, at lower costs, with tighter controls.” (p.1)

1.1 A Retrospective Perspective on why Enterprise Architecture is Important

The retrospective perspective on organizational development is essential to comprehend in justifying the movement of Enterprise Architecture. Almost all organizations have historically experienced complexity, close to the tiny borderline between success and failure. The traditional organization and its management have for centuries and decades being structure to deal with transparency in monitoring and to gain control of the local organization (Burnes, 2009). The traditional organization is regularly built on certain functions, and its structure is inscribed in the business' physical design, e.g. its confined manufacturing plant (Andersson & Olsson, 2007). One of the major challenges emerging is that this structure no longer is local or obvious, nor controllable by the traditional governance. The appearance of globalization is evolving, characterized by: increased complexity for management; increased number of interconnections, involving cultures and member groups; and incoherent change and transitions (Parker, 2005). The impact of globalization of the human life will affect almost every organization and individual, independently if private or public (Baines & Ursah, 2009; Makhlof, 2014). Derived from the concurrent IT movements and surrounding factors, the virtualization of business processes (Oshri et al., 2009), human communication (Carr, 2013; Messier, 2014), and computerization of information (Savill et al., 2014), valuing legal or regulatory aspects (Varella, 2014) are nowadays far away from the traditional organization where most business processes were conducted in-house (by employees, in control and governed by the firm). The majority of the employees communicated internally only, and the majority of the information remained within the firm. In the modern organization, there is a certain need for stability about the overall business map and its design to develop in a mode of efficiency and sustainability (Adler et al., 1999). However, the sudden changes and rapid movements on the market for the organization, induce the necessity for acting rapidly to correspond to these changes, which address the need for an agile structure (Heisterberg & Verma, 2014) and a flexible organization (Sushil & Stohr, 2014). The organization has emerged the state of becoming ambidextrous (Duncan, 1976): there is a necessity to strategically, tactically and operationally to deal with dual challenges. During the organizational life cycle, different challenges are approaching. Consequently, the organizational management has to be exchanged to cope with the new circumstances (Burnes, 2009). Nonetheless, the organizational, structural and technical knowledge of the organization has to some extent to be understood and inherited by the management teams to come (North et al., 2004). It is from this retrospective perspective EA is emerging.

1.2 The Enterprise Architect Profession

In this emerging role, the Enterprise Architect is a valuable player to deal with the forthcoming challenges to reinforce the strategic organizational capability, originated from the Information System (IS)/IT domain while founded in a multi-disciplinary context: *Firstly*, in this context, Enterprise Architecture (EA) is determined to play a significant role to align the business requirements (Chan, 2002), derived from the market, where the IT domain is to support the new expectations (from the market) within a reasonable time (Zeid, 2014). EA will become strategic for the organization, only if IT is considered as strategic to the organization (Wagter et al., 2005). In this state, there is a request for the guiding role in an organization with an intent to deal with these topics, which in turn requests for ratifying the establishment of the role (CAEAP, 2012). *Secondly*, nonetheless, most organizations are expected to cut costs on operations where especially the IT cost cutting has become predominant (Harris, 2004). In this setting, the extrinsic perspective on “doing the right things”, is highlighted and the EA is anticipated to deliver the map of options obtainable (Berg van den & Vliet van, 2014). *Thirdly*, significant challenges are prevalent for many organizations in the close future, especially in the IT domain to deal with the increasing demand for mobility both on devices (Hanseth & Nielsen, 2013), and for virtualization of the server/service provider (Rathod & Townsend, 2014); interacting applications and individuals, such as social-networking (Moon, 2014) and business value creation through co-creation (Ind & Coates, 2013); cloud computing (Hill, 2013); and the big-data stream (Davenport, 2014)). *Fourthly*, globalization will most likely speed-up both in the business domain, linking requirements from different markets, sharing data between actors in a value-chain (Rivard et al., 2010). In this light, the Enterprise Architect is revealed to handle at least three disciplines: the business, the IS/IT and the social interactions between humans involved in these processes, such as the socio-technical settings, collaboration, and co-creation.

For the authors, as practitioners in the IT business for years, of this study - our work assignments frequently reveal the importance of a good architecture, comprising the cost effects from a disordered architecture. While several EA projects fail (Roeleven & Broer, 2009), other transformation projects are struggling (Beer et al., 1990), the reason behind might be several (Simon, 2011). Our conviction is that EA is to be a harmony between a good and proper understanding of both the business domain and the IT domain, and that there is a good balance between the two (Magoulas & Pessi, 1998). EA should be seen as primarily proactive in its approach rather than reactive to historical events (Nsubuga et al., 2014). Architectural goodness (Lynch, 1981) is to be evaluated for the organization in focus; the architectural principles (Haki & Legner, 2013) as well as architectural patterns are to be determined and implemented in the organization (Cloutier et al., 2010; Raj, 2013). Our belief is that EA is not self-generated, since the aim for a range of organizational expectations will be accomplished by humans and not by the technology itself. At this glance, the Enterprise Architects are the ones who will form and develop the EA for a certain organization. By this reason, our interest is focused on the Enterprise Architects as humans, and this profession’s ambition to develop the EA.

1.3 Motivation for this Study

The purpose of this study is to characterize the Enterprise Architect as a profession. Who are these people? Which competencies are prevalent for these roles? Since most organizations are not expected to occupy a herd of Enterprise Architects (more likely quite a few), the competencies of the people engaged are fairly important. Our interest will cover if these competencies will correspond to the expectations of the future organization described above. In addition, our curiosity will involve not the competence only, but also the assignment for the Enterprise Architects. The architects might have the accurate competence for the Enterprise architectural role; nevertheless, both their long-term assignment may deviate on a day-to-day level from the sound development. If so, the enterprise’s architecture will develop differently to what is expected to meet the above expectations. The excessive width of the Enterprise Architect is described as a multifaceted profession that might be perceived by studying job postings submitted by organizations searching for Enterprise Architects to employ. By reviewing job postings, it is quite evident that this profession is defined relatively diverse concerning job descriptions, competency profiles, and responsibilities. In addition, the job postings’ description of

the Enterprise Architect's profession is not always consistent with the portrayals the academic publications provide regarding this profession.

There are several research available, focusing the field of EA in general, such as EA framework (Leist & Zellner, 2006), maturity of business-IT alignment (Luftman, 2000) and EA alignment (Pereira & Sousa, 2005). Some studies focus primarily on the Enterprise Architect in particular e.g. the Enterprise Architect role in the context of city planning metaphor (Bolles, 2004), the Enterprise Architect and information management (Helfert et al., 2013) and the changing role of the Enterprise Architect role (Gøtze, 2013). Furthermore, some studies focus on more specific characteristics of the profession such as competencies and responsibilities of the Enterprise Architect (Steghuis & Proper, 2008), the role of the Enterprise Architect (Strano & Rehmani, 2007), responsibilities (Unde, 2008), proactive style of acting (Nsubuga et al., 2014) and mindset orientation (Aerts et al., 2003).

So far, we have not found much of a corresponding research, notwithstanding there are some empirical studies available such as Strano & Rehmani (2007) who examined the role of the Enterprise Architect using selected individual interviews, and Steghuis & Proper (2008) conducted a study focusing on the competence by surveying Enterprise Architects in an appointed business.

The aim of this thesis is to contribute to a current state of the art of this profession, and concentrate accordingly on the Enterprise Architect profession as a compilation of the topics: role, competence, power, style of acting and main focus, where the study is based on both empirically collected data from interviews with senior professionals working within an Enterprise Architectural function and a literature survey of the very same academic field. The contribution of this study is to provide a richer profiling of the profession as Enterprise Architect, based on empirical data.

1.4 Research Purpose and Question

The introduction chapter is intended to describe the importance of Enterprise Architecture (EA) for the contemporary organization, where the EA is considered more important in the future than in the past. Since EA is built by humans' intellectual work, we believe there is an importance to depict what an Enterprise Architect do at work in the field of EA to establish and maintain EA for their organization. This study attempts to examine how the Enterprise Architects operate within their profession through empirical studies and to set this picture in relation to how the profession is described in the academic literature. The purpose of this study is to broaden the knowledge base regarding the Enterprise Architect profession and provide an understanding about the profession's context today and to position the architect within its working environment. This research aims to fill the research gap consisting of the fact that few academic research are based on empirical studies; they are rather often based on the results by dedicated academic observations only.

This thesis research questions reads:

- *What characterizes an Enterprise Architect's profession, and what is the profession's main ambition?*
 - *How does academic research differ from an empirical based view with respect to the topics role, competence, power, style of acting and main focus?*

1.5 Structure of Thesis

This thesis is structured as follows:

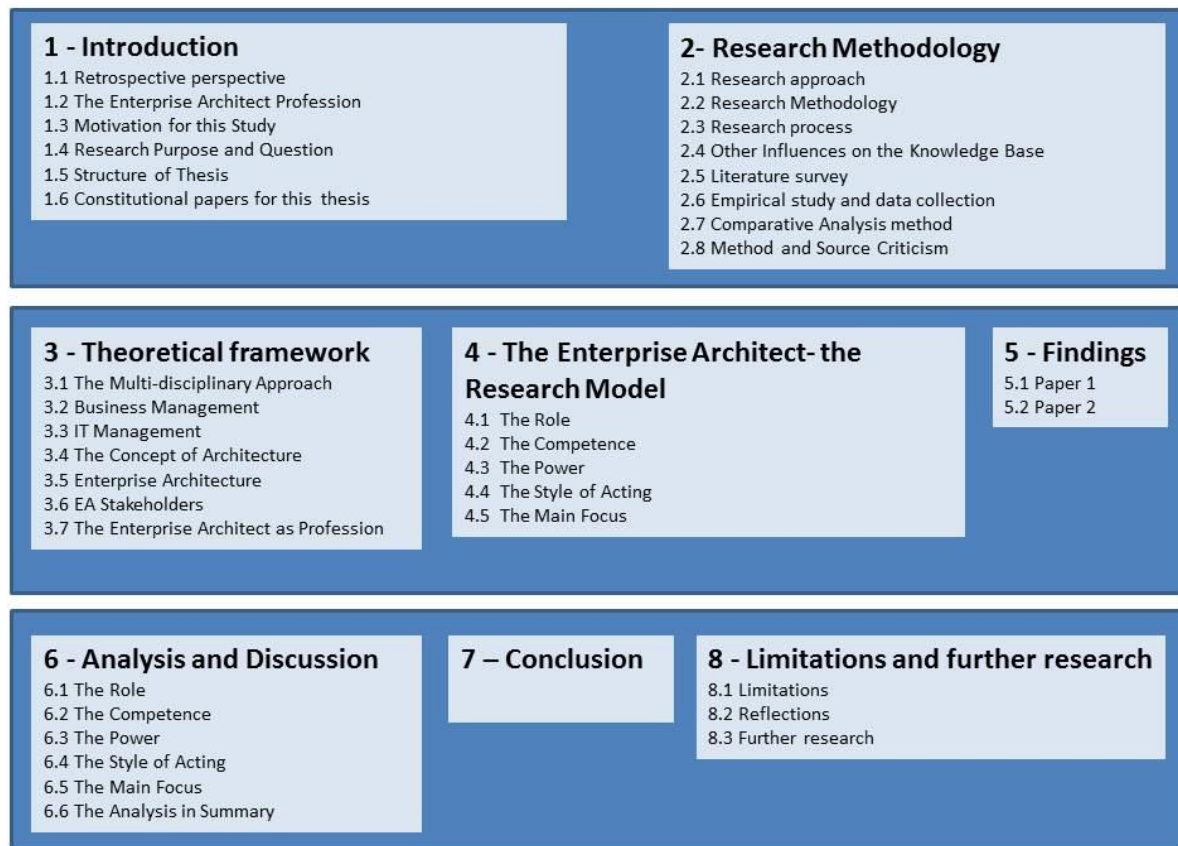


Figure 1. The structure of this thesis.

Chapter 1 is an introduction to the background on describing why this study was initiated together with the research questions, the purpose of the study, the research gap the study aims to fill and presentation of constitutional papers for the thesis. Chapter 2 describes the research methodology in terms of selected research approach, used research methodology, and performed research process, conduction of literature survey, the realization of empirical study and data collection. Chapter 3 presents the related theoretical framework with the aim of describing the context of the EA field and thereby relating the Enterprise Architect profession to other professionals. The chapter relies on extant literature to conceptually IT Management and the architectural family in general and the Enterprise Architect precisely. The purpose of this inventory is to provide a nuanced understanding of the various aspects the Enterprise Architect must be able to manage, understand, and relate to. Chapter 4 focuses on the five topics in relation to the profession based on the research model. Chapter 5 describes findings of the two previously completed studies that this Kappa is based on. Chapter 6 analyzes the five topics role, competence, and power, style of acting and main focus where the comparison of literature and empirical is discussed. Chapter 7 concludes this thesis with a summary and discussion of the results. Finally, chapter 8 describes limitations and further research of the study.

1.6 Constitutional Papers for this Thesis

This thesis is based upon two papers, intended for publication:

- Paper 1: Besker, T., & Olsson, R. (2014). *The Enterprise Architect profession: A literature survey*. Department of Applied Information Technology. Chalmers University of Technology and University of Gothenburg. Gothenburg.
- Paper 2: Besker, T., & Olsson, R. (2015). *The Enterprise Architect profession: An empirical study*. Department of Applied Information Technology. Chalmers University of Technology and University of Gothenburg. Gothenburg. Posted to the EIMCE 2015 conference.

2 Research Methodology

This chapter describes how this study is conducted and what research methodology is used together with an explanation of how the initial literature survey was conducted. In addition, this chapter explains how the empirical study was performed, followed by a description of the interview questions, and the selection of respondents.

2.1 Research Approach

There are different types of available scientific approaches during a research study. Patel & Davidson (2011) describe these different approaches in terms of positivism and hermeneutics. A characteristic feature of the positivist approach is based on a hypothesis formulation that is tested in a later empirical study. Patel & Davidson (2011) claim that this approach allows a higher resolution of the discussed problem even if this approach in some cases can lead to negative consequences with the loss of the holistic perspective during a more detailed study.

The hermeneutic approach is contrary based on the positivist approach to a more inductive, open and subject focused approach, state Patel & Davidson (2011). In the hermeneutic approach, the researchers strive to create a holistic overview of the problem, although the approach allows a combination of both an inductive and a deductive approach. An inductive study can be described as unconditional where knowledge is acquired through observation and where empirically collected data can be used as building general conclusions on. A deductive approach is however based on a conclusion reached by logical arguments and without direct observation of reality. Thurén (2007) argues that an inductive approach is preferable to a deductive approach, to generate unconditionally knowledge through observation. A combination of the different approaches is often referred to as abduction.

The research methodology during the study's initial literature survey was characterized by a positivist approach and conducted mainly by a deductive style. The literature survey aimed primarily to create a theoretical framework as a knowledge base to the following empirical study and to identify the extent of available literature in the subject area and will draw logical conclusions based on the research outcomes of the occurrences of the publications. Although no hypothesis were created in order to prove a statement, the mapping and analyze of each publication can be categorized as a positivistic approach.

The purpose of the second paper is to provide an understanding of how the Enterprise Architects practice their profession and this study is based on empirically collected data. The study's empirical part is characterized mainly by a hermeneutic approach with a combination of an inductive and a deductive approach. The positioning to the hermeneutic approach can be clarified through this study's attempts to interpret what an architect do since there is no available absolute definition of the profession.

2.2 Research Methodology

Data collection can be classified from a qualitative or a quantitative approach (Haraldsson, 2011). Bjereld et al. (2009) describe the different data collection methods as:

"Quantitative Methods are trying, as the name indicates; quantify the material to find patterns or correlations between different categories of phenomena. By answering questions like "how many", "how much" or "how far" the results can be expressed in figures and ultimately processed using statistical techniques." [...] (p. 118).

"Qualitative methods are actually an umbrella term for a number of approaches whose only common feature is that they are not quantitative (e.g., in-depth interviews, participant observation, field studies)." (p. 118).

This study can thus be categorized as a qualitative research methodology rather than quantitative since the study, largely is based on empirical data in the form of semi-structured interviews. This qualitative research methodology allows us to use the empirical data to analyze and draw conclusions in a manner that would not be possible with the operation of a quantitative method.

2.3 Research Process

This study was initiated after a pre-study based on a thesis work within the course "Architectural Design" at Chalmers University of Technology and University of Gothenburg (Besker & Olsson, 2014b). This pre-study's purpose was to by a quantitative, survey-based study examine whom the Swedish Enterprise Architects are and how these architects are working within their profession in terms of education, available tools, experience base, organizational affiliation, etc.

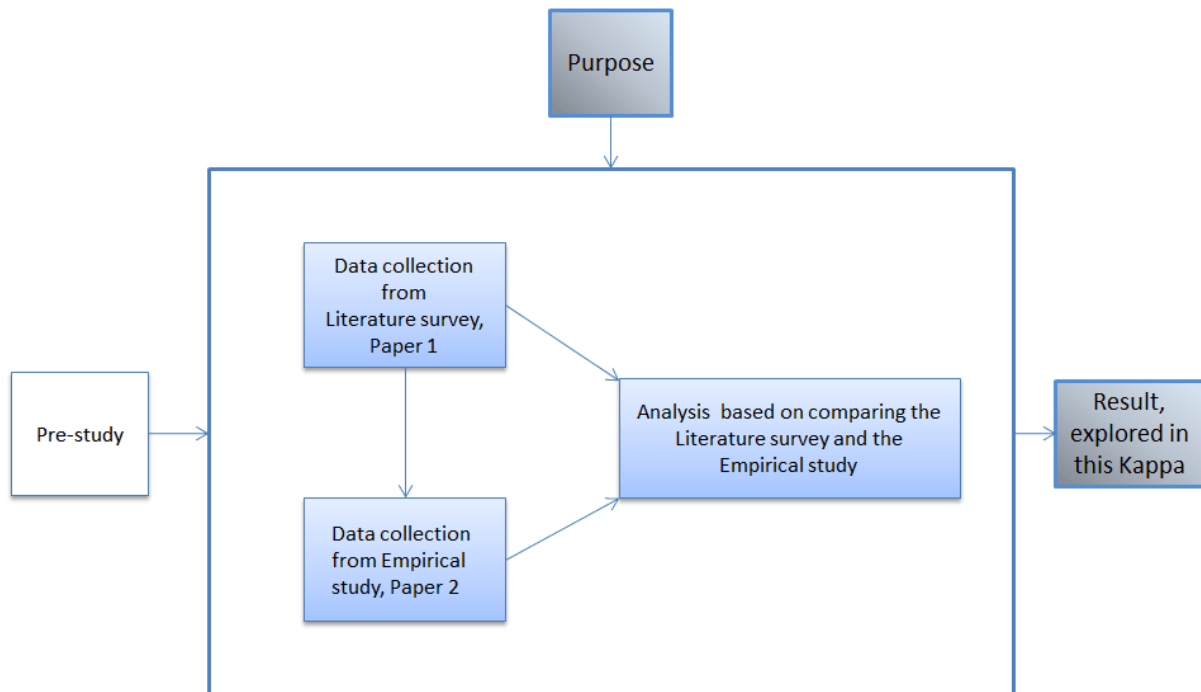


Figure 2. Logical and schematic view of the working process.

With the pre-study as substratum, a first literature survey was performed with the purpose of studying the available academic literature (Paper 1) followed by a second empirical (Paper 2), qualitative study concerning how the Enterprise Architects operate within their profession on a daily basis. The study ends with an analysis and a comparison in the form of the Kappa where the results from the two previous studies are compiled. The research methodology can be described by a triangular method where Paper 1 and Paper 2 forms the two initial primary nodes and contribute to input to the third node, as the Kappa.

2.4 Other Influences on the Knowledge Base

In parallel with the writing of literature survey and the empirical study, the study group also has been active in broadening their knowledge base by actively participating in various activities such as taking part in EA-related networks in social media, reading EA-related blogs, participated in CIO and EA conferences, exhibitions and in reading EA-related magazines.

2.5 Literature Survey

The study's first paper is a literature survey (Besker & Olsson, 2014a) and this paper is based on a discursive writing style approach where the technique to classify the sources and the selection of different categorization indicators are inspired by Langenberg & Wegmann (2004) while the writing process has been guided by Okoli (2010). The study's research method utilized in this paper aims to achieve three research criteria: reproducibility, integrity and objectivity, according to the recommendation by Bock & Scheibe (2001). The initial search was based on a broad searching front, where 25 different databases and sources were searched and returned results in articles, journals, books, and other papers. In parallel with this survey, we also performed a mapping in the form of a categorization of the found publication per keyword in order to be able to study the extent of occurrence in relation to, publication type, publication date, and publisher, etc.

Publications were particularly studied in the journals that are included in "Basket of Eight" as; European Journal of Information Systems, Information Systems Journal, Information Systems Research, Journal of the AIS, Journal of Information Technology, Journal of Management Information Systems, Journal of Strategic Information Systems, and Management Information Systems Quarterly.

The literature survey resulted in a broad knowledge base, which could pose a literary basis for future studies and on which both interview questions and selection of topics came to rely on. In parallel with the progress of surveying publications for the first paper, an extensive literature search and study was made of materials that were not always mapped in the first paper. This study made it possible to contribute to a knowledgebase and understandings grounded in other aspects besides the selected five topics.

2.6 Empirical Study and Data Collection

The study's empirical part (Besker & Olsson, 2015b) is based on verbal semi-structured interviews with planned, predefined, pre-formulated and documented questions and where the answer could be given in free form, thus without any predefined response options, the questions were all of an open character. The interview questions were formalized and categorized along the five identified topics, which the study is based on. The respondent was informed, during the interview, when a new topic was introduced.

In total, ten respondents were interviewed from ten different organizations in Sweden. Four organizations were public and six were private with an average of 30.000 employees each, within a range of 1.200 - 95.000 employees. Six of the selected respondents are part of a Swedish professional Enterprise Architect network. All the interviewed respondents are senior within their career, and they are all working with EA within their profession. Nine of the interviews were made through personal meetings on each respondent's workplace, and one of the interviews was conducted by telephone. The

interviews lasted on average 80 minutes per respondent. To be able to focus on what came up during the interview, without the risk of losing valuable information, all interviews were recorded with the respondents' approval. To reduce the risk of this recording to hamper the respondent, an assurance was provided that only we, who carried out the interview, would have access to the tapes of the material and when the study is completed, these recordings should be destroyed. No respondents are mentioned by names, nor would their organizations, in order to contribute to that the respondents give so honest answers as possible without risking any negative consequences if the answers would possibly contain sensitive information for the person or organization in question.

To analyze the results of the interviews, a comparative analysis method has been used in accordance with a recommendation from Boeije (2002) for checking the coherence of collected data during the interviews. The study's comparative analysis seeks to highlight and give concatenated answers positions such as:

- What are the relationship between the respondents answer from the interviews and how can they be typified or summarized?
- Are there contradictions between respondents' answers or do they agree with each other on most aspects?

Schulze-Bentrop (2013) describes that depending upon the interplay of various conditions, alternative causal pathways may exist which engender the same outcome, taken into account by this study. Ragin & Rihoux (2009) state that generalization is an important part of any empirical scientific endeavor and this study has intended to the extent possible, give a foreseeable overall picture based on the empirical collected material, as possible.

2.7 Comparative Analysis Method

The method used when forming the Kappa is primarily based on a comparative analysis method. The purpose of using this method is to provide a thorough comparative evaluation of the selected five topics. The comparative method together with theoretical sampling constitutes the core of the qualitative analysis in the grounded theory approach and in other types of qualitative research (Boeije, 2002). This analytic method comparing the two studies was conducted mainly through careful mapping of the most distinctive and core concepts found in respective topic in the literature study with the aim of finding similarities and dissimilarities in each topic between the literature study and the empirical study. This comparative analyze method was found particularly appropriate and supported that the material could be used and analyzed adequately and appropriately for clearly illustrate similarities and dissimilarities between the different aspects of each topic. This method made it possible to, in a comparatively manageable and stable way comparing the results found in the two studies presented in this composing Kappa.

2.8 Method and Source Criticism

Interview Criticism

To simplify and clarify for the respondents during the interviews, an explanation was decided regarding naming conventions of three of the five topics to describe better and to headline the topics' focuses. However, the content of the topics remains the same. The Role and Competence topics have been left unconverted, while Authorization, empowerment, responsibility has been converted to "Power", Proactive and reactive approach has been converted to "Style of Acting", and Mindset to "Main Focus". According to Bell & Nilsson (2006), the interpretation of oral interviews, based on a subjective assessment, a risk of misinterpretation or loss or answers exist. The oral interview method can make it difficult to analyze the answers and compare them with the respondents (Banaka et al., 1981). During the interviews, the researchers tried not to ask leading questions, the questions sought to give the respondent full freedom to make their own interpretation of the question. In some questions, it

was evident that the respondents interpreted the questions differently and gave different orientations on responses. In these cases, the respondent was given a helping additional clarification with the aim to expounding the question and thereby led the respondent in a direction to give an answer that could be used later in the analysis and comparison phase.

Source Criticism

This study has consistently attempted to scrutinize critically and evaluate the information and publication used and referred to. This critical examination has been conducted by identifying the source and its authenticity, defining its value over time and space, establishing the objectivity or bias of the source, or its relation to similar sources on the subject. When selecting publication to be used, especially interest in authority has been made by the study what is behind the source. No publications have been used without finding information about the author. Only sources that are attributed to an institution, which is considered as trustable by this studies’ writer, have been used. Evaluating the objectivity of the publication by studying the purpose has meant that only publication without the obvious aim of selling or where the knowledge is based on opinions has been discarded. Finally and as far as possible publications only, which are not out of date has been used or considered as fully viable despite an earlier date.

3 Theoretical Framework

The aim of this chapter is to position the Enterprise Architect in this profession’s contextual environment as an actor within the Business and IT Management. The Enterprise Architect is considered to have a majority of his / her assignments in the field of Enterprise Architecture (EA), which is part of the IT governance and IT Management of the Business Management.

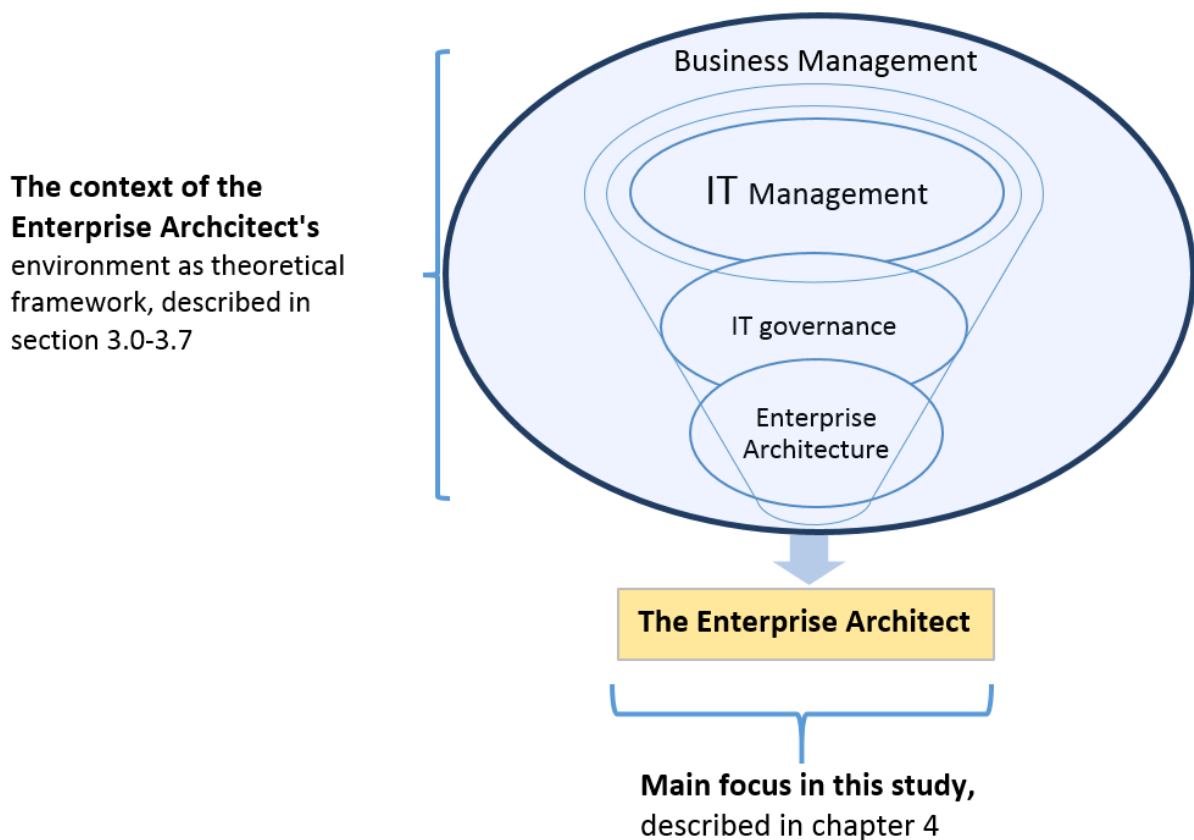


Figure 3. The position of the Enterprise Architect and the contextual depiction of the position.

The theoretical framework chapter will introduce the Enterprise Architect's position in the business organization. The Enterprise Architect is ordinarily considered to be employed by the organization, thus seldom on a consultant basis, besides to assist with accurate Enterprise Architectural knowledge, e.g. when to make certain adjustments to the architectural environment. This chapter will clarify the background and need for EA, which need is considered more important in the future than in the past. The initial sections will position the EA and architect in relation to the business management, the IT management, and specifically exemplify organizational roles that the Enterprise Architect will be in collaboration with, viewed from a multi-disciplinary approach. Besides the EA is a newcomer to the business arena, this position is reasonable multifaceted and interagency to its construct.

3.1 The Multi-disciplinary Approach

The position of the Enterprise Architect is revealed multi-facet and multi-disciplinary in the context of the various knowledge bases the architect is intended to work in and collaborate with. The multi-disciplinary approach to this study is interpreting the business domain and IS/IT domain to have a certain interest of overlapping the business, the socio-cultural/socio-technical and the strict technical disciplines.

The multi-disciplinary approach found by this research from a universal perspective is discussed by Cabezas & Diwekar (2012) who elaborate the request of a this approach, viewed from the long-term sustainability perspective, involving the ecology of systems, economic sustainability, engineering requesting infrastructure and the socio-technical perspective on people in collaboration. Wagner et al. (2010) add the multi-disciplinary aspects of digital design. The multi-disciplinary approach found within the business discipline by Damij & Damij (2014) who relate the multi-disciplinary perspective on the business process management, including knowledge management and data modeling. Goodwin & Strang (2012) relate the multi-disciplinary to their socio-cultural meta-model in evaluating risk. Finally, the multi-disciplinary approach found in the technical discipline comprises Biffel et al. (2011) who discuss the risks in overlapping and missing competency in engineering roles, regarding multi-disciplinary as within the technical domain while interlinking engineering roles. In addition Yong Chen et al. (2014) examining the knowledge bases in the interaction between multi-disciplinary computer systems.

In an aim to position the EA, and especially the Enterprise Architect, there is a certain need to understand the context of the architect's work field. The Enterprise Architect's work field is expected to be multi-facet and multi-disciplinary while the literature survey for this research reproduces vague support for this statement. Moreover, the absence of literature elaborating a multi-disciplinary approach to the field for IS/IT, business and the socio-technical context is considered as rare. The next section will explore the context of the business management, which the Enterprise Architect is expected to be in cooperation with.

3.2 Business Management

The intention of this section is to clarify the connection for Enterprise Architecture (EA) and the Enterprise Architect's position in the context of the business in general.

The business has been in evolution for a few centuries, where the business could be either a public or a private establishment. The transformation of the business originated in the agriculture age, followed by the industrial revolution and the industrial age to come. Since the last decades, most businesses have entered the information age, still though in its infancy, which transformation will affect most actors on a market independently if private or public, cultures and individuals (Toffler, 1980; Toffler & Toffler, 1995). It is in these businesses, primarily in mid-sized and large companies, the function of EA will be found where employees have been assigned the role as Enterprise Architects in an effort to maintain, develop, and support the EA to add benefits and value to the business.

Most businesses have left the industrial age and entered the information age, where primarily the large-sized business request for the Enterprise Architect. The next subsection will inquire if EA should be viewed mainly as a governance function, implicit seen as an audit function, or as a business driver.

3.2.1 EA as governance or as business driver?

This subsection is intended to elucidate that the EA could gain as either a governance function and, or as a business driver. It is up to the management of the business to decide which outcome that is anticipated and to select the appropriate balance between the two.

Enterprise Architecture could be considered as either a tool to be in control of the technology (Lankhorst, 2013) or provide the necessary guidance for information technology to act as a business driver, piloting the prerequisites regarding information and architecture corresponding to customer demands for the successful business. In acknowledging EA this strategic capability (Ross et al., 2006) the Enterprise Architect may act as the glue between technology and the business in a successful socio-technical-business implementation (Li & Solis, 2013).

The question how EA should be regarded is left as an open question in this thesis, as this topic is regarded as an issue to be discussed in the organization where EA is operating. Nevertheless, both directions have consequences for the organization. The next section will briefly review the business in a retrospective perspective.

3.2.2 The traditional business

This subsection is envisioned to describe briefly the generic business organization's core and supporting business processes in retrospective, and the reason behind that IT management was introduced to the business.

The traditional business in evolution from the 18th century and on has evolved from the market demands and drivers for the business in the revelation to its customers. Achievements from new technology, has forced customers to queue up for the new adventure to be purchased (Hui et al., 2013). The market during the early and middle industrial age was mainly focused on a physical product in itself. The traditional way to introduce new product to the market was the initial invention, and the subsequent innovation from this invention, what is usually mentioned as marketing the product, where the product is contributing to the market on four properties: the product, the place, the promotion and the price (Kotler, 1986). The business constitutes of the core process, mainly the production process, and its supporting processes, such as Human Resource (HR), Sales & Marketing, Finance & Accounting (F&A), and in recent years, the growing field of Information Technology (IT) (Hui et al., 2013). From the infancy of the business, most every business was local, i.e. serving customers with physical products in a local market. Most businesses realized the need for a common business goal (Cadle et al., 2010) to formulate where the business was intended to invest its scarce resources as money while a business strategy (Kourdi, 2003) to obtain these future goals was necessary. Quite rapidly, the methods and technics to govern if the business was the strategy was successful or not, were developed (Kyriazoglou, 2012). When the information technology was emerging in the 1960 and 1970, the need to govern and control of the IT was developed too, while the concept of IT Management was due, in advising the organization about the architecture, IT strategy, and control of the new technology (Barton, 2003).

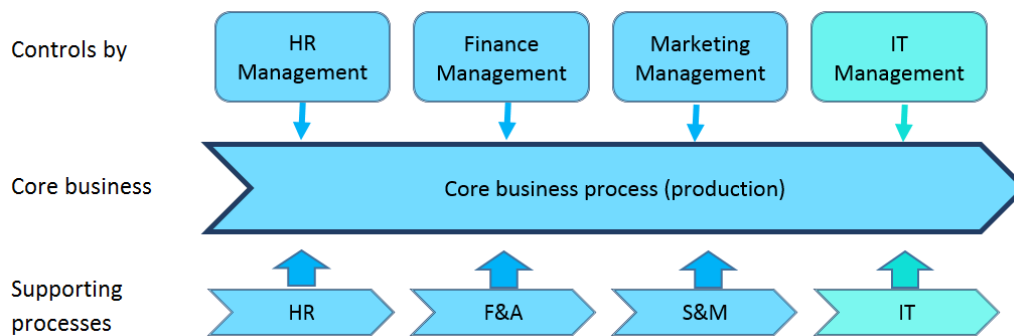


Figure 4. The traditional business.

The traditional business with the core business process and supporting processes in control by the functional management.

This subsection has simplified the traditional business with its core business process and supporting business processes, where the IT Management is part of the latter, in an aim to position IT Management in its context of the traditional business. The next subsection will deal with the future business.

3.2.3 The contrasting business – A business in transition

This subsection will clarify the shift for several businesses in the information age, what kind of complexity that is apparent, the need to handle the “glocal” organization, the shift in actor and social interaction, which request for a certain business need of business coordination, appointed as part of the Enterprise Architect’s work field.

For the business, information has become more core for the contemporary organization heading the information age, in comparison to the industrial age, combining the information with intelligence and ideas (Handy, 1991). Numerous organizations have grown from serving the local market only, into a multifaceted business, operating on a global market. For the majority of businesses several competitors are operating in the very same market, competing for the very same customer by an identical concept. In this context, the information about the customer and the client’s demand is essential to survive in business (Jamali et al., 2014). Nonetheless, market changes and expectations on the contemporary organization, mainly due to imbalances in the global systems, appeared to be more volatile and unpredictable (Møller, 2013).

Complexity of human global economic activity

The contemporary organization is considered by the business, as under persistent pressure from an increasing complexity due to globalization, rapid technology development, pressure from cost cutting and cost-savings, increased demand and sourcing of information (Nilsson, 2015). Although complexity and chaos have been prevalent since the origin of the universe, this study reveals the complexity caused by expansion and globalization of human economic activity (Mainzer, 2007). An analysis of the patterns of the relationship between the objects involved could reduce complexity while a decent architecture is chosen (Solà-Morales de, 2012).

Local, Global or Glocal?

‘All business is local’, defend Quelch & Jocz (2012). Although the traditional business started as a local presence to supply products on a local market, the very same statement is true for the modern business as well. Nevertheless, several businesses have outgrown its local market to support customers on several markets with sometimes competing products. This growth has caused new requirements in the product portfolio, operating simultaneously in several markets, which is an global market (Kotler & Caslione, 2009) while the challenge is to cope with the global market as it was the local, termed “glocal” (Robertson, 1995).

Shift in actor

The information stakeholders have been promoted the role as simultaneously attaining the locus of information requester and supplier in co-creation (Ozcan & Ramaswamy, 2014). The same information stakeholder may concern a human or a machine, escalating various actions within the business to act as an ecosystem of data and information (Simon, 2014), where stakeholders as actors are impacting other systems (Hanseth et al., 2004), and their knowledge (Bahrami & Evans, 2010). The appropriateness of influences from machines in this ecosystem has been questioned by Bostrom (2014).

Shift in social interaction

Increased customer empowerment and self-actualization will force the businesses to act differently on markets in the information age, where the socio-cultural transformation has started (Kotler et al., 2010). The customer's perceived value of a product and service will shift away from an enterprise-centric value creation to value created by interactions between people in co-creation (Ozcan & Ramaswamy, 2014) adding value in a value-chain (D'Heur, 2015). Smart communities (Morse & Cook, 2014) in interaction will supply information to this chain through crowdsourcing (Brabham, 2013). Actions and transactions have led to interactions in decision sourcing (Roberts & Pakkiri, 2013). Information which quickly could be transferred, will impact the structure of the society, business, and its customers (Carr, 2010) but should be seen as an enabler to come (Roberts, 2013).

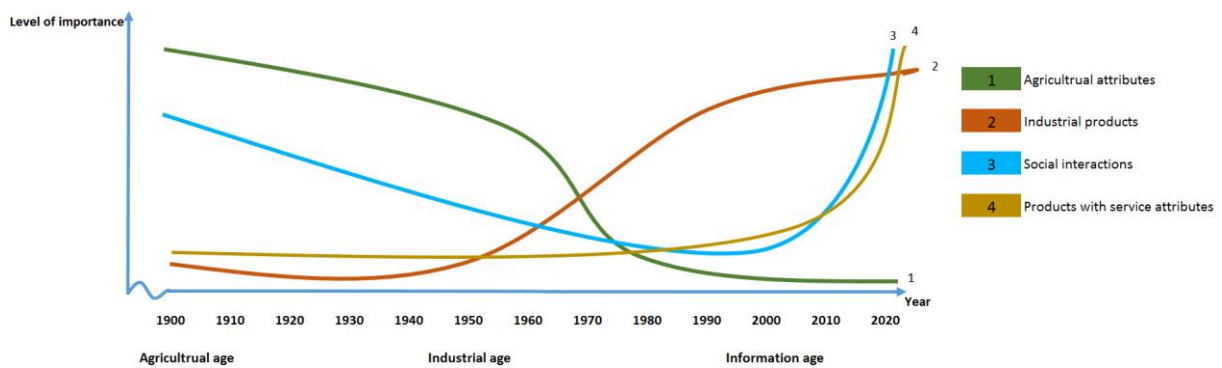


Figure 5. The level of importance. The society, business, and people in transition.

As synopsis from the literature revealed and referred to in this subsection, reflecting the society and business in transition, figure 5 is intended to compare the impact of attributes during the agriculture, industrial, and information ages.

In conclusion of this sub-section for the business in transition, the complexity of human global economic activity, the need to handle the glocal business, the shift in actors and social interaction will impact every business in development while there is a need to coordinate these activities, requesting for piloting by the business in transition, where this study considers the Enterprise Architect as a core member of this transition team. The next subsection explores the business drivers.

3.2.4 Business drivers

All businesses have some more or less pronounced business drivers as objectives to achieve a future state. One driver could be a cost reduction, another to invent a new technology leap and by then obtain a competitive advantage. The third driver is reflecting the multinational business to take advantage of a regulatory competition in locating some business in a region that is appropriate for the business to acquire a particular goal. In recent years, the IS/IT business has been emerging as a core business driver for some organizations, where information and technology had been recognized as a strategic capability for a future transformation of the business or the business area in general. In this context, the presence of the Enterprise Architect is more crucial today than in the past, to coordinate architectural knowledge in and between organizations. Moreover, business drivers might be recognized in cooperation, influencing each other.

Despite information technology so far has mainly been considered as a supporting function to the core business process of the production, the swift in market is obvious, where products are interchanged by services (Scott Morton, 1994) or where products are equipped with a service (Bragg, 2010). The primary business driver for the business is mainly to achieve competitive advantages: the aim for cost reduction in a purpose to provide the customers with either products and services at a lower price, or to extend the business margin (Gilliam & Taylor-Jones, 2004). Another business driver is the technological leap, where old fashioned products or services are provided in a new body, aimed to acknowledge competitive advantages through improved technology (Ceschin, 2014). A third business driver is the regulatory advantages, due to production, sales or provision of a product or a service is strategically chosen by the supplier upon legal advantages (Larouche & Cserne, 2013). The fourth business driver is information and information technology as the driver for either supplied information or to explore new markets (Wijegunaratne et al., 2014). However, these four examples are presented as separate drivers for the extended business, these business drivers are most likely combined and in cooperation.

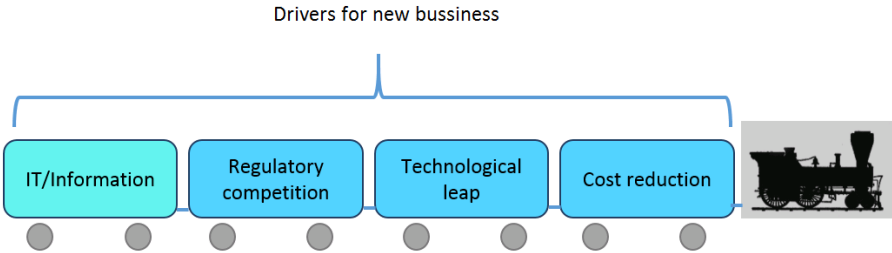


Figure 6. The business drivers.

The conventional business in transformation and development, forced and amplified by its business drivers in an aim to achieve new business opportunities, as displayed in figure 6.

In summary, the business management is an essential domain for the Enterprise Architect’s knowledge and understanding, comprising the governance and/or business driver approach for EA, and for the architect as a core and natural member of the transition team in developing opportunities for the business. Next section will position the architect in the domain of IT Management.

3.3 IT Management

This section is intended to describe the IT Management briefly in the context of the EA field, the historical perspective, and timeframe. The responsibility of IT Management is multifaceted, where quite a few transformational assignments are delegated since IT Management to a certain degree is considered as transformational in itself. The Enterprise Architect is commonly employed by the IT (department) domain, and by then, a member of this group.

IT Management is regularly considered as the coordinating management of the business and IT development. IT Management is intended to cope with both the present and the future to come. IT Management is often comprehended as dealing with complexity (Magoulas & Pessi, 1998). For some, the challenge comprises the complexity in the IT domain by the increased number of concurrent systems utilized by the organization (Hausman, 2011). For others, complexity in the business domain, such as globalization, is the main challenge (Baines & Ursah, 2009). For some, IT Management is mainly to monitor and to be in control (Lazic, 2013) of the supportive function within the organization with a primary focus to lower the IT related costs (Buchta et al., 2007) by issuing strategic maxims (Broadbent & Weill, 1997). For others, the IT Management is considered as a driver for a future business to come (Ciborra, 2001). IT Management is expected to be a shared responsibility among the business and IT leaders (Boynton et al., 1992). The borderline between local autonomy and centralized ownership of data is always on the agenda to be discussed while the considerations about the benefits and the costs are to be evaluated (Barton, 2003). The modern IT Management has two major

assignments: a) Take care of the IT operation in an aim for sustainable efficiency and cost; and b) to assist the organization in strategic initiatives, involving guidance for utilization of affordable technology and technology as a driver for organizational and business development (Pessi, 2009).

After this brief orientation of the IT Management in general, the next subsection will position the Information Technology and its management.

3.3.1 Management and IT - The Information Technology evolution

The IT is a relatively new to the business domain, considering a pronounced penetration of the typical organization. New challenges in both social patterns and technology development have forced organizations to update the organizational knowledge base. In the emerging light of IS/IT impacting the society, business, and individuals, the function of EA has become more crucial than in the past, where the Enterprise Architect has a dominating position in coordinating this organizational knowledge in an evolutionary tradition and not least, the consideration of how this knowledge could best serve the organization. The architect's work field is discovered to be frequently related to design patterns and interoperability.

The evolution of the computerized information technology has its roots in the 1960 decade where the mainframe computing were introduced to organizations of scale (Panigrahy, 2010). The organizational structure had that far been dominated by machine bureaucracy (Mintzberg, 1979). For the period to come from 1960 and on, the IT evolution could be distinguished divided into three main eras: The *Data Processing era* from year 1960 to mid of 1980; the *IT or micro era* from year 1980 to mid-1990; and the *Network or Unified era* from mid-1990 and on (Austin et al., 2009). Other authors assign the *big data era* (Wang et al., 2015) to the contemporary evolution of management of IT, anticipating a radical change in management thinking (Nie, 2014).

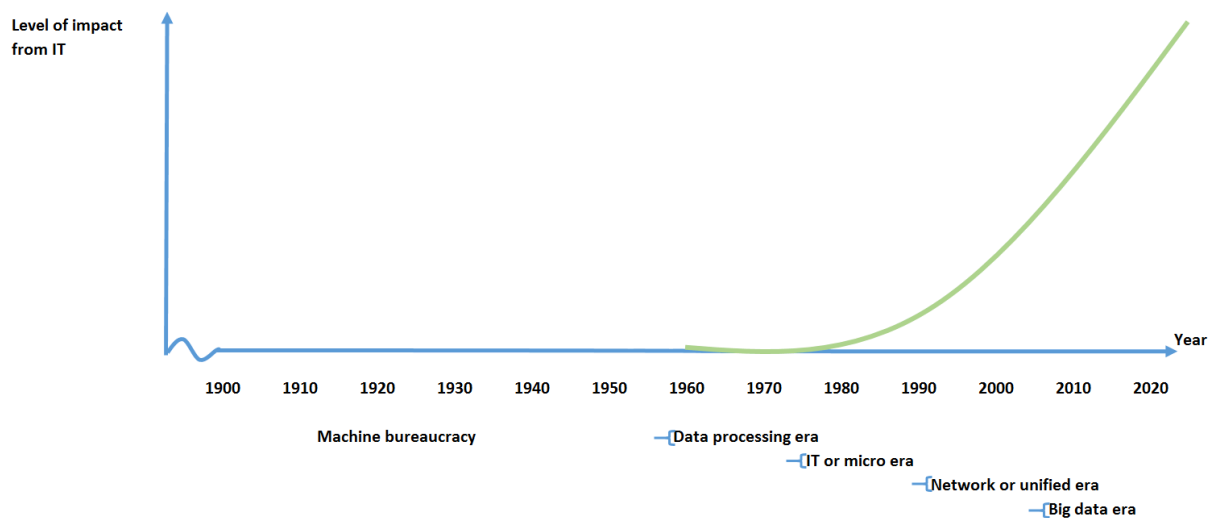


Figure 7. The level of impact from Information Technology in the evolutionary perspective.

Figure 7 is intended to depicture the effects of Information Technology on the organization during the era of Data Processing, IT, Network, and Big data.

Information Technology impact on the organization in an evolutionary perspective

The information technology entrance in the business has evolved for about 50 years. The initial step was faltering, and for 20 years, the impact on the organization was peripheral. If an organization had computerized capacity, this force was dedicated a delimited number of users. Since thirty years, the number of users has increased drastically, entering the IT era, where the penetration of the technology had become significant. The impact of Information Technology on stakeholder groups such as the senior management, the managers, and users within the IT domain is expecting to evolve (Aerts et al.,

2003) through the eras, where this impact could be considered as core technology in most business entering the network era (Mutsaers et al., 1998).

Information Technology's impact on	Data Processing era	IT era	The Network/ Unified era
Senior Management	Low profile, to be delegated to specialists.	The SM reveals increasing cost, but question the benefits from IT	Since ICT is regarded as core, SM is always involved in strategic IT topics.
Business domain	Low	Mid	High
IT domain	Specialists, focus knowledge about the technical artifacts	Still specialists within the IT domain. Squinting the business needs	Deep knowledge about the business and strategic IT is essential.

Table 1. Information Technology's impact on stakeholder domains.

The ingress of the architecture in the field of IS/IT

The request to structure the IS/IT business was emerging in early 1980. Concurrently, the emerging outlook to identify Information Technology as an enabler started to grow. While the market structure was under reconstruction, splitting large units into divisions and business units, the appearance of the business process re-engineering was established (Aerts et al., 2003). The architecture in itself had been prevalent for a long time, although named differently (Perks & Beveridge, 2004). J.A Zachman published in 1987 a pioneered concept as the first release of the Enterprise Architecture in a journal (Zachman, 1987). Zachman's vision was a holistic approach that should gain the ability for the IS/IT and to support investment aims in increased value for the business due to better business performance (Sessions, 2007).

The business and managerial impact on Information Technology in evolution and interaction

A business is built upon two important cornerstones: strategic identity and behavior (Enquist et al., 2001) and could be described as a place where humans and technology in cooperation, virtually or physically, will fulfill a particular goal (Burnes, 2009). To obtain this objective, humans and technology are delegated tasks (Enquist et al., 2001). To coordinate these tasks, a group of people is organized in teams to supervise actions taken to obtain the business's goal. Organizational management is primarily presumed to act stabilizing on the primary target to maintain equilibrium for the organization, contrasting leadership with a certain degree of destabilizing effort to obtain a business change (Burnes, 2009). The stable organization has a substantial degree of transactional leadership, contrasting the rapidly evolving business, which has the transformational leadership (Bass & Riggio, 2006). For the IS/IT business, transformational management and leadership are essential (Cho et al., 2011), likewise for the R&D innovation teams (Eisenbeiß & Boerner, 2010). In addition, the top management style of leadership will affect and foster the organization in general in an entrepreneurial manner (Yang Chen et al., 2014) utilizing accurate communication channels in strategic communication (Men, 2014). Miller's (1993) research observes the successful business to be stabilized through simplicity, neglecting to explore new knowledge, which over time will revoke the business. In this light, the business identity and the managerial style will request for a suitable mix of transformational and transactional leadership (Hambley et al., 2007), obeying organizational learning (Argyris, 1977) and collaboration (Bhalla, 2011) in an effort for new inventions and innovation (Roberts, 2007), and in particularly architectural innovations (Henderson & Clark, 1990).

Business impact on Information Technology	Data Processing era	IT era	The Network/ Unified era
Senior Management	Requested on demand	Evolving	Ubiquitous
Business domain	Low	Mid	High
IT domain	Less knowledge about the business was required	Enough business knowledge to understand the inquiry	Deep knowledge about the business is vital.

Table 2. Business & managerial impact on Information Technology.

In summary of this subsection, the impact of Information Technology has increased during the last decades, which in addition have forced the business domain and IT domain, involving the senior management of the business, to evaluate and behave differently. Subsequently, the business has a certain impact on the Information Technology, requesting for new technology. This new technology will in turn affect the IT Management, which the next subsection describes.

3.3.2 IT Management in an outlook

The future IT Management is expected to deal with several areas where the Enterprise Architect is anticipated to participate. Thus, the variety of the architect’s knowledgebase is considered as multi-disciplinary, complex, and challenging. Nevertheless, there is a certain need for design pattern and interoperability requested mainly from the IS/IT infrastructure, the challenges in human interactions should not be disregarded.

Some authors assess the IT domain as being assimilated by the organization itself within a close future where no clear borderline, separating the business from the IT domain, is anticipated in the future organization (Steiber, 2014). One challenge for the future organization is to coordinate the business domain and IT domain in an effort to obtain cultural assimilation (Langer & Yorks, 2013). At this state, the office politics is essential to be interpreted correctly (Armstrong, 2014) to coordinate various groups and individuals’ mindset regarding trends, ideas, shift in context and level of innovation (Langer & Yorks, 2013). As a prediction of the future IT Management to come, where the IT Management has evolved into executive technology leadership, has been envisaged by Langer & Yorks (2013) and will for example, involve the following organizational areas to be considered, described in figure 8.

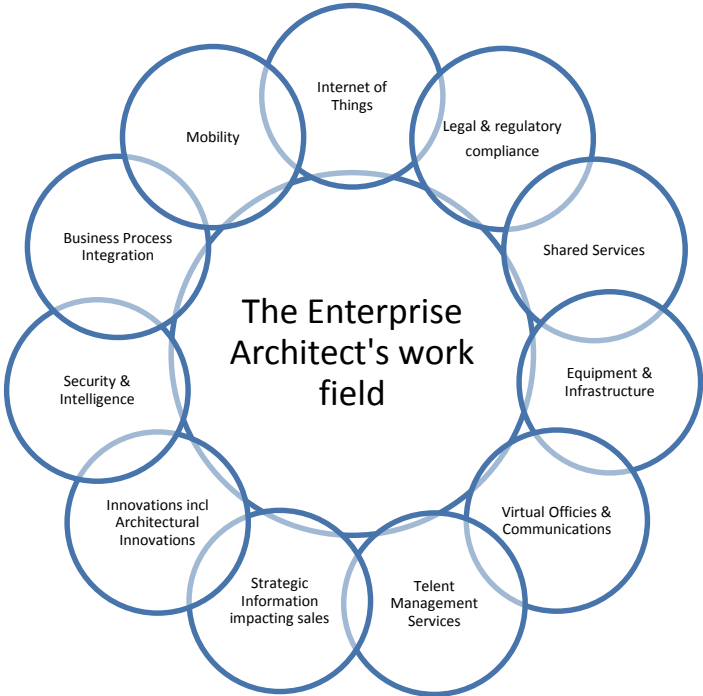


Figure 8. The concluded and anticipated challenges of IT Management.

Figure 8, depicture the anticipated work field for the Enterprise Architect as a member of the IT Management in a merged and interpreted forthcoming subjects, sourced by Langer & Yorks (2013). The Enterprise Architect’s knowledgebase need to be a wide-ranging mix of knowledge and experience from technology, business, and social interactions, in an aim to drive the business forward, such as:

Technology-driven artefacts: Equipment & Infrastructure (Minoli, 2008; Weill & Broadbent, 2009); Internet of Things (daCosta, 2014); and Security and Intelligence (Bosworth et al., 2009; Shostack, 2014; Woody, 2013).

Business-driven artefacts: Legal and regulatory compliances (Larouche & Cserne, 2013; Varella, 2014); Shared Services in an effort to reduce cost/increase availability (Kris & Fahy, 2003; Mangano, 2010; Schwarz, 2014); Virtual Offices and Communications (Langer & Yorks, 2013), Strategic Information impacting sales, as BI (Laursen & Thorlund, 2010) or Big Data (Heisterberg & Verma, 2014); and Business Process Integration (Langer & Yorks, 2013).

Social interactions: Talent Management (Goldsmith & Carter, 2010); Inventions, Co-creation of innovation (Ozcan & Ramaswamy, 2014) and Architectural Innovation (Henderson & Clark, 1990); and Mobility (Andriessen & Vartiainen, 2006; Langer & Yorks, 2013).

Since IT Management is intended to transform in the future, the position of the Enterprise Architect is essential involving a shift in social interaction companioned by business and technology-driven artefacts. The next subsection will discuss IT Governance.

3.3.3 IT Governance

The Enterprise Architect is considered as a member of the IT Governance team within an organization. The IT governance team is intended to be the issuer of frameworks, methods and guidelines, and to conduct pre-studies and evaluations as responding to the prevalent business and IT strategy for the organization. Though, the IT governance group is intended “to steer” the IT business, the Enterprise Architects are envisioned “to guide” the IT business.

Weill & Ross (2004) define IT Governance as “*the decision rights and accountability framework for encouraging desirable behaviors in the use of IT*” (p.2). Enterprise Architecture (EA) is considered as part of the IT Governance model for the organization, where the governance model involves not only the EA, but also the IT principles, the IT infrastructure, the need for Business Applications and investment requirements (Ross et al., 2006). Weill & Woodham (2002) have identified five different IT Governance archetypes as: *the Business monarchy* where the C-levels within the business have decision rights in the domain; *the IT monarchy*, identifying the CIO or the IT executives with decision rights in this domain; *the Feudal* where the business unit leaders have decision rights in the domain; *the Federal* where the decision rights are shared among senior executives, business unit leaders, process owners, IT executives and the end users; and lastly described as *the Anarchy* where there is no obvious or intended structure of decision rights. Niemann (2006) distinct EA from IT Governance, where IT Governance is intended to steer the IT business while the EA is intended to guide the IT business. From a senior management perspective, quantifying the business value derived from (IT) technology is essential to business leaders (Evans, 2009). Consequently, the prerequisite of both measurements (KPIs) or tools like Balanced Scorecard (Kaplan & Norton, 1996) are essential to both IT Governance and the EA, in visualizing progress and performance of the IT Service Management level (Esposito & Rogers, 2013). These authors stress the need for an IT Service Management committee, to meet in an effort to successively and accordingly to take actions to make the alignment of the IT business effective. Grembergen, van & Haes, de (2009) distinct IT Governance from Enterprise Governance of IT.

In this view, IT Governance involving the Enterprise Architect as an organizational guide for the business to come, furthermore the prerequisite in measuring the progress of the EA business to be successful. The next section relates the EA to other architectures.

3.4 The Concept of Architecture

This section is envisioned to show to the reader the horizontal and vertical related architectures to the EA. In locating the EA, the state of EA will pinpoint the Enterprise Architect position. Moreover, the historical evolution of the retrospective view on architecture is presented.

3.4.1 Architectures – a timeline comparison

This sub-section is intentional to compare the traditional architecture of built environment with the organizational architecture and EA in an evolutionary time perspective. The traditional architecture has evolved for many hundred years, whereas the organizational architecture and not least EA, is quite recent in comparison. The EA has been inspired by the traditional architecture of built environment where several artifacts and terms are copied from this discipline. The evolutionary history of traditional architecture has evolved for a long time to improve the knowledgebase successively while the organizational architecture and EA have a shortage of historical record of accomplishment. There is a need for inherited knowledge to create the future experience to come, where the EA and the Enterprise Architect are omitted this guiding star and archetypes as the model for the next path in development.

Architecture of built environment

The art and science of designing building as architectural movements for the human race started when humans requested a shelter for protection, safety, and initial social interactions some 10,000 years ago. The evolving architectural knowledge continued from the ancient Mediterranean area 500 BC and has evolved over centuries to the state of the architecture of built environment which are present today (Wikipedia - Architecture, 2015). The architecture of built environment conforms three principles: firmitas (durability), utilitas (utility) and venustas (beauty) (Groat & Wang, 2013). The term architecture indicates “the chief builder” (Wikipedia - Architecture, 2015). The antic architect Vitruvius state the classic demand on building as commodity, firmness and delight, where Box (2007) argue: “*We would have much better buildings if everyone would use this basic architectural test first*” (p.91). In this light architecture could be considered as a simple test, a prerequisite in every new arrangement to build, framing the field of Enterprise Architecture as well. Besides, Barnes (2000) reflects Aristotle’s view on design and architecture as representing the finished and completed sciences.

Organizational Architecture

The way of designing the organizational architecture is described by Galbraith (2014), involving functional archetypes (Cichocki & Irwin, 2014) and dimensions of organizational architecture (Eikelenboom, 2005), whereas the organizational spatial space is described by Hernes (2004).

Enterprise Architecture

The Enterprise Architecture (EA) was introduced by John Zachman as Framework for Information System Architecture in 1987 (Zachman, 1987), with the primary objective to generate alignment between the business and IT within an organization (Langenberg & Wegmann, 2004).

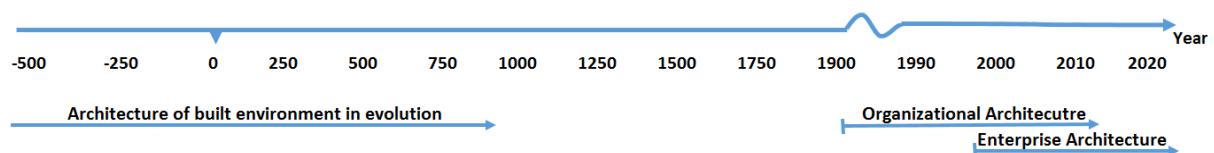


Figure 9. The evolution of architecture in a timeline comparison

This subsection has the aim to compare the evolution of architecture of built environment, organizational architecture and EA in an effort to claim the EA as rather new compared to the other architectures. The next subsection relates EA to other architectures in a horizontal view.

3.4.2 Types of architectures in the field of IT Management, horizontal view

The contemporary literature in the field of EA could be grouped into three clusters: Literature that mainly will consider EA as emerging from and strictly related to the IT (department) business. On the other flank, literature that concentrates on the business needs. For some, the balance between IT and business is an essential property distinctly expressed, whereas rarely declared how this balance is articulated in reality.

In the field of IT Management, several architectures are present. This study focuses the Enterprise Architecture (EA) within the field of IT Management, and on reference purpose, the adjacent architectures. Emanating from the business domain with a similar aim and objective as the EA is the Enterprise Business Architecture (Whittle & Myrick, 2005) and Business Architecture (Whelan & Meaden, 2012). Other authors, such as Whittle & Myrick (2005) term a similar architecture as Corporate Architecture. Emanating from the IT domain with a similar aim and objective is the Enterprise IT Architecture, though with a distinct IT bias (Perks & Beveridge, 2004). The EA constitutes by the business architecture, considering the people, structure and business processes, and the technical architecture involving the applications, the frameworks and the technical infrastructure (Kappelman, 2009).

IT focused	Balancing IT and business issues	Business focused
Enterprise IT Architecture	Enterprise Architecture	Business Architecture Enterprise Business Architecture, Corporate Architecture

Table 3. The Enterprise Architecture position.

The horizontal architectures in relation to the EA are the more IT-intensive Enterprise IT Architecture while the Enterprise Business Architecture is representing the bias towards the business view. The next subsection explores the variety of architectures the Enterprise Architect most likely will interrelate with in a collaborative environment.

3.4.3 Types of architectures in the field of IT Management, vertical view

Within the field of EA, there are some closely related architectures established which an Enterprise Architect will interact with. The initial part will define which architectures that are mentioned by the EA regarded literature as essential to the EA, and the second part, a short description of common architectures are provided.

As vertically interacting with the EA, among others, are the application architecture, capability architecture, solution architecture, the information architecture, the data architecture, and transition architecture (The Open Group, 2011). In addition, Ackerman (2002) mention the infrastructure architecture. Simon (2015) reveals the data architecture as increasing prominence during the big data era while Resmini (2014) considers the information architecture for reframing. Faircloth (2014b) adds the cloud-based architecture as noteworthy for the present organization.

(Strategic) Capability Architecture:

The Capability Architecture is intended to strengthen the business’ competitive advantage, in creating and continuously improving the organizational infrastructure of capabilities with an aim to obtain pluralistic goals (King, 1995).

Business Architecture:

Business Architecture offers a technique visualizing the components to describe a business and its organization (Whelan & Meaden, 2012). Akenine et al. (2014) argue a comprehensive deviancy in the Swedish interpretation of the Business Architecture.

Information Architecture:

Resmini (2014) defines Information Architecture as the information spaces of design contrasting its cultural, social, and technological domains, considering the interactions between these domains. The Information Architecture describes the interactions between the information stakeholders, users and information designer, interpreting explicit and tacit knowledge (Resmini, 2014). Xu (2015) reflects EA as the methodology that interprets and translates Business Architecture and Information Architecture needs to IT. The need for a proper Information Architecture to obtain enterprise integration is stressed by Xu (2015).

Data Architecture:

Data Architecture labels how the business data storage are organized and accessed, and is considered as the heart of business functionality by Tupper (2011). Several sub-architectures to Data Architecture are present: the data warehousing requesting Relational DBMS Architecture and MapReduce Architecture (Kimball & Ross, 2013) such as Hadoop (Perera & Gunarathne, 2013) involved in Big Data Architecture (Sawant & Shah, 2013) considered by Davenport (2014) to be designed to obtain a key strategic capability as the first order of business. For the Enterprise Architect, the emerging field of Master Data Management (MDM) as part of the Data Architecture, is of particular interest (Cervo, 2011).

Information Technology Architecture:

Information Technology Architecture provides the models, guidelines and specifications to take advantage of information technology for the business (Hausman & Cook, 2011). Revealed from a literature survey, Information Technology Architecture could be considered in the context of the EA (Perks & Beveridge, 2004), Service Oriented Architecture (SOA) (Bonnet et al., 2009) or Uniform Markup Language (UML) (Duffy, 2004). Akenine et al. (2014) state that Information Technology Architecture comprises the EA, Business Architecture, Solution Architecture, and Software Architecture.

Solution Architecture:

Akenine et al. (2014) define Solution Architecture as the architecture that will plan for the IT solution of a business request to solve a business issue while the solution could embrace several (IT) systems. The Solution Architecture literature seems mainly to be related to a specific software vendor, such as Microsoft (Prendergast, 1999).

Application Architecture

The Application Architecture describes the applications utilized by a business, their behavior, its structure, and their interactions that are perceived by the users or systems. When Solution Architecture design is finished, the Application Architecture is the next step (Faircloth, 2014a). The Application Architecture comprises the architectural components as layers, stack, software development kit and the application at the top level (Mahnke & Leitner, 2009).

Software Architecture:

The Software Architecture involves frameworks, tools and methods to establish a high level structure of a software as a system, involving the architectural knowledge to create these structures, its design and its lifetime administration (Akenine et al., 2014). Mistrík et al. (2014) argue the various implications of cost structure, related to Software Architecture as lifetime cost while Babar et al. (2014) claim the agile architecture of software development.

Hardware Architecture:

The Hardware Architecture defines a hardware system's physical components and their relationships (Wikipedia - Hardware Architecture, 2015), e.g. the computer processor's components and interrelations (Arora, 2012).

Integration Architecture:

Integration Architecture incorporates the Business Architecture, Process Architecture, Hardware Architecture and Software Architecture as part of the EA, offering a multilayer architecture (Xu, 2015). The Integration Architecture is requesting implements such as the Enterprise Service Bus (Chappell, 2008) and Service-Oriented Architecture (Dikmans & Luttikhuizen van, 2012).

Infrastructure Architecture:

Infrastructure Architecture is revealed as synonymously to Technical Architecture (Murer et al., 2011a).

Technical Architecture:

The Technical Architecture involves all elements of IT infrastructure as the hardware, software, databases, network equipment, including middleware components, independently what purpose the system is intended for (Murer et al., 2011b). Booch (2010) indicates there is a common misunderstanding in equalizing the Technical Architecture with EA though both must co-exist. The Technical Architecture involves architectures such as the Internet Architecture (Schewick van, 2010), Server Architectures (Chevance, 2005), and Network System's Architecture (Serpanos & Wolf, 2011). The term is often mention but revealed as infrequently defined.

Systems Architecture:

Systems Architecture defines the structure of a system components, their relations, internal and external interrelations and their behaviors (Sangwan, 2015).

(Enterprise) Information Security Architecture:

The Information Security Architecture provide methods to describe the structure and behavior for an organization's security processes, comprehending infrastructure, security baselines, policy, standards and procedures, and the important part of users' awareness and training (Killmeyer, 2006).

Cloud-based Architecture / Cloud Application Architecture:

The Cloud-based Architecture defines the various components and their relations required for cloud-based computing (Reese, 2009).

Process Architecture:

Harmon (2007) describes Process Architectures as the interrelation and structures of the organizational business processes, aligning resources, managers and measures while (Babar et al., 2014) align the Process Architecture with Software Architecture in the context of being agile.

Transition Architecture:

The Transition Architecture describes the business in progress from its baseline architecture to its targeted architecture (The Open Group, 2011).

In summary of this subsection, the Enterprise Architect is supposed to interact with a selection of architectures in the IS/IT domain. From an academic literature perspective, the deviation in the available literature regarding the architectures listed above is noticeable. Revealed from the architectural literature research, each architecture is commonly considered as a "closed" domain where the interactions between the architectures, sharing models, tools and documentations, are vaguely described. This will affect the Enterprise Architect in a weakened holistic outlook of how these architectures operate within the business, combined with that an alteration to one architecture will most likely influence another architecture. This comprehensive and holistic view, from a business perspective, has not been confirmed by this literature study of the EA related architectural academic literature. The next section will address the circumstances in a particular interest for this study: The Enterprise Architecture.

3.5 Enterprise Architecture

The intention of this section is to position the Enterprise Architect as a team member of the Enterprise Architectural function. This section covers the EA frameworks, tools, and methods, the EA role and EA challenges and EA responsibilities.

With an aim to diminish the existence of information islands and to align the business and IS/IT domains, the responsibility for coordination of the various initiatives are addressed the Enterprise Architecture (EA) within the organization (Magoulas & Pessi, 1998). The EA is according to Aerts et al. (2003) built on three domains: the business domain, the application architecture and the ICT (Information and Communication Technology) platform architecture. EA is founded on architectural principles (Greefhorst & Proper, 2011) and architectural patterns (Perroud & Inversini, 2013).

To obtain Strategic Alignment for the domains involved (Henderson & Venkatraman, 1999), empowerment and teamwork is essential (Magoulas & Pessi, 1998). Organizations constitute from systems as either hard (i.e. machines) or soft (i.e. people) (Checkland, 1989), where systems and its relations, as architecture, are cooperating (Sangwan, 2015). Langefors (1978) stresses the awareness of that systems is not a technological construction only, thus technology should be considered as contributing to a system involving humans. Largely, the EA is considered to provide a corporate business strategy capability (Simon et al., 2014). To obtain this capability, EA should be considered as part of the IT Governance model for the business, evaluating apart from EA, the IT principles, the IT infrastructure, the need for Business Applications and investment needs (in technology) (Ross et al., 2006). The metaphor to the city plan is commonly used to describe and delineate the work of the EA contrasting the other architectures involved in IT Management. While other architects are planning for individual elements, such as systems or particular data, the EA is intended to specify and address the interaction between many (all) elements within the business (Niemann, 2006).

New technological inventions will provide the necessity for a valid infrastructure, however in most cases the setup has to be rebuilt from its foundation. In this environment, EA is expected to represent the expertise and to provide a correct understanding of the benefits and likewise, which is important, the consequences of a new path to align with. In many cases, when a new path is decided and implemented, the point of no return is passed (Rivard et al., 2010). Therefore, EA should guide organizations through the business, information, process, and technology changes, compulsory to execute the business' strategies. While an organization is a human construction, EA is induced by the human spirit and the knowledge how to best build the technology in supporting the association (Potts, 2013).

In summary, the EA is intended to coordinate the strategic alignment, indicating a clear strategic capability by EA to the business. Since humans build the EA, the professionals as Enterprise Architect have to carry out the EA initiatives to accomplish this guidance to the organization. The next subsections will briefly indicate the definition and role of EA.

3.5.1 The definition of EA

Unfortunately, a generally agreed definition of EA is still under construction (Strano & Rehmani, 2007). Nevertheless, this subsection is intended to provide a brief idea of the concept of EA:

Enterprise Architecture (EA) has a firm position in a business in providing the prerequisites for managerial and technological decisions. By then EA is to a certain degree a political instrument (Sidorova & Kappelman, 2009). EA could be a useful tool to check business processes aiming for consistency and transparency (Brocke vom & Rosemann, 2010). EA is the ability to provide a satisfactory and agreeable 360-degree view of the business in a positive drive to quality granting the diversity of actions within the business (Burton, 2011). EA provides the principles, methods and guidelines necessary for business integration through enterprise engineering (Finkelstein, 2006). EA provides the knowledge of the business and its technology architecture aimed as the pre-knowledge to changes in the business environment as providing the consequences of impending decisions. EA's holistic and purposeful view of the business and its ability to take advantage of technology act as the enabler for future commercial success (Andriole, 2008). The core objectives for EA is to provide the

riggings necessary to acquire the organizational effectiveness (Ross et al., 2006), agility (Bente et al., 2012), durability (Hausman, 2011) and overall efficiency (Schekkerman, 2005). Below, a few citations from various sources about the definition of architecture are presented:

“An architecture in which the system in question is the whole enterprise, especially the business processes, technologies, and information systems of the enterprise”
(Sessions, 2007) (p.5).

“A coherent whole of principles, methods, and models that are used in the design and realisation of an enterprise’s organisational structure, business processes, information systems, and infrastructure.”
(Lankhorst, 2013) (p.3).

“The fundamental organization of a system embodied in its components, their relationships to each other, and to the environment, and the principles guiding its design and evolution”
(IEEE, 2000) (p.3).

Our interpretation and definition of the EA is that EA is the tool for organizations to proactively and holistically power business development by identifying and implementing the necessary changes to the business, as a prerequisite to achieve strategic business objectives. EA is considered in many respects the fundamental link between the business and the IS/IT domains, where architecture is at the center in terms of design principles, frameworks, models, and business processes. The concurrent EA, in an as-is state, encompass architecture as substantial, i.e. perceived and by then part of the ontology, while the EA in its to-be state is not perceived, hence not substantial and part of the epistemology. The next section will elucidate the role of EA.

3.5.2 The role of EA

The role of Enterprise Architecture is anticipated to be more significant in the future and by then there is a prerequisite to comprehend how this role is determined.

The role of EA is considered more important in the future. EA could at this glance be considered as the key framework for horizontal and vertical enterprise integration (Xu, 2015). The role of EA is to provide logic for the business processes and the supporting IT infrastructure (Ross et al., 2006). This role enhances the need to understand the business and IT perspective in their corresponding contexts determining the needs and pain points in a joint effort to utilize capital and resources in a justified manner (Luisi, 2014). Boh & Yellin (2007) argue the standardization of IT management and its domains as key for EA. Minoli (2008) states the role of EA as, a.) Addressing architectural issues to the appropriate architectures within the business; b.) To evaluate and communicate the value of the various architectural visions perceived; c.) To cultivate these visions into reasonable technical approaches; and d.) To discuss and socialize those visions achieved with the stakeholders concerned by the implementation to come. Land, Op’t et al. (2009) advocate the governance role of EA to interlink strategy with Programme Management in evaluating the perspectives in risk, project portfolio and HR. Faircloth (2014b) discusses the guidance role of EA, focusing the business strategy and roadmap to obtain the business goal, governance principles, the organizational structure, and the architecture of the business processes. Below, two quotes about the role of EA:

*“Enterprise Architecture is an instrument to articulate an enterprise’s future direction, while also serving as a coordination and steering mechanism toward the actual transformation of the enterprise”
(Greefhorst & Proper, 2011) (p.7).*

*“Enterprise Architecture is the continuous practice of describing the essential elements of a sociotechnical organization, their relationships to each other and to the environment, in order to understand complexity and manage change”
(EARF, 2009) (p.1)*

The strategic capability assigned the role of EA is essential in guiding the business’ forthcoming course with its transformational abilities, and should be considered as a coordinator to smoothly adjusting this course to fulfil the business’ needs. The next sub-section will cover the responsibility of EA.

3.5.3 The responsibility of EA

The Enterprise Architecture (EA) is considered to have responsibilities within an organization to treat the listed topics below with an aim to maintain and develop these subjects in a proper manner.

Akenine et al. (2014) define the responsibility of the EA function as: The architectural capability (EA maturity); the architectural management (EAM); IT portfolio management (IT PM); Information Management (IM); architectural development (ADM); and IT strategy. These responsibilities are defined as:

Enterprise Architecture Management (EAM)

The EAM describes the structure of the systems involved, the information and technical layers and to what extent the IS/IT landscape is consistent with organizational strategy (Ahlemann, 2012).

IT Portfolio Management (IT PM)

The IT PM provides the framework for managing the IT investments and subsequent activities comprising the IT operations (Maizlish & Handler, 2005). The IT PM includes, among others, the prioritizations, the technology lifecycle handling, managing change to systems, and resource allocation (Bonham, 2005). Levin & Wyzalek (2014) amplifies the prerequisites derived from an efficient IT PM, in justifying proper IT investment needs, and the transparency in the investment decision process. The Project Portfolio Management is considered to be part of IT PM (Pennypacker et al., 2009).

Information Management (IM)

IM is aiming to increase the return on information, starting from the information worker’s perspective transforming information into means (Baan, 2013).

Architectural Development Management (ADM)

The ADM is considered as essential to correspond the architecture with the organization’s contemporary needs, where the architecture is deliberated to balance the enterprise’s short term needs with a long-term value, which requests for architectural governance (The Open Group, 2011).

IT strategy

The IT strategy is intended to form a strategy for the IS/IT based on various business scenarios, involving components such as benefits, roadmap, budget and the stakeholders’ perspectives (Mohapatra & Singh, 2012).

In addition, the EA should consider the EA maturity related the business, indicating the reference and target architectures for the organization in focus:

EA maturity

The capacity of the architectural capability is dependent on a particular technical, architectural and organizational maturity related to EA, where the value of EA is intended to correlate the direction of the business (Steenbergen van, 2011).

Reference and target architecture

The target architecture characterizes the to-be architecture (“on completion”) (Ahlemann, 2012) while the reference architecture is the detailed mapping of some areas of the “city map” (Bernus et al., 2003).

In summary for this subsection, the EA has several responsibilities to maintain and develop the architecture, including the EA maturity and encompassing the reference and target architectures. The next section is intended to question if EA should be deliberated as an audit tool or as a driver for new businesses.

3.5.4 EA as the business driver or as the architectural law enforcement agency?

One severe subject is if the EA should be regarded as the organization’s architectural law enforcement agency or if the EA will be deliberated as a strategic capability to find the new, future paths for the organization to come. Apparently, there is no generic answer available to this question, where every organization has the choice to coach their organizational members what to prioritize which in turn, largely is dependent on the organizational style of management and leadership in what manner this subject will evolve. Nonetheless, this strategic issue is important to bear in mind when the appropriate talents as architects will be assigned the mission of the EA.

The successful business

One key to business success is the methodical identification of strategic positions in an aim to support and to obtain the competitive advantage for the business (Collings & Mellahi, 2009). According to Joyce (2005) the business success is built on four musts: the business strategy; the execution of operations; a performance-centric culture; and the appropriate organizational structure. The organizational paths paved; The talented, successful business continue to provision for future success based on the earlier victories (Joyce & Slocum, 2012).

EA as the business driver

Trapp (2014) anticipates a future paradigm shift in the common business processes models for most businesses. Fischer (2014) believes the hyper-connected world to come will shift the paradigm on how the business will consider information, from reactive to proactive, in gathering real-time business information by creating business value within and from networks. The added business value might be auxiliary from the external parties to the business by utilizing crowdfunding (Scholz, 2015). By then, technology should serve as the business driver to make the arrangements to earn money (Andriole, 2008). In parallel, Faden (2014) suggests focusing the core activities to optimizing the business performance. Analogously, Bragg (2010) directs the business fields of certain interest to pursuit cost reductions. For a business in transition, change projects should assist in helping, not hinder, the business development where the architectural control mechanism should be considered as informative rather than as architectural law enforcement (Andriole, 2008).

EA as the architectural law enforcement agency

Aiming to mitigate the business risks, the organizational control system has to perform as the lawmaker and the law enforcement system (Lam, 2014). To a certain degree, IS/IT is considered as an area to be governed to obtain business stability (Moeller, 2013). Several organizational threats are prevalent such as information security (Shostack, 2014), fraud (Spann, 2014), and financial manipulation (Wells, 2013). Architectural risks will be monitored and in control of the EA’s regulative, instructive and informative role in the organization (Greefhorst & Proper, 2011), such in case of information systems outsourcing (Hirschheim et al., 2014).

In this context, it is of importance to find an appropriate balance for the assignment of the EA function, which mission is anticipated as part of the business strategy. Subsequently, the business has to decide on the accurate individual(s) to hire, for the position of the member(s) of the EA team, and explicitly in finding the right talents (McDonnell et al., 2010) for the assignments of the Enterprise Architect.

At a first glance, these short statements could be reflected as insignificant. Though, the distinction may have significant consequences for EA's development in the particular organization, when the individual's characteristics impressively differs in whether the EA is to be perceived as an auditing function or staffed by entrepreneurs, with a great aim to find the best paths for future success. The next subsection will briefly list the frameworks, tools, and methods available in the field of EA.

3.5.5 Frameworks, tools and methods

Since the EA is intended to deal with complexity and alignment difficulties, tools and methods are essential to its success. Thus, a central topic of EA is the frameworks, tools, and methodology available and used in an organization. For some, these frameworks, tools and methods are *exclusively* the EA while this research does not advocate this position, nor evidence of this description is found in this study's empirical section.

EA framework:

Lewis (2009) has identified the following frameworks as dominating the market for EA frameworks:

- NATO Architecture Framework (NAF)
- Ministry of Defense Architecture Framework (MODAF)
- US Department of Defense Architecture Framework (DODAF)
- The Federal Enterprise Architecture (FEA)
- Business Enterprise Architecture (BEA)
- Australian Government Architecture (AGA)

Sessions (2007) states these four frameworks as commonly used:

- The Zachman Framework for Enterprise Architectures
- The Open Group Architectural Framework (TOGAF)
- The Federal Enterprise Architecture (FEA)
- The Gartner Methodology

EA tools:

Several modelling and documentation tools are available on the market, such as:

- Enterprise Architect by Sparx Systems (www.sparxsystems.com)
- ARIS by Software AG (www.aris.com)
- MEGA Suite by MEGA International (www.mega.com)
- Qualiware by Qualiware (www.qualiware.com)

Besides the listed frameworks, methods and EA tools, there are quite a few others available on the market. However, it could be beneficial to have good choices; this variety of tools available on the market could defeat standardization and generally agreed definition of the EA. The next topic to uncover is the challenges for EA.

3.5.6 Key challenges for EA

For the contemporary organization, quite a few challenges are prevalent such as impact from globalization, increased business risk, new technology leap, and the organizational test in either merging or delineate a business. The full potential from EA is most likely seen in some of the challenges below, why there is a firm need to treat the EA implementation and maintenance on a decent level.

For the Enterprise Architectural function, there are some key challenges to deal with, such as:

Generally accepted definition

A generally accepted definition of the EA is essential to obtain an extensive acceptance for EA. Lapalme (2012) has found three major schools of EA: Enterprise IT Architecting, Enterprise Integrating, and Enterprise Ecological Adaptation.

Globalization

Countries as well as enterprises neglecting to realize the complexity of globalization and omission to take appropriate actions, will suffer in comparative advantage in the long run (Baines & Ursah, 2009).

Business risk

One key challenge for EA is to reduce risk, balancing the risk and return (Weill & Broadbent, 2009), by anticipating and foresee risk (Koletar, 2010).

Frequently repeated requests from the business

The business is revealed to repeatedly inquiring the IT domain to improve its ability to simplify some processes such as the easy access to systems (e.g. performed on a single sign-on) on preserved information security (Bosworth et al., 2009), agile operations (Meyer-Stabley, 2014) on remained cost-efficient operations and stable environment (Spielvogel et al., 2011).

Extended technology

Coordinating the various sensors and its ability to report states and arrangements, known as the Internet of Things, is a particular challenge to be coordinated and utilized in a decent manner (McEwen & Cassimally, 2014), and to present collected data into information and knowledge (Simon, 2014), which in addition requests for ubiquitous computing (Resatsch, 2010).

Sustainable EA

Hausman (2011) indicates the difficulties by conforming sustainable EA, leveraging benefits to a moving target, as the business might be distinguished. The operational aspects of sustainable EA involve the environmental considerations in green process management (Seidel et al., 2012), and green IT operations (Murugesan & Gangadharan, 2012).

The maturity measuring

In positioning the EA in a certain organization, monitoring the maturity and effectiveness from EA, is essential according to Steenbergen, van (2011).

Mergers & Acquisitions and divestitures of business units

The modern business has commonly adopted the concept of acquire and divestiture subsidiaries in strategic course changes. The subsidiary's informational dependencies to other affiliates are of particular interest from an architectural perspective (Roehl-Anderson, 2013).

The majority of organizations involved in the business of today, have quite a few obstacles to overcome and challenges to meet. The EA could to a certain degree, act in guidance for these challenges, especially when several issues have to be performed in parallel. The next subsection will explore some prevalent criticism of the EA.

3.5.7 Judgment of EA

As many other arising subjects in the business arena, the EA has been questioned and exposed to criticism.

The field of EA has been subject to some criticism. The exertion to focus the architectural work in favor of the benefits and value from EA to the business, termed the ivory tower (Bok, 2009; James, 1917) of EA, is depicted by Perks & Beveridge (2004). Kemp & McManus (2009) consider the EA to be technology directed, dogmatic with a futuristic approach that will never be fulfilled. Rehkopf & Wybolt (2003) in turn, have found ten landmines from EA. The implementation challenges are described by Löhe & Legner (2014) as lack of the Enterprise Architects authority and a vague literature guidance about how to implement EA in an organization. In addition, the inferior quality of the relationship between the architectural management and the IT management may suffer in business value derived from EA (Löhe & Legner, 2014). Benefits that cannot be evaluated nor measured, or benefits that no one possesses, such benefit and its implicit value does not really exist, advising Ward & Daniel (2006). Dealing with EA topics on a low level could be successful, but aggregated to its top-level (Löhe & Legner, 2014) turn into a Wicked Problem, described by Ritchey (2011). “Whither EA?”, inquire Kemp & McManus (2009).

The consequence of forcing the EA implementation too hard or too rapid could end up in a separate phenomenon, separated from the business and with insignificant value and benefits contribution to the business.

In summary for this subsection, the EA is to a certain extent in its infancy, although existed for a few decades. Despite the good intention by the EA, penetration and implementation of a phenomenon as EA takes time, mainly because EA is covering several areas and to a certain degree is multi-facet and multi-disciplinary. The next section will depicture the EA stakeholders.

3.6 EA Stakeholders

The objective of this section is to determine the Enterprise Architect as a member of the architectural family as the top level IT Management representative. Within an organization, three major groups for the Enterprise Architect to collaborate with are prevalent: 1. the organization's C-levels, as superior roles as senior management, in an aim to coordinate strategic alignment initiatives; 2. other architectural roles in an aim to coordinate architectural subjects; and 3. other roles as universal stakeholders to EA.

3.6.1 Superior roles in collaboration

In an aim to coordinate the business and IT domains' alignment, besides in an effort to support the organization's strategic initiative (Abraham & Aier, 2012), the Enterprise Architect is anticipated to interact with the following superior roles within the organization:

The CEO / Top Organizational Leader

Zachman (1996) states in his research that the organizational change is a major challenge for the contemporary organization. Consequently the efficient Chief Executive Officer (CEO) / Top organizational leader should consider EA as an organizational resource and strategic capability as key to business success (The Open Group, 2011). Sessions (2007) illustrates a business case where the responsible top organizational leader involves an architect to evaluate and consider the consequences of the large-scale change program, prior to a final decision to run the project.

The CFO

Uhl & Gollenia (2012) describe Chief Financial Officer's (CFO) main interest as conducting the prerequisites for the well-performing organization, utilizing the minimum of resources and maximizing outcome with a great interest in business transformations. The role as CFO has according

to Hommel (2012) evolved in recent years, where the role will cover strategic and operational issues, and involving consequence in risk evaluation for the business.

The CIO

Strano & Rehmani (2007) depicting the Chief Information Officer (CIO) as the key role to ensure that values and benefits from IS/IT investments are to be fulfilled while in the same context the Enterprise Architect is particularly considered to identify and consider the approaching IS/IT investments with an aim to correspond the IS/IT standards with the business strategy. The CIO is an important player to collaborate with other C-levels, argues Weinzimer (2015), upon fortifying these values and benefits derived from EA.

The CTO

GAO (2006) describes the Chief Technology Officer (CTO) in contributing to the EA development mainly to identify opportunities and risks emanating from the technology with an impact on the business. Further on, the CTO role is intended to coordinate the technology environment involving the business strategy derived from the technology (GAO, 2006).

The COO

Dumas et al. (2013) define the Chief Operations (Operating) Officer (COO) as the role to define how the organization will organize its operations. In addition, it is common that the COO is responsible for the outcome of the business processes performance. Murer et al. (2011a) add the responsibility of resource planning, risk management, and the project portfolio to the COO role. Kickul & Lyons (2012) supplement the responsibility of quality topics and the progress in a supply chain, involving partners and suppliers for a smooth operation output.

3.6.2 Related architect roles in collaboration

According to Steghuis & Proper (2008) the Information Architect, the Process Architect, the IT Architect, the Software Architect, the Application Architect, are present in the arena of IT Management. Roeleven & Broer (2009) found EA roles more diversified and more common in large businesses in comparison to the small or mid-sized organizations while the most common role is the Business Architect. In addition, Wieringa et al. (2009) have identified the Data Architect, the Technical Infrastructure Architect and the Network Architect and IASA (2012) adds the Solution Architect to the list of common architect roles in collaboration.

The Business Architect

The Business Architect is intended to gathering business needs from the organization, translating strategies into a delivery-focused transition, where the business architecture is core (Whelan & Meaden, 2012; Wysocki, 2011).

The Information Architect

The Information Architect is supposed to be conscious of the socio-technical impact from data and information, involving aspects as technological, cultural and social (Resmini, 2014).

The IT Architect

The IT architect is focusing the Information Technology in general and will assist the Enterprise Architect on integrational subjects while the Enterprise Architect guides the IT architect on focusing business value (The Open Group, 2011).

The Data Architect

The Data Architect deals with the structure of data in use by the applications, supporting the business in order to process, store and visualize data (Snoeck, 2014).

The Big Data Architect

The Big Data Architect is emanating from the data architect, but has revealed advanced analytical skills, involving the technical understanding and business knowledge, which has been considered as a rare talent by Grossman & Ross (2012).

The Solution Architect

The Solution Architect assignment is to guide the realization of IT solutions based on the business needs, comprising several systems. The Solution Architect is intended to mature frameworks on how-to knowledge about the architectural frameworks building blocks (Zimmermann & Miksovic, 2012).

3.6.3 Other universal stakeholders in collaboration

Since the evolution of a customer-centric focus has started, the Enterprise Architect is intended to collaborate with new roles, emerging to support the future to come, in parallel with the existing, conventional roles such as:

The Program / Project Manager (PM)

The PM is, relating the size of the project, responsible to accomplish a project on time, within budget and the project's scope (Wysocki, 2011).

The Business Relationship Manager (BRM)

The role of the BRM is to coordinate the needs and requests from customers with various services, delivered by external and internal service providers (Brewster, 2014). The architect collaborates closely with this position in an aim to fine-tune the concept of BRM.

The Chief Data Officer (CDO)

The CDO is responsible for the business' master data management and its quality that involve big data and business intelligence platforms (Luisi, 2014). Since ownership and data are seen as an asset and necessary to maintain, the architects will share the overall EA aspects with CDO.

The Chief Customer Officer (CCO)

The CCO is focusing the prerequisites in delivery of a decent customer experience to increase competitive advantages (Luisi, 2014), where the CCO will interact with the architect to support this function.

In this multi-disciplinary work field of the Enterprise Architect, there is a request for collaborative skills, innovative thinking, and co-creation, alignment, and respect of colleague's contextual environment in language, cultures, and organizational memberships, among others. The architect is intended to understand and resolve circumstances at different organizational levels, where the very each requires knowledge and attention to the distinct condition and its environment. The next section explores the Enterprise Architect as profession.

3.7 The Enterprise Architect as Profession

One interesting question is whether the role of the Enterprise Architect could be considered a profession or not. The intent of this section is to clarify to what extent the Enterprise Architect is considered a profession. Sometimes this occupation could be part-time and from time to time, the job assignments relating to the EA foundation could be of low priority. The Enterprise Architect job title could vary from organization to organization, representing the same assignment.

3.7.1 Who could obtain the role as Enterprise Architect?

According to Handler (2009), 2,2% of all IT personnel only, have accurate skills for the role of an Enterprise Architect. Short & Burke (2010) state that an efficient team of Enterprise Architects is estimated to 2-4% of the IT staff of the organization.

For an organization who has acknowledged the advantages from EA, still the number of Enterprise Architects operating within the field of EA is considered to be in a minority. For some occupations within the IT domain, the discussion about if the occupation is to be considered as an art, science, craft or engineering, has been on-going for decades in the area of software development (Janert, 2003). The next subsections will elaborate to what extent this discussion could applied to the Enterprise Architect.

3.7.2 How to differentiate Enterprise Architects from engineers?

The next subsection will elucidate the dissimilarity between an Enterprise Architect and engineers in the same work field.

IFEAD (2005) reveals the architect's role as different from the engineer or designer particularly in the area of style. Both roles are dealing with construction and design with an aim to obtain a certain function. What separates the architects from the engineers is the style perspective, where the style reflects the organizational culture, the norms and values and various rules and principles which guide the organizational movements (IFEAD, 2005).

The architect differs on the style representation as a capability, from the engineer. The next subsection will question if working with EA is an art or a science.

3.7.3 Practicing EA – an art or science?

Since a profession is comprising a mixture of art and science, the profession will according to Squires (2005), affect, impact, and intervene their environment. The architect in the context of management as such is to some extent a science in the architect's position aiming for governance involving rules and principles to improve organizational efficacy and productivity. However, if the occupation is requesting imagination in expressing ideas or feelings, a profession is to a certain degree an art (Gao, 2008). The contextual organizational considerations about knowledge deliberating the diversity of sources and the social epistemology will strengthen this variety (Gao et al., 2008). Unlocking people's potentials designing a collaborative system is the art as key to enhance the organizational output (Wander, 2013), stressing emotional intelligence (Emmerling et al., 2008) in an aim to obtain an innovative culture (Berardo & Deardorff, 2012).

While considering the architect's position in affecting and intervening their environment, the occupation as Enterprise Architect is to some extent an art. In evaluating the scientific approach to this position, the practice of governance to the IS/IT domain is directing. The subsequent subsection will elaborate if the Enterprise Architect's occupation should be considered as a profession or a craft.

3.7.4 A profession or a craft?

Revealed from the universal literature, the definition of a profession is a bit dissimilar contrasting the particular EA literature which utilizing the word "profession" in more generic terms. Nevertheless, a certification request of the Enterprise Architect is proposed by some authors of EA literature, founded on the universal literature's definition of a profession.

Abbott (1988) argues that a profession has certain patterns to be contented if it should be considered as a profession. A profession is established when evolved to be something somebody starts doing full time, hence not part-time. The work of a professional is to some extent an exclusive jurisdiction. Since

the professionals' activities are interacting with other professionals, there is an ecology of interacting systems present while an impact in one system will affect another. A profession is intended to deal primarily with human activities, as liable for serving humans with expertise in the jurisdiction of operation. The hierarchical status of a professional group will be evaluated by viewing their clients (Abbott, 1988). Dean (1995) implies a profession are founded on six properties: a) acting with autonomy; b) shows commitment to its clients in a servant attitude; c) conscious about the collegiality of other members of the profession's group; d) have accomplished an academic, educational background; e) where this educational background is intended to be further developed by job training; f) the professional's special skills and knowledge should be utilized by the professional in offering a service oriented attitude where the client is the focus. In addition, a profession has a widely spread acceptance of the purpose and objective of the profession where the profession is accredited to meet the prerequisites of the profession involving the code of conduct (Williams, 1998). Apart from acquiring the necessary knowledge in the profession's domain from the university, a professional is compulsory to develop the basic knowledge of the expert role obtained several years later gathered through socialization within the field of the profession in practicing the profession (Dean, 1995). Since the client is essentially dependent upon the professional's expert skills, the professional's self-interest is to be overruled (Christensen, 1994). To monitor this ethical behavior, the professional's membership is acting in a self-regulatory manner (Armstrong, 1994). In this context, the profession will both be empowered, likewise delimited to the profession's regulatory influence of the domain, which as such will impact the society or the organization by a particular monopoly for the profession's domain (Armstrong, 1994). Therefore, the EA literature like CAEAP (2012) requests for a certification of the Enterprise Architect position to fulfill the prerequisites for the Enterprise Architect as being a profession. Likewise, The Open Group (2011) stipulate a certification to recognize formally the skills of the architect in service. In addition, Zachman (1999) advocates the risks in omission the architectural representation, intended by the Enterprise Architect, where Zachman stresses the importance in developing this profession.

A profession is something somebody starts doing full time. The work of a professional is to some extent an exclusive jurisdiction. Professions influence other professions. A profession is intended to deal primarily with human activities. A profession are founded on six properties in: (i) acting with autonomy; (ii) shows commitment to its clients in a servant attitude; (iii) conscious about the collegiality of other members of the profession's group, has a widely spread acceptance of the purpose and objective of the profession where the profession is accredited to meet the prerequisites of the profession involving the code of conduct; (iv) apart from acquiring the basic knowledge in the profession's domain from the university, a professional is compulsory to develop the basic knowledge of the expert role obtained several years later gathered through socialization within the field of the profession. In essence, to empower the role of the Enterprise Architect, drafts have been issued requesting for certifying the profession. The next subsection will elucidate the architect's position to coordinate strategic alignment.

3.7.5 The Coordinator of Strategic Alignment - the profession of alignment mission

Henderson & Venkatraman's (1999) work on the Strategic Alignment Model emphasizes the functional integration of business operations, IS/IT, the organization's infrastructure, and the organization's IS/IT infrastructure. Alignment is considered as multifaceted dimensions among a variety of aspects (Pessi et al., 2013). An alignment expressing intrinsic and extrinsic values which are reliant on the contemporary organizational culture and leadership (Bass & Riggio, 2006) where especially the extrinsic characteristics from EA is of certain interest (Magoulas & Pessi, 2011). Strategic alignment requires a holistic and purposeful view of the business and its ability to take advantage of technology, in enabling future business (Andriole, 2008). In this environment, the Enterprise Architect is a noteworthy player intended as a core member of a business IT strategy group and in one or more IT steering committees, which groups are aiming for to create harmony between business strategy and IT strategy (Haes de & Grembergen van, 2004). Papke (2014) identify four elements in alignment to realize the beauty of business as the customer, brand intention, culture, and leadership. When these four elements, as a code of business, are aligned, the business Excellency could be achieved. If misaligned, the opposite occurs (Papke, 2014). Alignment is about strategic

commitments, aligning emotions, trust, and dependable as implemented in the business culture (Leibner et al., 2009). Lyngso et al. (2014) advocate the business organization, the business behavior and the business information systems interacts with conditions revealed from legal, moral, market and technology, that together will shape the business' forthcoming opportunities and threats in alignment of the business. The business strategy is formed by the key elements of sponsorship, strategic partnership, and readiness for change combined with strategic alignment (Yaeger & Sorensen, 2013), where electing the most appropriate persons for these assignments are crucial (Drucker, 1985). Alignment comprises culture preferences such as participation, expertise, and authenticity, and leadership preferences expressed in participation, expertise, or acting as servant aiming for team activities to endeavor excellency (Papke, 2014). Strategy advocacy requests ideas, trends, innovation and shifts in the context that together appeal on strategic opportunities (Langer & Yorks, 2013).

The Enterprise Architect's position as coordinator of the alignment business and IS/IT intents are crucial to the modern organization, where particularly the extrinsic values derived from EA should be considered to realize the beauty of business. For some organizations, there are subordinated roles to the architect that the next subsection explores.

3.7.6 Subordinate roles to the Enterprise Architect

EA is considered to have a few sub-professions apart from the Enterprise Architect such as:

The Technical Enterprise Architect

The Technical Enterprise Architect is responsible for the internal technical environment and its architecture, involving the technical standardization (Hanschke, 2010).

The Business Enterprise Architect

The business landscape models are the responsibility of the Business Enterprise Architect, where these Business Enterprise Architects emanates from another department of the enterprise than IT (Hanschke, 2010).

The Application Enterprise Architect

The Application Enterprise Architect is intended to deal chiefly with the enterprise's application landscape, its architecture and how this architecture will match the EA model (Hanschke, 2010), and the strategic planning, as corporate objectives and time frames to be defined (Mulins, 2013).

These few subordinated roles to the Enterprise Architect, could be found in some organizations, covering more specific and detailed domains than the Enterprise Architect's holistic perspective on the business. For the concurrent Enterprise Architect, quite a few challenges are prevalent. Nonetheless, these challenges could vary from organization to organization; a few examples will be presented in the next subsection.

3.7.7 Key encounters for the Enterprise Architect

Similar to the EA itself, the Enterprise Architect could be considered to have challenges to deal with to create a successful EA environment such as the people issues and balancing dual challenges, which requires the "both-and" approach which could be found as mentally tricky.

The Enterprise Architect has a few encounters to deal with, such as:

The language used

The coherent language used in interpersonal communication, visualization tools to describe the business and conceptualization will make the foundation of an EA framework (Sessions, 2007). Vann (2004) stresses the prerequisite of a commonly accepted language to make change and development efficient. Moreover, a generally accepted pattern language, as a concept, originating from the towns buildings construction (Alexander et al., 1977), is recommended by Kotzé et al. (2012). Lankhorst

(2013) argues the essentials of the generic modeling language in itself and the naming conventions utilized in business process mapping for a correct understanding (Weske, 2012).

Balancing dual challenges - ambidextrous

The more obvious challenge for the Enterprise Architect is to balance the dual challenges to come, which address an individual skill for the architect to act ambidextrous. This balance in dual action, as ambidextrous (Duncan, 1976), request for other skills involving temporal dynamics (Weiner et al., 2012). For the ambidextrous organization, the challenge is to cannibalize the own organization to survive the future (Tushman & O'Reilly, 1996). Other dual challenges are flexibility versus efficiency (Adler et al., 1999), centralized versus decentralized information (Hugoson et al., 2010) innovation speed versus EA in intellectual excellence (Besker & Olsson, 2015b) portrayed as an ivory tower (Bok, 2009; James, 1917), or by inverting the paradox of excellence (Kale, 2015).

People issues

Gartner Group has in a study found the “people issues” as a top challenge for the architect, followed by the business issues (Burton, 2010).

Legal and regulatory compliance

One business challenge is to achieve legal compliance from business and information, comprising the regulatory competition (Larouche & Cserne, 2013). Another is the global activities of business and IT systems, where a local adaptation might be necessary, though on an increased complexity (Varella, 2014). A third is the business aspects of outsourcing (Janek, 2012), involving outsourcing of the IT operations (Burnett, 2009), and off-shoring (Oshri et al., 2009). As a fourth aspect to remark is the legal compliance on cloud computing (Edvardsson & Frydinger, 2013), involving influences by a deviation in net neutrality (Marsden, 2010). As a fifth dimension to mention is the compliance with the internal control systems such as SOX (Sarbanes-Oxley Act) (Marchetti, 2005).

Demonstrating the business value derived from EA

The business value derived from EA is essential to determine and to follow-up on (Wijegunaratne et al., 2014), and could be considered as either cost reduction or value generation (Schekkerman, 2005). In addition, the quality aspects derived from EA is vital (Wout van't et al., 2010). The net benefits derived from information, systems or service quality (Besker & Olsson, 2013) could be expressed by utilizing the Delone & McLean IS Success Model (Delone & McLean, 2003), whereas architectural knowledge and other constituents of EA, could be more complex to measure.

Active knowledge from EA

The organizational knowledge has to be up-to-date and rapidly available to support new initiatives and sudden situations (Lillehagen & Krogstie, 2008). Besides, architectural knowledge as such is relevant to the organization in the long run, nonetheless this knowledge is severe to defend (Andersson et al., 2008).

Innovation

The mindset of architectural innovation (Henderson & Clark, 1990) is more important in the future than in the past (Besker & Olsson, 2015a). A clear and open mindset by management is crucial for serendipity as fortunate and pleasant surprise of discovering new areas (Makri et al., 2014).

Time for change

Several architects perceive frequently resistance to change (Besker & Olsson, 2014c) and 60-80% of change initiatives fail (Passenheim, 2010). Change and transitions could be long-lasting events according to Kotter (1998) while the most frequent resistance to change could be found from people close to the top executives. The more experienced users, the more resistance to adopting a change in methods and rules, argues Fitzgerald (1998).

This subsection describes a variety of assignments and the organizational approach that could affect the Enterprise Architect while the presence may vary from organization to organization. The

challenges for the EA may require a list of desiderata not just revealed from the architects in operation, but also from the organizational culture in empowering and acknowledging organizational roles with a particular purpose in strengthen the organizational forthcoming.

Before entering the chapter of primary interest for this study, the aim of the initial theoretical framework presented in chapter 3 has aimed to elucidate the multifaceted and multi-disciplinary context of the Enterprise Architect's work field, where several challenges that positions this profession in the organization are prevalent. The architect's occupation could be elucidated from various perspectives: evaluated as a craft or profession, scientifically or as an art, or as engineering to some extent. Independently of the organizational perspectives on the architect's position, the extrinsic values derived from EA are essential to the architect's capability as coordinator of strategic alignment. The next chapter is intended the primary focus of this study: the Enterprise Architect.

4 The Enterprise Architect – the Research Model

The previous sections of chapter 3 have been intended to position the Enterprise Architect profession in their contextual environment. However, this chapter is covering the central part of this research's theoretical framework and the model for this study, which has the focal point of the Enterprise Architect. The theoretical framework presented in this section is intended as the section to which this study's chapters of analysis, discussions, and summary are reflecting and relating to. When studying a profession, several approaches are available. This research's aim is to portraying a broad picture of the Enterprise Architect's profession, elucidated from five dimensions.

This section depicts the Enterprise Architect from five dimensions as the research model of this study.

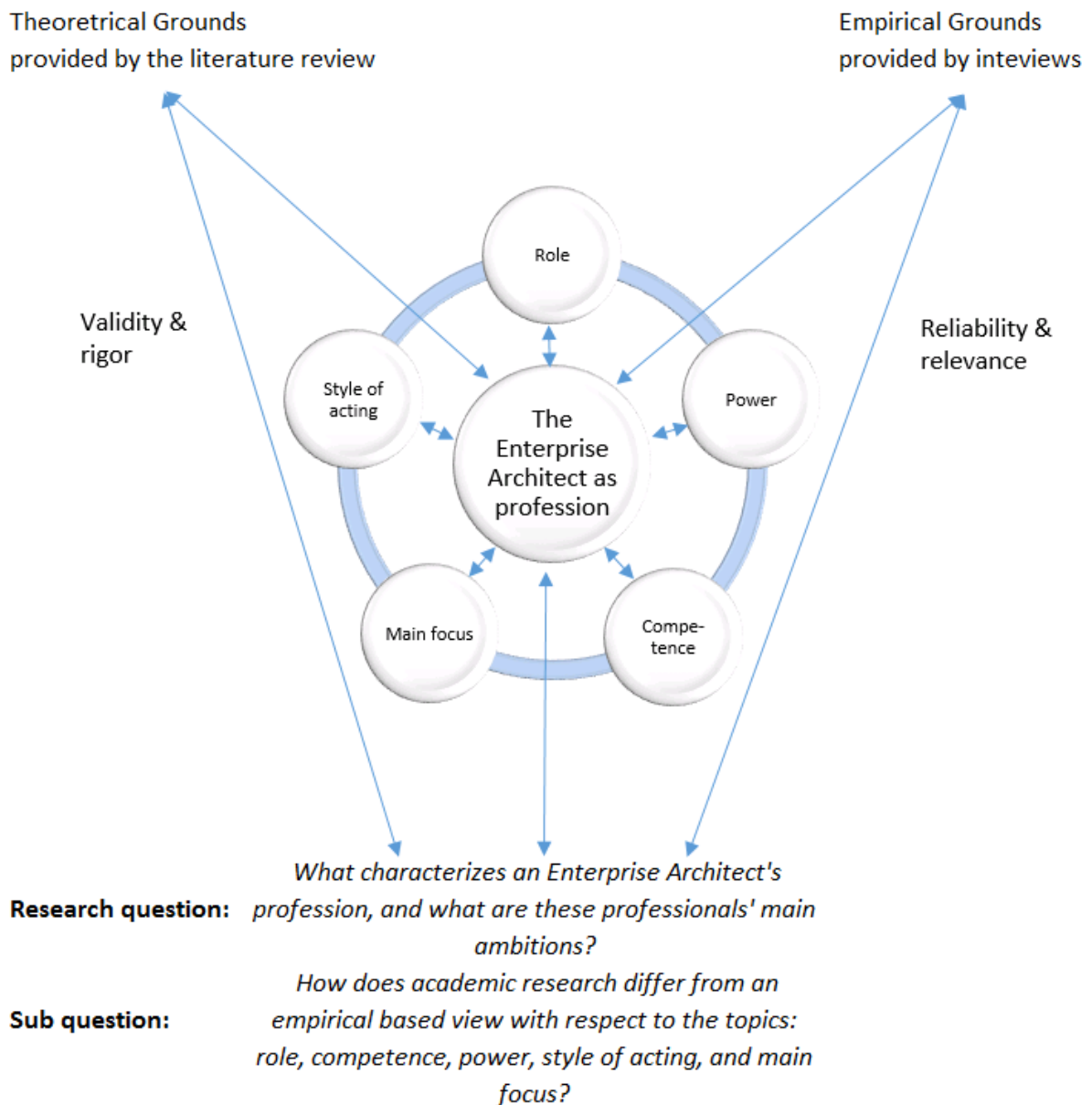


Figure 10. The model for research.

The model for research describes how the research questions have been processed in relation to the previous studies of the paper 1 and paper 2. To create a model for the empirical study, the study group conducted an initial and dedicated literature study concerning the Enterprise Architect profession (Besker & Olsson, 2014a). This study resulted in five different topics that were identified as particularly interesting. The literature was organized and categorized around these topics. A

conceptual framework in the form of a research model was created providing a visual representation of theoretical constructs of interest, see figure 10. Questions and objectives based on the research model provide the foundation for the empirical part of the study (Besker & Olsson, 2015b). The research model defines the characteristics of the Enterprise Architect profession in five basic topics of interests. They are: (1) the role, (2) the competence, (3) the power, (4) style of acting, (5) main focus. The selected topics are illustrated by a conceptual research model, from Kerlinger's (1979) recommendation; "*Theories present a systematic view of phenomena by specifying relations among variables using a set of interrelated constructs/variables, definitions and propositions*" (p. 82).

4.1 The Role

When studying the topic of the role, the role description is essential with a focus on how the employee organization looks at the Enterprise Architect's position, expectations for the role, measurable goals, utility mapping based on role and responsibilities.

There is no standardized and generally accepted role description of the Enterprise Architect profession and there are no legal or regulatory criteria in place that defines the role and what qualifications and credentials are necessary for the profession (CAEAP, 2012). The Enterprise Architect's role has a number of emotive "characteristics" that the role and occupation must deal with and relate to (Steghuis & Proper, 2008). Researchers within the area who studied the role of the architect describe and highlights diversified prominent feature in the role. Strano & Rehmani (2007) claim that the Enterprise Architect's main tasks are to align IT operations with business strategic goals by managing the complex set of organizational interdependencies. Steghuis & Proper (2008) state that communicate and maintaining a business strategy to operational management is essential for the architect role. The authors describe further that the Enterprise Architect is intended to participate in the Enterprise Architecture team and to assist team colleagues in their efforts to develop the team's objectives, which from an operational point of view, the primary task is to create a strategy for and to govern the architecture landscape. Hoffman (1988) states that it is imperative that the management of the company focus on this shared strategy internally for the IS plans for the organization's survival and success.

The Enterprise Architect's role includes setting up a maturing EA roadmap that will serve as a guiding tool during a maturing phase. This roadmap will comprise consideration of the business processes in an as-is state, but also the future to-be scenario (Steghuis & Proper, 2008). Steghuis & Proper (2008) state that an Enterprise Architect is mainly supposed to address the main objectives effectiveness, efficiency, agility, and durability. Strano & Rehmani (2007) argue that today the role includes multidimensional organizational disciplines such as change agent, communicator, leader, and manager. The Enterprise Architect's role description indicates a wish to keep updated with current research, promotion, and discussions on the subject for example by lectures, training, education, reading newspapers, networking, and collaboration with other architects. Within the role declaration is a desire to be involved in spreading and clarifying the need for EA within the organization (CAEAP, 2014). The role's composition and abundance can vary depending on if it operates within a smaller or a larger organization (Roeleven & Broer, 2009). Nsubuga et al. (2014) argue that especially during strategic analysis and during Enterprise Architectural design, the Enterprise Architect plays an important role. IASA (2012) claims that there are no sharp boundaries between closely related IT architectural roles, and they argue that depending on organizational and personal characteristics, the roles are flowing together. Sushil & Stohr (2014) argue that the future organizations must include not singular architect roles and features, but organizations need to adopt multidimensional users, roles, and functions. The role of the Enterprise Architect should be considered as more important in the future than in history (Götze, 2013) and the role is considered to be under continuous progress (Bredemeyer & Malan, 2004; Wagter et al., 2012). Enterprise Architects should look across organizations to find future solutions and opportunities besides solutions to reuse, both in terms of a past, present and future perspectives (Oppenheim, 2011).

4.2 The Competence

A fundamental part of a profession is the skills necessary to operate successfully in the profession. However, the study focuses in addition on how a continuous up-skilling can be made in continuously strengthen the role.

Just as there is no uniform and agreed standard of the Enterprise Architect role, there is neither a consistent depiction of the skills required for these professionals. Researchers within the area who studied the competence of the Enterprise Architect profession describe and highlights diversified prominent skills and requirements. The Enterprise Architect's competence can be described in terms of relatively extensive requirements on both a personal and professional level of skills (Gøtze, 2013). The architect's competence must include accurate knowledge, insights, attitudes and behavioral skills, and have the ability to apply these in their profession as Enterprise Architects (Wagter et al., 2012). Steghuis & Proper (2008) highlight the top five skills for the Enterprise Architect as analytical skills, communication skills, negotiation skills, abstraction skills, capacity, sensitivity, and ability for empathy. Steghuis & Proper (2008) recognize diverse core competencies and skills for an Enterprise Architect: the architect should possess analytical and communication skills, where negotiation is a regular component influencing the daily work, which will necessitate sensitivity and the ability to show empathy to the adjacent individuals. Indeed, abstraction capacity of complex artifacts is required as an essential skill, which will involve the ability to act as a change agent. The authors describe the skills of an Enterprise Architect of being a good leader and to have an understanding about software development (Steghuis & Proper, 2008). Meanwhile, Hsin-Ke & Peng-Chun (2012) argue the competence as a collection of related abilities, commitments, knowledge, and skills that enable a person to act successfully and effectively in their profession. Tambouris et al. (2012) state that the architect's competence should embrace different skills and disciplines within the business, technological, management, and social areas. Wieringa et al. (2009) argue that the Enterprise Architect should have an understanding of complex situations in terms of accountability and reflection. The Enterprise Architect must be a creative visionary and able to see the need for business changes and possesses the ability to adapt in a proactive way (Lankhorst, 2013). CAEAP (2014) states that the Enterprise Architect should be able to show integrity and discretion within the profession since the profession in many cases concerns complex and sensitive areas of the business. The Enterprise Architect must be well experienced with the organization's various activities and its development through a continual learning process. The Enterprise Architect should be a skilled communicator and negotiator (Gøtze, 2013; Ouriaghli & Nsubuga, 2012; Wagter et al., 2012) in order to build trust among the several different stakeholders as well as having the ability to think strategically while acting tactically (CAEAP, 2014). Since the profession is continuously working on the creation of architectural design (Nelson & Stolterman, 2012), the knowledge of modeling and architectural design is an essential core competence (Potts, 2013). CAEAP (2012) states that core competency are the ability to maintain, in both a long- and short-term strategic alignment, between the business model and the operating model with mitigating risks. Wagter et al. (2012) argue that skills as being a communicator and negotiator are crucial for the profession in order to build trust among the stakeholders concerned. As long as the role of the Enterprise Architect develops, there will be additional core competencies of relevance for the professional (Gøtze, 2013). In addition, it requires understanding from the EA to work within an organizational climate which is characterized by an ambidextrous style (Tushman & O'Reilly, 1996).

4.3 The Power

The power topic focuses on the profession's influence; what it means in terms of the allocation of responsibility, authority, and empowerment. The study highlights the architect's responsibility in the form of the role's prerequisites and available resources to achieve the goals.

The Enterprise Architect's authorization and responsibility, in both a managerial and a task-oriented way, are essential to being able to perform the profession in a successful way. The profession must have equivalent power relative the liability and the responsibility to be able to perform within the

profession. Authors within the academic scholar describe this responsibility differently and highlight diverse responsibilities as the most important for the EA profession. Steghuis & Proper (2008) argue that there is no universal set of responsibilities for the role of the Enterprise Architect, and Unde (2008) illustrates the responsibility of implementing the organization's vision and strategy for IT. This responsibility includes defining the standards and guidelines in composing a governance mechanism to align implementation to the agreed standards and guidelines.

Steghuis & Proper (2008) describe the EA responsibility in terms of creating, applying, and maintaining the EA. Strano & Rehmani (2007) argue that since the Enterprise Architect is becoming an increasingly significant player in business management, its responsibilities, in the same way are increasing and new responsibilities are emerging within this profession.

Several technological innovations are today taking place, outside the centralized IT governance, where there is evidence that these developments are supported by empowerment by the organization (Smith, 2013) where this empowerment to make decisions can affect the organization, its direction and activities (Pessi, 2009). McPhee (2014) states empowerment is realized through the building of trust, and describes that empowerment are central for unleashing the real potential of employees and individuals. Götze (2011) emphasizes the importance of having available resources to dispose and govern, to achieve the expected results in the EA mission. This responsibility includes defining the standards and guidelines, in composing a governance mechanism to align implementation to the agreed standards and guidelines. Often this resource issue is a reason that organizational EA initiative is not successful (Götze, 2011).

4.4 The Style of Acting

The approach if the architect's mindset is reactive and proactive is characterized in this topic. A style of acting approach can be both of a reactive and of a proactive nature, and provide innovative power or be more of a revisions oriented structure.

The flexibility in an organizational strategy is considered to be both proactive and reactive (Zhang et al., 2012) where the approach is derived from the maturity of EA (Bente et al., 2012). Akenine et al. (2014) delineate proactivity related to EA likewise as part of the maturity, where the phases are ranked as unconscious, conscious, reactive, proactive, controlled, and effective. Transforming an organization from acting reactively to a proactive mentality will be a process of organizational consciousness conferring to Rishi (2012), which may involve the people affected by the new approach (McGonagle & Vella, 2012). An organizational proactive strategy is implying an approach to increase agility to react to market changes, which is a core capability of the organization (Bloomberg & Schmelzer, 2013).

The role of an Enterprise Architect will most likely call for several engagements. Bakker & Leiter (2010) have found three aspects that will determine work engagement: vigor, dedication, and absorption. Apart from work engagement, Sonnentag (2003) has noted that recovery is essential to attain a proactive behavior at work. Armstrong (2014) believes that organizational members who are impacted by ambiguity and turbulence may react reactively to assignments as immediate actions instead of acting proactively to prevent problems that may arise. Grant & Ashford (2008) determine proactivity at work associated to the in-role or extra-role. The in-role behavior bounds what is expected from the role, whereas the extra-role determines the opportunity for the individual to strengthen its role by amplifying an organizational position. The organizational style of management in communication with the organizational members, summarized as 'office politics', could affect the way of acting proactively or reactively to particular assignments (Kakabadse, 1984). Related to the office politics is the career involving the power for a certain member of the organization, where Kammeyer-Mueller & Wanberg (2003) have investigated the relation between proactivity and work adjustment while Crant & Bateman (2000) have studied the leadership's influence on proactivity. If the leadership shows a lack of proactivity, the followers may act reactively (Sinclair & Collins, 1992). Too much reactive response towards arising issues may cause a stressful environment, where proactivity may reduce stress according to Rishi (2012). Frese et al. (1996) depict a proactive behavior as a self-starting action in gaining the organizational vision and mission, expressing power of

initiative. A high workload may act as a driver for proactivity, though work engagement is non-prevalent (Eyre, 2012). Akin's (2014) research indicates that growth in self-compassion is essential to acting proactively. Siedel & Haapio (2011) argue that proactivity may be affected by two organizational efforts being promotive in promoting an appropriate action and preventive in preventing what is inappropriate. Proactivity is a readiness for planned and unplanned changes to the environment while considering the evolvability, vigor and elasticity of the available solutions (Dencker & Fasth, 2009). In an evaluation of the possible solutions to be developed, scenario management could be a vice effort to attain, in gaining a proactive behavior in favor of a reactive, according to Desouza (2005). Dijkers et al. (2010) advocate the responsibility of management to foster the organization in the proactive manner contrasting the reactive. Nevertheless, a request from the management for proactively behavior might disguise an assignment of delegation (Sinclair & Collins, 1992). Tichy (1982) advocates the democratization of the workplace that affect the organizational management where there is a need to adopt a more proactive role in their leadership. Nonetheless, the deadlines and time to accomplish an assignment is to be synchronized among the actors involved to obtain temporal dynamics rendering Weiner et al. (2012) (p.326). Gøtze (2012) argues the Enterprise Architect should focus the problem finding in favor problem solving, to perform more proactive in its role. The Enterprise Architect's profession is envisioned to proactively promoting architectural development (Ouriaghli & Nsubuga, 2012). According to Bredemeyer (2002), the successful Enterprise Architect seeks proactively for a network of relationships where the collaborative incentive is to find a joint objective and through partnering work in an aim to realize these goals (Bahrami & Evans, 2010). This mutual objective will induce proactive enterprise transformations where the dynamic capabilities will evolve (Abraham et al., 2012).

4.5 The Main Focus

The profession's orientation in terms of being more or less close to the business or the IS/IT arena is categorized as one of the primary focuses in this study. The balance between these two organizational distinct fields and the interactions between them to create a favorable position for the Enterprise Architect is explored by this topic.

The Enterprise Architect's preferred main focus is to operate in a balance between the business and the IS/IT domain to achieve an architectural harmony (Magoulas & Pessi, 1998). Aerts et al. (2003) have found the organizational enterprise to be distinguished as either IT or business orientated viewed from an architectural perspective. Perks & Beveridge (2004) consider the Enterprise IT Architecture as to be in focal while Corporate Architecture referring to Berg, van den & Steenberg, van (2006), and Whittle & Myrick's (2005) description of Enterprise Business Architecture, have a bias towards the business domain. Berg, van den & Vliet, van (2014) propose the Enterprise Architects to "follow the money" in an effort to facilitate more efficient and sustainable decisions to seek alignment with the organizational management. Dent (2009) has the regulatory scope, where the focus for the Enterprise Architect is to be aware of the regulatory minefield. In a similar way, Land, Op't et al. (2009) comprehend the Enterprise Architect's knowledge to reduce business risks.

Strategic Alignment: The Strategic Alignment Model origin from a MIT research program where Henderson & Venkatraman (1999) define alignment as coherence of the dimensions of functional integration and strategic fit. Reich & Benbasat (2000) stress the social dimension in a good relationship between the executives in the IT and business domains, which include the straightforward connection between the business and IT planning accomplishments. Besides this social process of orientation, alignment is a capability in itself (Beimborn et al., 2007), which will to a significant proportion include a design progression (Benbya & McKelvey, 2006). Magoulas et al. (2012) advocate that alignment occurs in different perspectives such as the socio-structural, infological, functional, socio-cultural, and as alignment of the context in itself. Though, alignment is considered as IT to be coordinated with the business strategy, evidence for a future with the opposite progressing defined as reversed alignment (Sauer & Willcocks, 2004). Chan & Reich (2007) have questioned alignment since alignment will not provide an end state. Pereira & Sousa (2005) define alignment as the measured

coherence level that IS/IT will contribute to the business, monitored as a business necessity. Identified conflicts in alignment have been recognized such as the indefinite organizational functional model and value model (Soetekouw, 2010), the alignment trap (Shpilberg et al., 2007), the alignment environmental context may appear as diffuse (Chan, 2002), and the inability to accommodate social changes (Atkinson et al., 2003). In the contemporary organization, Land, Op't et al. (2009) see the business and IT as a fusion.

Burton (2010) describes the IT management's prime struggle in the contemporary business as issues regarding trust and awareness among stakeholders involved. The business domain has anticipations on that EA is the solution to present issues, whereas there is a vague settlement on the problem nor how the resolution should be conceptualized (Burton, 2010). In contrast, the business domain is considering the IT domain as weak in delivering benefits to the business that Brynjolfsson (1993) refers to as the productivity paradox. Despite EA is regarded as a core business competence, the balance between the IT and the business domain is infrequent, advocate Bredemeyer & Malan (2004). The cost cutting in the ICT domain has quietly been going on for years, which has an inevitable impact on this balance, interjects Harris (2004). Bytheway (2014) supports the idea of the investment in information and technology in an aim to assimilate the business and the IT domains into a cooperative organization where technology is ubiquitous, as a prerequisite for the forthcoming globalization of the business.

If an organization is separated in a business and an IT domain, there is an expectation from each domain to be treated as a separate one as well (Potts, 2008). Kotusev et al. (2015) stress the need for EA to coordinate the alignment between the two: "*Enterprise Architecture is a description of an enterprise from an integrated business and IT perspective*" (p.1). Ross (2006) claims that the IT assimilation of the business domain could be regarded as a maturity indicator for the organization. This movement has already started in some organizations while these organizations have considered and adopted information and technology as core for future business success, and essential for the organizational survival (Steiber, 2014). Meyers (2012) concludes most organizations will not afford to hire a heard of Enterprise Architects. Though, a single Enterprise Architect could add benefits to the organization, still a critical mass of architects in the EA team is required to obtain effectiveness conferring to Short & Burke (2010). In this light, Luftman (2000) dispute the awareness of the maturity levels of the domains involved, to obtain efficacy. The alignment process will be facilitated by a common and shared language among the stakeholders involved, in essence to sharpening the alignment process (Sidorova & Kappelman, 2011). Thus, various stakeholder groups may request either result from (Fox & Kemp, 2009) or guidance from architecture (O'Donovan, 2011). To establish a balanced and cost-efficient view on these challenges the sense of "we" is crucial for a successful alignment (Sanker, 2012).

5 Findings

This chapter presents the findings of the two papers that constitute this Kappa. The chapter is organized into two sections based on each paper and each section includes the paper abstracts and a clarification on how each paper relates to the five main topics in accordance with this research model shown in figure 2. Finally, a brief summary of the paper is given.

5.1 Paper 1

Title: The Enterprise Architect profession: A literature survey
 Authors: Terese Besker and Rolf Olsson
 Supervisor: Kalevi Pessi
 Publication: No publication (yet)

The abstract of this paper reads:

The purpose of this paper is to contribute to a mapping and understanding on how scholars depict the Enterprise Architect as a profession. In addition, how researchers describe the matters related to the profession and what kind of subjects that is provided for discussion in relation to the Enterprise Architect as a profession.

The method used in this literature survey is based on studying available publications in general but also studying the Basket of Eight within in the Association of Information Systems (AIS) senior Scholars' journals. For each identified publication, five topics regarding the Enterprise Architect as a profession was analyzed; the role, the competence, the responsibility/empowerment/authorization, pro/reactiveness approach and mindset. Other analyzing criteria for the publications are the distribution in time, type of publications and domain inherency.

The result of this survey shows that although a good deal of research has been done in the Enterprise Architectural field, this analysis points out that not have much been written about the Enterprise Architect as profession. This study depicts a requisite for further research in the field of the Enterprise Architect as a profession. By this learning, we encourage an opening for further research.

Paper 1 is the result of an initial literature survey with the aim of studying how scholars depict the Enterprise Architect as a profession. The study described in this paper is based on an inventory of the existing academic literature within the Enterprise Architect profession's work field. The returned result is mapped and presented with different groupings and contexts. The surveyed five topics of the paper are based on the research model described in figure 10.

Research topics in Paper 1	Retitled in Paper 2 & Kappa	Comment
Role	Role	Unconverted
Competence	Competence	Unconverted
Authorization, empowerment, responsibility	Power	Converted to a generic topic name
Proactive and reactive approach	Style of acting	Converted to a generic topic name
Mindset	Main Focus	Converted to a generic topic name

Table 4. Retitled research topics from Paper 1.

The research topics from Paper 1 have been retitled in this Kappa to a generic naming convention of the topics used in Paper 2 and the Kappa. The Role and Competence topics have been left unconverted while Authorization, empowerment, responsibility has been converted to "Power", Proactive and reactive approach has been converted to "Style of Acting", and Mindset to "Main Focus".

In the surveyed publications, the following observations regarding the occurrence of each topic were found:

Research topics	Occurrence of topics in surveyed publication	Generally finding
Role	Relatively well described and discussed in the surveyed publications	Numerous publications describe the role with a focus on collaboration among different stakeholders and organizational units to obtain strategic goals.
Competence	Relatively well described and discussed in the surveyed publications	Several surveyed publications describe the competence including a holistic approach to the pluralistic enterprise and in addition, to have extensive communication skills.
Power	Less is written and discussed in the surveyed publications	The responsibility of the profession is often described as having full responsible within the entire Enterprise Architecture development area and to empower the business users to work in their supported area.
Style of acting	Less is written and discussed in the surveyed publications	No consistent description regarding the mindset of pro/reactiveness could be found in the surveyed publications.
Main Focus	Less is written and discussed in the surveyed publications	This survey describes some publications having a balance towards the IT domain area whereas others see EA as the top node for the organizational balance between business and IT.

Table 5. Research topics and summary of findings in paper 1.

This paper is summarized by the observation that limited research has been performed in the field of studying the Enterprise Architect profession but by studying the date of the surveyed publications, an increasing trend can be observed in a growing number of publications in present time.

5.2 Paper 2

Title: The Enterprise Architect profession: An empirical study

Authors: Terese Besker, Rolf Olsson, and Kalevi Pessi

Publication: Posted to ECIME 2015 on April 20, 2015.

The abstract of this paper reads:

The field of Enterprise Architecture (EA) is rapidly evolving why there is a need for increased professionalization of the discipline. Therefore, understanding the profession of the Enterprise Architects in enterprise transformation and development becomes important. However, there are very few empirically based studies which have reflected these professionals within their work domain of an every-day business. The purpose of this paper is to increase our understanding of how the Enterprise Architect's practice their profession and in addition, to study how these professionals describe their occupation. Five different topics are of particular interest to portraying the occupation of the Enterprise Architect's profession; the role, competence, power, style of acting and main focus. The study is based on interviews with Enterprise Architects in ten large Swedish organizations. In conclusion, the architect is considered as a proud individualist with an entrepreneurial vein who endeavor consideration, reflection and the guidance capability.

Paper 2 concludes the current dimensions of the Enterprise Architect as profession, revealed from interviews with 10 Enterprise Architects in 10 large Swedish organizations considered from the analytical lens of the role, competence, power, style of acting and main focus from this occupation.

Research topics	Aspect	Generally finding
Role	Expectations of the role and the base of the role description	This study confirms that the main purpose of the role of the Enterprise Architect is to understand and articulate the capabilities derived from EA to the organization as well as the capabilities required to implement the goal of the business.
Competence	Required skills and for what purpose	The single most important core competence for the Enterprise Architect's profession is communication. The skill is considered essential to promote the EA as a strategic capability of the organization while certification is not reflected as essential.
Power	Scope of power and decision rights	The architect has a large degree of freedom and full mandate to make decisions concerning architectural issues but less power to implement their recommendations.
Style of Acting	Desired style of acting and actual outcomes of work.	Aiming for proactivity, organizational circumstance force the architect reactive. Considerable part of the working time consist of hands-on assignments for the architect, which for some organizations is encouraging, while more time could be spent on consideration and reflection in an effort to act more proactively.
Main Focus	Balance between IT and business.	A good balance between IT and business desirable. Meanwhile less evidence about IT and business fusion is obvious.

Table 6. Research topics and summary of findings in paper 2.

Paper 2 is summarized by the observation that the Enterprise Architect's main ambition at work is to promote EA where the architects uphold the communication skills as key to success in their missionary work to promote the EA's strategic capability. The study interprets this as an indication of that the Enterprise Architect profession is still under development.

6 Analysis and Discussion

Below analysis aims to highlight the comparison between how the EA profession is described in the academic literature and revealed by the empirical study. The analysis is based on a comparative analysis method with the purpose to provide a thorough comparative evaluation of the selected five topics. In each topic, the most significant and interesting aspects are studied. Each of these aspects is elucidated with the result from the literature and the empirical study where similarities and dissimilarities for each aspect are described.

6.1 The Role

With the background of this study to compare the literature with empirical data, the professional's role description is studied from an academic and a practical point of view with the purpose of determine characterizing representations and to distinguish the main ambition of the profession. There are no legal or regulatory criteria that define the role, and the literature describes the role from different perspectives, but there are quite a lot written about the role with a focus on different functions such as change agent and negotiator. The empirical study shows that the role of the description most often is based on the decomposition of the company's EA initiative and a mission such as establish and maintain the strategic direction of methodologies, standards, best practices and governance for IT Management. In order to study a profession, it may seem applicable to examine whether there are any measurable targets for the outcomes of the work output. Neither the academic nor the empirical study can show that there exist any such tools or key performance indicators (KPIs). The empirical study shows however that there are great interest and need for such a tool. Many respondents connect this deficiency to that the organization's EA is immature such measurement tool. The academic literature does not mention that it is common with other sideline activities in the role that the empirical study clearly shows. This is a most interesting finding that can be interpreted that a clearer and narrower role description could support that all the performed activities can be found in the description. The literature describes that the role is under development but the link as the empirical study makes it connected to EA maturity, is not obvious. The empirical study describes the respondents' consider that the role description is highly dependent on the organization's achieved EA maturity, and a maturity intensification would benefit the role description.

Aspects	Literature study	Empirical study	Similarities & dissimilarities
A clear role description	Several different descriptions exists	Several respondents have the role description in the form of a job description.	The literature presents descriptions with different role/function focuses and the empirically studies mainly reflects the organizational EA missions
Measurable goals for the architect	Not mentioned	Only very few respondents have this clearly pronounced	In this area neither, the literature or empirical study clearly describes how to measure the outcome of the job performance
Parallel working assignments	Not mentioned	Common among the respondents	Major differences in this aspect. The literature does not mention any secondary assignments while it is common according to the empirical study
Role description in relation to EA maturity	Not common	The role is often related to the maturity level by the respondents	The literature describes that the role is under development. However, the empirical study makes that the role description connected to EA maturity is not obvious.

Table 7. Comparison of aspects regarding the role.

6.2 The Competence

When comparing the literature with the empirical research on required skills and competence of the Enterprise Architect, there are many similarities in the descriptions although it exist some inconsistencies between them. Regarding the aspect of what constitutes core competencies of the profession, the literature and the empirical study agrees on high skills in information modelling and service design. Both mean that cooperation and communication skills at different levels are the most central knowledge for the profession. Although the literature rarely describes what this knowledge should be used for, the empirical study shows that this knowledge in many cases can be criticized for how well the EA mission can be promoted the organization. Several researchers mention Change Management as a core competence while none of the respondents expressed this as an essential skill. This could be interpreted, as the architects are not primarily considering themselves as responsible for problem solving, rather as focusing on being a team member assisting others during the change process. Being a good leader is described as a central skill in the literature. The empirical study shows that understanding the organization's formal and informal decision-making process is rather important to perform successfully within the profession. In neglecting these decision-making paths, the possibility to influence the appropriate stakeholders in the organization may decline. Both the literature and the empirical study describe continuous acquisition of knowledge through academic studies: participate in forums; read trade magazines; visiting fairs and collegial networking as important to be able to perform and to keep up to date with developments in the EA field. Both the literature and the empirical study show that the knowledge of modeling and interpreting models are important for the profession, but the two differ on the importance of holding a certification within frameworks. The empirical study shows that it is not important to certify the frameworks' skills while the literature rather frequently mentions this feature.

Aspects	Literature study	Empirical study	Similarities & dissimilarities
Most important skill	Communication skills	Communication skills	Both literature and empirically study shows that the most important skill is to understand the communication skills.
Change Management competence	Apparent	Not mentioned	The literature portrays the Enterprise Architect as a change agent, while the respondents do not mention this as a knowledge.
Decision making skills	Apparent	Mentioned	The empirical study illustrates what this decision-making knowledge will be used for, in a more detailed way than the literature study does.
Continuous acquisition of knowledge	Mentioned	Clearly described	Relative consistency in this aspect. Both believe it is important.
The architect's framework certification	Apparent	Clearly not necessary	The literature describes the knowledge about different frameworks and certifications as important while the empirical study not reinforce this.

Table 8. Comparison of aspects regarding the competencies.

6.3 The Power

When comparing the power as aspects of the profession, the terms of capacities of authorization, responsibility, and obtainable resources are compared with the academic literature and the empirical research. The literature describes the architect's power relatively extensively with a considerable empowerment to make decisions that affect many different stakeholders and business functions. The empirical study shows that this freedom is not quite as comprising when it comes to the power to

execute these decisions. In many cases, the full power only exists within the architectural field and when it affects the organization's major assignments, the architect's power is of an advisory nature only. The literature describes the profession's mission as to govern while the empirical study shows that the architects do not want to be associated to police their colleagues, permitting authorization or actively searching for scapegoats. The literature provides no coherent picture of the profession's responsibility while the empirical study shows that the interviewed architects are well aware of what responsibility domains they are expected to operate within. The mentioned responsibilities often affect tasks such as developing a common vocabulary, supporting data modelling, and turning information models into service designs in dialogue with other architects and stakeholders.

Aspects	Literature study	Empirical study	Similarities & dissimilarities
Power	Comprising	Limited	The extent of power differs.
Architectural power	Comprising	Comprising	Within the architectural field, comprehensive power exist
Empowerment	Comprising	Limited	Literature describes empowerment as an important factor in releasing potential while this is not apparent in the empirical study
Authorization	Comprising	Limited	The extent of authorization differs
Architectural authorization	Comprising	Comprising	Within the architectural field, comprehensive authorization exist
Architectural responsibility	Unified approach lacking	Relatively clear and unified picture	The empirical study shows a detailed picture of the responsibilities while the academic literature is not as specific.
Govern or advising approach	Both	Only advising	The empirical study shows that architects wish to been seen as an adviser, where the habit to police colleagues in undesirable.

Table 9. Comparison of aspects regarding the power.

6.4 The Style of Acting

The drive for this section is to compare the literature with the empirical research on the characteristics of the style of acting representing the style of the Enterprise Architect in their profession, acting proactively or reactively. While the literature widely expresses proactivity in the context of EA, those statements cannot be confirmed by the empirical study. One adverse attribute noted from the EA reference literature is that the definition of the proactive or reactive approach seldom is declared. However, the majority of the EA literature is considered the EA in the light of a proactive approach, the majority of the respondents obey the proactive approach; nonetheless, the every-day assignments will force the architect to behave reactively upon daily issues and tasks. Still, the EA literature depicts EA as the engine for the future to come, the empirical study of this subject reveals the necessity for the successful Enterprise Architect to esteem temporal dynamics and pace in interaction with their colleagues. The organizational, managerial style will influence the approach from its followers. Thus, the Enterprise Architect will behave according to what is expected from their superiors (vertical collaboration), moreover in the relationship with other, not superior, roles within the EA context (horizontal collaboration). The impact of the executives' leadership on the style of acting, is rarely considered by the EA literature, but found with an apparent bias towards reactive in practice by this study. The strategic capability from EA is evident in the literature. To a certain degree, it appears

obvious to the respondents about the strategic capability derived from EA work, whereas according to the respondents, the organization does not share the very same opinion. As the interpretation, a great portion of the respondents delineates their approach to business strategy as reactive. One effort in determination the proactivity and reactivity for the Enterprise Architect's position, is to correlate these approaches towards if the architect's actions are considered to be in-role or as extra-role behavior. The empirical study shows that the in-role proactivity could classify a particular action to keep in contact with change initiatives in an effort to inform the team members about the EA principles or supportive function during the project's lifecycle. The in-role reactivity approach may express a repetitively EA strategy derived from the enterprise business strategy, expressed by the respondents, despite EA is considered as a strategic capability. The extra-role proactivity approach could be interpreted by the respondents' aim in selling the benefits derived from EA to their colleagues while the extra-role reactivity approach is to police the very same colleagues on noncompliance regarding EA principles.

Aspects	Literature survey	Empirical study	Similarities & dissimilarities
Proactive related to EA	Overwhelming	Diversified context	Proactivity related to EA is frequently recognized in the literature. Proactivity for the Enterprise Architect could be diversified in its context.
Reactive related to EA	Less mentioned	Apparent	Less mentioned in the literature, but frequently interpreted by the respondents.
In-role vs extra-role within the EA field	Mentioned	Obvious	Reactivity is dominating the in-role, whereas proactivity is dominating the extra-role in the empirical study. Meanwhile, the literature will not delineate these aspects in a clear manner.
Pace in balancing reactivity and proactivity	Less mentioned	Apparent	The literature portray EA as a driving force, while respondents see the pace as essential.
Organizational managerial style impact on style of acting	Mentioned	Apparent	The impact from the organization's management and its aim to position proactivity is less mentioned by the EA literature, while empirically the actions are reflecting a reactive approach.
EA as a strategic capability	Obvious	Apparent	The strategic capability for the EA from a business perspective is obvious according to the literature; however, most respondents are reactive to business strategy.

Table 10. Comparison of aspects regarding the style of acting.

6.5 The Main Focus

This section will cover the comparison revealed from the EA literature and matched to the very same characteristics of the respondents to this study regarding the Enterprise Architect's main focus reflecting the balance of the business and IT domains' issues. The general understanding revealed from the literature is that the Enterprise Architect is intended to act as a pilot to deliver guidance to the

organization, the senior management, as well as the project members in trouble waters, providing architectural experiences and technological knowledge aiming to smooth the free paths, preventing the followers from get stranded. Despite this decent approach, the majority of respondents to this study express a certain hesitation to be prompted readily, thus asked for upon request, regularly when tasks have failed. The balance of business knowledge and a core IT experience is mentioned in the literature, however quite apparently pronounced by this study's respondents. Several respondents prompt the consumption of calendar time to convince the organization about the value derived from EA as central while this time factor seldom is perceived in the literature. While the EA literature expects value to be derived from EA, the empirical study, described in this study's paper 2, depicts an Enterprise Architect that seldom is reviewed on EA related measurements, nor have a clear assignment associated with evaluating measures. Sometimes the efforts from the Enterprise Architect are going out of control ending up with the ivory tower of EA, in a dogmatic manner, neglecting the business value derived from EA. One interesting finding is the observation revealed from the interviews that the organizational compliance to EA principles is quite good upon the average project's effort to respect the EA guidelines. However, enterprise-wide change and transition programs is considered by most organizations as the subject for (top) management discretion only, where the EA principles and guidelines are overruled without further notice. In this light, EA as the strategic capability frequently mentioned in the literature, although implicitly, could be questioned. This observation is reinforced by the circumstance that regular meetings between the senior management and the EA representatives are rare. The majority of the respondents have never met the top executive / CEO in a face-to-face meeting. By this observation, strategic alignment, frequently appealed to by the EA literature, is to be questioned in reality.

Aspects	Literature survey	Empirical study	Similarities & dissimilarities
Aiming balance IT & business focus	Mentioned	Obvious	Some research depicts the balance but most descriptions have a bias towards IT. The empirical study states a decent balance.
Being a counselor	Apparent	Apparent	The literature appears to position the architect in guidance for technical and architectural issues. The empirical study reveals organizational change that inquiries EA ad-hoc, in problem solving rather than problem finding.
Major projects override EA principles	Less mentioned	Evident	This aspect was apparent in several researched organizations, but on limited interest by the literature in general.
Occurrence of regular meetings between top management and the EA function on strategic intent and topics	Mentioned, implicitly	Seldom	Strategic alignment is commonly described in the EA literature. The empirical study reveals that regular meetings are rare between the respondents and the executives, which addressing the question about how strategic alignment is performed.
Time to influence	Mentioned, lack of direction	Obvious	Penetration of EA takes time, while the time factor seldom is expressed by the literature, but is obvious by the interpreting the respondents' description.

Aspects	Literature survey	Empirical study	Similarities & dissimilarities
EA ivory tower	Mentioned	Diversified	The empirical study claims that if EA as driving force is too strong, the ivory tower for the EA is approaching. Some respondents report this state, where EA is considered as less appreciated. This appearance is rarely depicted by the literature.
Business value derived from EA	Obvious	Neglected	Benefits and business value derived from EA is repeatedly expressed by the EA literature, whereas the empirical observation indicates modest attention to measurements.

Table 11. Comparison of aspects regarding the main focus.

6.6 The Analysis in Summary

This analysis aims to highlight the comparison on how the EA profession is described in the academic literature and revealed by the empirical study. The result of this analysis can be summarized by that the literature and empirical findings in many respects corresponds well while it is markedly different in some points. Examples of where the two studies differs, can be termed as when the literature describes that the role is under development, but the link as the empirical study makes it connected to EA maturity is not obvious in the academic literature. On the one hand, the empirical study shows relationships and consequent effects that could not be found in the literature where the discovery of the connection between the role description and the organizational EA maturity was made. On the other hand, the literature describes certain aspects that are not revealed in the empirical study such as change management is an important ingredient and competence for the professionals while this knowledge is not revealed in the empirical study. Cases in which the two different studies broadly agree and their results are in harmony can be exemplified by the result they both consider the most important skills are to comprehend the business, and the communication skills.

7 Conclusion

The intention of this study is to enriching the field of Enterprise Architecture in depicting the human activities portrayed in the role of the Enterprise Architect as a profession. The aim of this study is to provide an extensive picture of the Enterprise Architect, comparing the literature with the empirical data collected, where the analytical lens will cover the architects' role, competence, power, style of acting and main focus. This study has primarily focused the current state for the respondents interviewed as empirical evidence regarding what an Enterprise Architect is dealing with in their everyday work life. The research questions reads: *“What characterizes an Enterprise Architect’s profession, and what is the profession’s main ambition?”* and *“How does academic research differ from an empirical based view with respect to the topics; role, competence, power, style of acting and main focus?”*. As an answer to this Kappa’s research questions, the summary of the result in comparing and contrasting the literature study with the empirical study is illustrated in table 12 below:

Research topics	Literature survey	Empirical study	Similarities & dissimilarities
Role	Several different role descriptions exists	Many respondents have the role description in the form of a job description.	The academic literature presents role descriptions with different roles/functions. Meanwhile, the empirically study's respondents states that the role description mainly reflects the organizational EA missions
Competence	Communication skills as most important competence	Communication skills as most important competence	Uniformity prevails that both literature and empirically study shows that the most important skill is the communication skill.
Power	Comprising	Limited	The extent of power differs. In contrast to the literature the empirical study describes that the power is limited to the comprising the architectural field only.
Style of acting	Proactive	Aiming for proactivity, reality force reactivity	The literature will rarely discuss the reactive approach will this approach is obvious in the empirical study.
Main focus	EA is considered with a bias towards the IT domain.	Aiming for the balance between IT and business domain	The empirical study seems to reflect a balance between IT and the business domain, whereas the literature predominantly has an IT bias.

Table 12. The overall and summary of the comparison of the literature and empirical study.

In several aspects, there are consistency between how the literature depicts the Enterprise Architect and the respondents' view of their work field, revealed from the empirical study in this thesis. Most prominent are the skills, described as the Enterprise Architect's "Competence" topic in this study. However, the significant differences are found in the research topics "Style of Acting" and "Main Focus" where the contrasting findings are the literature's research in directing a scientific path while the empirical study reveals another path where other aspects than the EA associated are to be considered. The "Power" topic is widely distributed in the literature while limited to the architectural aspects only, in reality. The research topic "Role" of the Enterprise Architect differs from business to business and its operational orientation, which is evident in the empirical study while vaguely, depicted in the literature.

The role of the Enterprise Architect profession could still be found in its infancy while this study's research gap shed light of the limited empirical data that portrays this profession. There is a necessity to reframing the future research to comprise not the possible aspect of this profession only, but in addition to perform further studies to analyze the reality of this profession. Moreover, the EA literature affects the description of the Enterprise Architecture in general but neglects the performers as humans, which further address a need to reframing the EA research.

In conclusion, the architect's characteristics can be described in terms of being a proud individualist with an entrepreneurial vein who endeavor consideration, reflection and the guidance capability. The architect's main ambition is to promote the EA where the architects uphold the communication skills as the key to success in their missionary work to convince their organizations about the EA's strategic capability. This study shows that this profession is under continuous change and development. Though, the architects aim to work within a proactive style of acting, their work is in reality mainly influenced by a reactive approach and the most important competence within their profession is to

understand the business. Further, this study shows that the role includes comprehensive power to influence the organizational architecture, but lack the power to influence the organizational operations through the decisions that the architecture involves.

8 Limitations and Further Research

This chapter is intended to notice the limitations, reflections, and further research regarding the Enterprise Architect profession's context, explored in this study.

8.1 Limitations

This section describes the constraints and delimitations for this thesis.

This study's empirical part is delimited to ten major organizations based in the south part of Sweden and with headquarters in Sweden. No empirical data has been selected from organizations that are subsidiary to a foreign business. Thus, EA could be recognized differently. Since EA is considered to be diversified implemented, a pre-study on which business that deviate from the common EA track could have been interesting while this study is analyzing the organizations from members mainly selected from a professional EA network.

8.2 Reflections

This section addresses issues, which have been considered as particularly rewarding, and will contribute to the knowledge base.

8.2.1 Generic observations – method

The study as a whole includes an initial pre-study, two subsequently articles and, finally, the Kappa. It has been particularly essential to systematize the work process in order to achieve the research result. The reflection on how this study was practically conducted and the selected methodology of the study can briefly be described in terms of overall goals and objectives; planned activities; processing delivery and final results. The working process has been inspired by an agile approach to frequent interactions with the supervisor in an aim of creating conditions for continuously reviewed materials.

Although the first article, which consisted of a literature survey come to be a foundation for the knowledge acquisition, the study group sees that tremendous benefits were made early in the work process by selecting the five topics as cornerstones for the study. This means that the scope was intentionally kept at a comprehensible size to secure deliveries within the research process. The decision to explore the profession from a contemporary perspective, that is, to omit the historical and future perspectives, made it possible to deepen the study within a present viewpoint. As described in the study, EA is under continuous change and development, and even if there is a vast quantity of available literature on the subject of the EA profession, the observation is to find up-to-date research literature is challenging. Much of what is written is done in book form and, or in no peer-to-peer reviewed and published articles. Great work in finding qualified literature to be used in the study has been the basis for this study.

The approach used during the empirical study enabled to acquire strong empirical evidence that contributed to that the analysis and conclusions got a stable foundation to rely on. The decision of carrying out the data collection in the empirical study through interviews with the respondents with the assistance from pre-defined questions where the respondent was given complete freedom to interpret the questions and give their responses. This approach helped the study group to receive relevant and abundant information about the precise subjects. This method enabled to ask possible supplementary questions as for clarification, which would not have been possible if the study group instead had

chosen to implement the data collection through a classic questionnaire survey. The relatively large number of respondents and the number of different organizations and their various skills and degree of EA experience raised the credibility of the responses.

In retrospect, one can wish that the study group had requested to take part of the respondent's actual written role description in advance of the interview, to be able to compare these descriptions between the respondents. Another aspect in a reflective point of view is that it would be interesting to interview the other stakeholders in the organization and ask questions about how they perceive the EA profession viewed from a different perspective or angle.

8.2.2 Generic observations – result

In this sub-section, generic observations are documented, however not straightforward as research result.

Who is business and who is IT?

During some interviews, the division in IT and business people are a quite interesting finding. The respondents refer to the business as a group of people within the organization to interact with. The very same group of persons that the architect considers as representing the business is revealed by the business organization like the IT people. One possible answer to this confusion, is that business people are frequently interacting with the IT people, will by its business colleagues be considered as “IT” in the long term.

Maturity level

The IT domain states they comprehend the business domain while perceiving a rejection in the reverse interaction. The business domain requests for support/assistance from IT while the business still is the task owner.

When the proper individuals are collaborating, the powerful outcome occurs

Some respondents assign the quality of the collaborating and co-creating team. When the appropriate time and colleagues will meet, the peak of result take-off.

Enterprise Architects have special skills

Not every architect has the correct composition to obtain the role of Enterprise Architect, some respondents experienced.

Procurement skills

Though there is a potential need to consider the outsourcing of business processes involving information contribution from various perspectives, there seems to be little awareness of the procurement skills required for a successful long-term information sourcing.

Contextual language within a group of CIO versus Enterprise Architects

During the research work for this study, the research group visited some seminars and workshops with a distinct participation from either CIOs or Enterprise Architects. The contextual language used and approach to Information Technology is evident, pronouncing a dissimilar approach.

8.3 Further Research

Based on the collected data from the literature and the empirical study we encourage the progress of further studies in the field of Enterprise Architecture and specifically in the areas noted below:

8.3.1 Others view on the Enterprise Architect

To release a broad and rich picture of the EA and the Enterprise Architect in particular, other roles expectations and views on the EA within an organization is to be taken into consideration. Some detached empirical studies, researching the view from the CEO/Top Executives, the CIO, and the business people interacting with the Enterprise Architect are proposed.

8.3.2 The intrinsic and extrinsic dimensions of Management

Management is defined by two dimensions, namely (i) to do the right thing as extrinsic and (ii) to do it the right way as the intrinsic dimension. Sometimes, complexity is handled by modularization or abstraction in modeling while the teleological foundation is found outside the professional's domain. The concern is regarding if the profession as Enterprise Architect should cover the intrinsic dimension only. Is it possible to achieve alignment if the extrinsic dimension is neglected? To what extent could issues about uncertainty and ambiguity be resolved when decisions are made outside the professional's domain? The Enterprise Architecture (EA) provides the transparency that forms a hierarchical system consisting of subsystems and their subsystems. This outcome ensures simplicity and transparency. The basic requirement for this is a hierarchical vision that is converted to the hierarchical system design and design implementation.

8.3.3 Balancing dual challenges

Derived from the interviews, one future challenge is to achieve balance and harmony in the organization. From time to time EA is considered as time-consuming while speed and resolution is the key to the business management. The EA ivory tower will contrast the entrepreneurship and innovation revealed in the organization. Another aspect is the balance of centralized versus decentralized ownership of corporate information. Often raised as key to business success, is the capability to organizational and by then, information structural flexibility, which as such could affect the organizational efficiency. The need for adhocracy, in mutual adaptation to balance the technology and business domains' activities are essential. In this light, the architect's competence to cope with and subsequently adjust and adapt to, is essential and might be more important in the future. The empirical study reveals for a further study while the literature is quite a fatigue in this area, why a further study regarding the dual challenges for the Enterprise Architect is encouraged.

8.3.4 Legal and regulatory aspects

When the organizational coordination of information and data is moving outside the organizational firewalls, and considered to be owned by third party, the legal aspects are to be deliberated to estimate various risks, which will affect the business. Outsourcing business processes will ask for new competences to coordinate where certain tasks are located while generic contracts, such as the service level agreement, is of great importance. Another area in risk to fall between two stools is the business process flows where a physical product movement is considered as easy and by then, easy to implement while structural and organizational is incompliant to regulatory or fiscal regulations. Such impact is hard to look through, however, considered as part of the architect's work field. Since less had been found neither in the literature nor in the empirical study, this research area is fortified to be further explored in addressing the role of the Enterprise Architect.

8.3.5 Scenario planning

Scenario planning is frequently used in some business to prepare for uncertainty and to assist in sudden situations to come. Scenario Management could, prepare in addition for a long-term solution as business units to be sold or newcomers to be merged. Less has been found in the literature in the area of EA, and scenario planning as a tool was never mentioned during the interviews for this study. Thus, a further study is encouraged.

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PART II

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The Enterprise Architect Profession: A Literature Survey

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Abstract

The purpose of this paper is to contribute to a mapping and understanding on how scholars depict the Enterprise Architect as a profession. In addition, how researchers describe the matters related to the profession and what kind of subjects that is provided for discussion in relation to the Enterprise Architect as a profession.

The method used in this literature survey is based on studying available publications in general but also studying the Basket of Eight within in the Association of Information Systems (AIS) senior Scholars' journals. For each identified publication, five topics regarding the Enterprise Architect as a profession were analyzed; the role, the competence, the responsibility/empowerment/authorization, pro/reactiveness approach and mindset. Other analyzing criteria for the publications are the distribution in time, type of publications and domain inherency.

The result of this survey shows that although a good deal of research has been done in the Enterprise Architectural field, this analysis points out that not have much been written about the Enterprise Architect as a profession. This study depicts a requisite for further research in the field of the Enterprise Architect as a profession. By this learning, we encourage an opening for further research.

Keywords: Literature survey, Enterprise Architect, Profession, Mindset, Pro-activeness, Re-activeness, EA domain.

1 Introduction

This literature survey depicts that Enterprise Architecture is a growing field which is more essential in the future organization than in the past (Brown & Bib, 2011). In this field of Enterprise Architecture, the *professionals* who create the architecture will be essential for facilitating architectural development (Perks & Beveridge, 2004). The rationale for this study is that most organizations have discovered increasing competition where globalization, among others, will address a regeneration of strategy to deal with increased complexity (Burnes, 2009; Weill & Broadbent, 1998). This strategy will call for Enterprise Architecture, which in turn will request for professionals, as Enterprise Architects.

The motivation for this study is the conviction that the Enterprise Architect is a person who's capabilities and abilities, are central to the emergence of Enterprise Architecture for an organization. Neither technical items nor incapable Enterprise Architects may facilitate the effective Enterprise Architecture within the organization. The audience for this paper is everyone who needs to deepen their knowledge in the Enterprise Architectural development.

The purpose of this paper is to survey what has been written about this profession in general but also to study the profession within a IS scholars' domain. The main focus is based on using the searching engines provided by websites by the well-known Basket of Eight. Basket of Eight provides publications where the rankings are based on Association of Information Systems (AIS) Senior Scholars' Basket of Eight and the journals are: European

Journal of Information Systems, Information Systems Journal, Information Systems Research, and Journal of the AIS, Journal of Information Technology, Journal of Management Information Systems, Journal of Strategic Information Systems, and Management Information Systems Quarterly.

Our contribution is to explore the Enterprise Architect's domain in existing research in order to motivate researchers to do further research in this area. We have determined topics that relate to the Enterprise Architect's profession as the description of the role, the competence required, an approach as a proactive or reactive attitude, and the domain where these professionals operate. So far, we have not found a similar study of the Enterprise Architect's profession.

This paper is organized in six sections, where the initial section is a brief introduction and incentive for this paper. Section two describes the research method used and section three introduces the related research about the selected topics. The fourth section presents the result that will be discussed in section five, and the last section six concludes this paper.

2 Research Method

This literature survey is based on a discursive writing style approach where the technique to classify the sources and the selection of different categorization indicators are inspired by Langenberg & Wegmann (2004) while the writing process has been guided by Okoli (2010). The research method utilized in this paper indicated by Bock & Scheibe (2001), aims to achieve three research criteria: reproducibility, integrity and objectivity.

2.1 Identifying the Surveyed Topics

An essential part of the research method is to categorize the different focus areas from which this survey intends to explore the Enterprise Architect as a profession. The aim has been to study the Enterprise Architect as an occupation in order to create an understanding about the architect profession derived from the determined surveyed topics: The role, the competence, the responsibility/empowerment/authorization, pro/reactiveness approach and mindset.

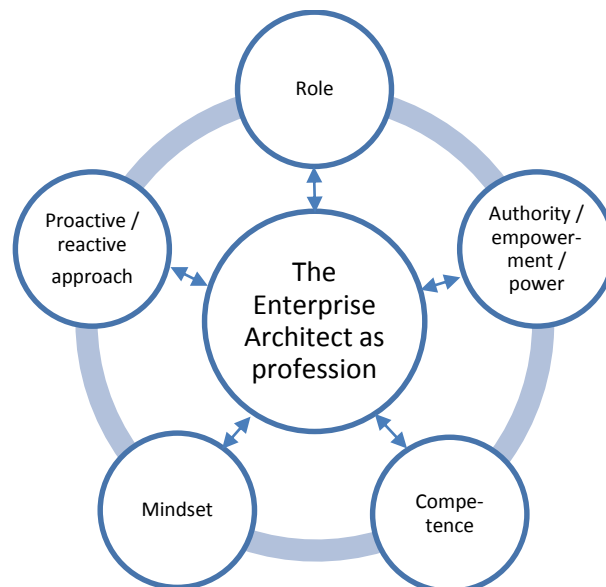


Figure 11. The role, the competence, the responsibility/empowerment/authorization, proactive/reactive approach and mindset of the Enterprise Architect profession.

2.2 Process of Selection of Publications

The selection of sources that could be relevant for this article was based on a recommendation by Webster & Watson (2002) who describe a structured approach to identifying relevant publications. General searching criteria; All databases and sources were searched with the keywords “enterprise architect” or “enterprise architects” or “enterprise architecting” as full-text search (the option “all fields”) of the databases.

To perform an efficient and appropriate filtration during the examination of available literature within the field, a structured four-step process has been used:

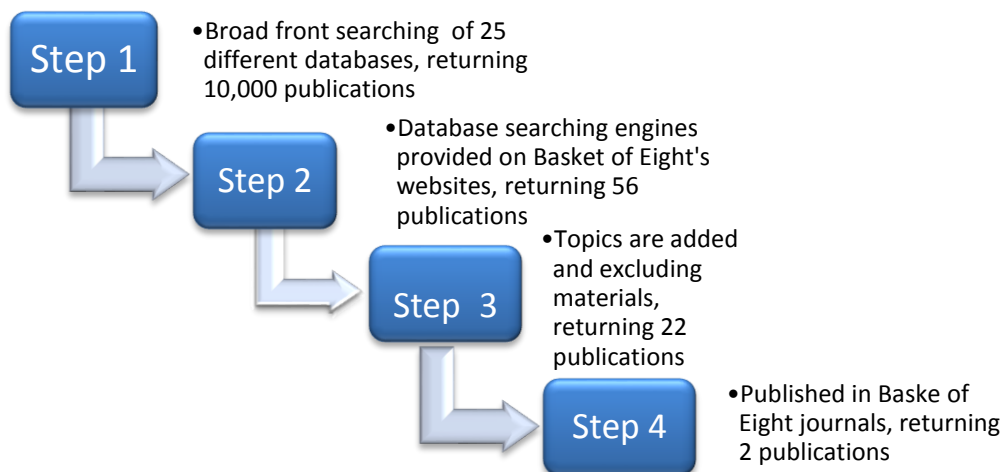


Figure 12. Process of selection of publications

Step 1:

The first step in the searching process allows a wider variation of searching, based on general public searching databases available on Internet. The search gives however no further information about the publication quality and type of publication. The primary goal with this searching is to provide a view of the extent of the available literature. The initial search was based on a broad front, where 25 different databases and sources were searched. In total, more than 10,000 publications were found.

Step 2:

In a second searching step within the process, an initial filter is applied to only use database searching engines provided on web sites which represent the extended AIS senior scholar's basket of scholarly journals, known as the Basket of Eight (Venkatesh, 2010) databases. This selection and filtering is motivated due to the importance of having validated sources for the academic scholars. These eight journals, which form the Basket of Eight, are considered to be acknowledged by quality and they are viewed as central in the IS domain. The searches have not been restricted to the date of the documents' publication.

These searching engines on the websites returned however, publications that can be books, records and other type of publications. Thus, this result does not guarantee that the publications are published within the journals.

Step 3:

Next step in the search process was to add the search topics as additional keywords "role", "competence", "proactive", "reactive" and "responsibility", "empowerment", "authorization" and "mindset" to evaluate whether the publication found in step 2, is relevant to this literature survey or not.

All material returned within step 2, was analyzed and categorized by the defined keywords. After analyzing each source's abstract, introduction, and if necessary the full text, 56 articles in total, that did not appear to be concerned with or relevant to the profession of the Enterprise Architect were excluded. This process provided 22 publications for deeper analysis.

The reason for excluding material was mainly because the searched keywords were part of the reference list (9 publications), doublets (3 publications), the text was not written in English (1 publication), considered as off-topic (24 publications) and the word Enterprise Architect referred to a software with identical name (19 publications). The information search was a rather complex and a cumbersome process on how to evaluate whether the material refers to the proper journal or other related sources.

Step 4:

The above results from step 3 are in this process step examined to determine which of the publications that is *published* in each journal. Only the results of this search can be traced to publications, which are approved for being published with the journals of Basket of Eight. This selection regained the relatively limited number of only two publications that have been published in a journal in the Basket of Eight.

3 Related Research

This study is intended to focus the Enterprise Architect as a profession. Five topics have been selected for studying the Enterprise Architect's occupation. The effort is to evaluate what scholars have explored about the Enterprise Architect in terms of the topics; role, competence, responsibility/authority/empowerment, pro/reactiveness and mindset. Our knowledgebase is established on the related research described below in the Enterprise Architectural field.

3.1 Enterprise Architecture

For most organizations the competitive landscape is shifting, nowadays more rapid than in the history (Beimborn et al., 2007). These shifting, addressing an approach and strategy to deal with the circumstances of increased complexity (Bernus et al., 2003) where the emergence of Enterprise Architecture in the mid 1990 (Zachman, 1996) also requested for professionals in this field.

One characteristic in describing the modern organization is the defragmented information, depicted as information islands (Groves, 2005; Magoulas & Pessi, 1998) or silo syndrome (Laursen & Thorlund, 2010).

The Enterprise Architecture is intended in an effort to reduce the isolation and to increase the information support within the organization to overcome the disorder in alignment, to support the strategic initiatives for the business. The Enterprise Architecture is envisioned to identify, design and visualize the information systems involved, their corresponding relations, and the stakeholders involved which includes the systems' users (Magoulas & Pessi, 1998).

The Enterprise Architecture is from time to time compared with the architectural goals in city planning (Ahlemann, 2012; Betz, 2011; Hoffman, 1988; Schmidt & Buxmann, 2011). Enterprise Architecture can be seen as an instrument to guide the enterprise in a direction towards a future state but also as an instrument in coordinating transformations (Greefhorst & Proper, 2011). The Enterprise Architecture will develop over time into new architectures with new challenges to solve and where other competences are required, referred to as

Architecture Business Cycle (Boer de & Vliet van, 2009; Weber & Dustdar, 2012). In relation to this, also the role of the Enterprise Architect will evolve (Wagter et al., 2012).

The Enterprise Architectural capability could gradually develop from unconscious to efficient, fully aware of the architectural goodness (Bente et al., 2012; O'shea, 2009; Prins, 2009; Raymond & Desfray, 2014). The definition of Enterprise Architecture are pretty scattered, while no official and generally agreed definition of the Enterprise Architecture is prevailing (Schmidt & Buxmann, 2011; Strano & Rehmani, 2007). The interpretation of Enterprise Architecture could vary from one culture to another (Akenine et al., 2014). Within this field, the profession of the Enterprise Architect will be located.

3.2 The Enterprise Architect as Profession

The role of the Enterprise Architect should be considered as more important in the future than in history (Kruchten et al., 2006). When the profession is for discussion, the central approach is to determine the degree of impact. By this reason, this study will focus the profession in terms of below topics.

3.3 The Role

There is no standardized and generally accepted role description of the Enterprise Architect's occupation, but the architect's role has a number of emotive "characteristics" that the role and occupation must deal with and relate to (Steghuis & Proper, 2008). Strano & Rehmani (2007) state that the Enterprise Architect main tasks are to align IT operations with business strategic goals by managing the complex set of interdependencies. In addition, according to the authors it is also essential to communicate and maintain an agreed business strategy to operational management. Steghuis & Proper (2008) describe that the Enterprise Architect is intended to participate in the Enterprise Architecture team and to assist team colleagues in their efforts to develop the team's objectives, which from an operational point of view are to plan for and to governance the enterprise strategies. The Enterprise Architect's role also includes assignments to mature the Enterprise Architecture roadmaps, which will comprise consideration of the business processes in an as-is state but also the future to-be scenario (Steghuis & Proper, 2008). The role of the Enterprise Architect is more diversified and also more common in large businesses in comparison to the small or mid-sized businesses (Roeleven & Broer, 2009). Meanwhile, Wagter et al. (2012) emphasise the fact that the general and all-encompassing role description of the Enterprise Architect's role does not exist. The role of the Enterprise Architect should be considered as more important in the future than in history (Götze, 2013) where the role is considered to be under continuous progress (Bredemeyer & Malan, 2004; Wagter et al., 2012).

3.4 The Competence

Hsin-Ke & Peng-Chun (2012) define competence as a collection of related abilities, commitments, knowledge, and skills that enable a person to act effectively in a job or situation. Wieringa et al. (2009) claims that the Enterprise Architect must have an understanding for complex situations in terms of accountability and reflection. The Enterprise Architect must be a creative visionary (Lankhorst, 2013) and able to see the need for business changes and also possesses the ability to adaptability.

The Enterprise Architect must be well versed in the organization and its development through a continually learning process. The Enterprise Architect should also be a skilled communicator and negotiator (Götze, 2013; Ouriaghli & Nsubuga, 2012; Wagter et al., 2012) in order to build trust among the various stakeholders as well as having the ability to think strategically while acting tactically (CAEAP, 2014). Steghuis & Proper (2008) have recognized different core competencies for an Enterprise Architect: the architect should possess analytical and communication skills, where negotiation is a regular element influencing the daily work, which will necessitate sensitivity and to show empathy to the adjacent individuals. Indeed, abstraction capacity is required as a key skill, which will involve the ability to act as a change agent. The authors also describe the skills of an Enterprise

Architect of being a good leader and also be able to program within software development (Steghuis & Proper, 2008). Last but not least, the Enterprise Architect is intended to show integrity and discretion (CAEAP, 2014).

3.5 Authorization, Empowerment, Responsibility

According to Unde (2008) the Enterprise Architect is responsible for implementing the organization's vision and strategy for IT. The author further describes the responsibility to defining the standards and guidelines, and composing a governance mechanism to align implementation to the defined standards and guidelines (Unde, 2008). Charkham & Simpson (1999) argue that power confers responsibility where there is a set of reforms to ensure a balance between the two. For shared power to balance the responsibility, Ansell (2011) provokes a "cooperative federalism" where some responsibilities/powers are autonomous while others are shared, as a useful model of power sharing. In addition, architectural freedom is a matter of consideration (Dovey & Dickson, 2002). Hemre (2005, p. 4) states "competent people can be empowered and empowered people can put knowledge to use". Likewise, Bredemeyer and Malan (2004) state that by empowering business units, a more agile and rapid way to manage born innovation of customer intimacy, can be achieved. Today, several technological innovations are taking place, outside the central IT governance where Smith et al. (2013) claim that this kind of development is supported by empowerment within the organization.

3.6 A Proactive and a Reactive Approach

A proactive strategy can be defined as the approach an enterprise can perform in order to create agility and thereby develop a capability of proactive mechanism in advance. A reactive strategy can be described as the ability to react and adjust to enterprise changes (Bloomberg & Schmelzer, 2013; Zhigang et al., 2012). According to Ouriaghli & Nsubuga (2012), the Enterprise Architect's profession is intended to proactively promoting architectural development. An enterprise strategic flexibility consists of both a proactive and a reactive approach (Zhigang et al., 2012), and is involved in the maturity of Enterprise Architecture (Akenine et al., 2014; Bente et al., 2012). However, moving from reactive to proactive mentality is a process of organizational conscious, induced by motivation and innovation (Rishi, 2012), which might be an organizational concern, involving all stakeholders (Siedel & Haapio, 2011). This transformation is encompassing corroboration from the people affected by the process (McGonagle & Vella, 2012).

3.7 Mindset

An Enterprise Architect's mindset can be more or less balanced between different organizational levels and departments. Preferably, the efficient Enterprise Architect will operate with a balance between these aspects in the mission to obtain an architectural harmony for the organization (Magoulas & Pessi, 1998). It is this bias and its ambidextrous environment (Tushman & O'Reilly, 1996) where the term "mindset" is emanating from which this study focusing on. Different researcher sees the Enterprise Architect's mindset in different ways depending on how they describe different levels of the Enterprise Architecture structure. Both Aerts et al. (2003) and Tichy (1982) categorize the organizational enterprise as more or less IT or Business orientated in an architectural perspective, where both authors advocate for divisional levels. Berg, van den & Steenbergen, van (2006) are promoting a balanced mindset in promoting corporate architecture, while Berg, van den & Vliet, van (2014), promote the financial stream to make the Enterprise Architecture efficient, whereas Dent (2009) focusing the regulatory mindset of the profession. In contrast, others see Enterprise Architecture as audit-oriented for the IT environment (Harmsen et al., 2010). Land, Op't et al.'s (2009) mindset comprehend Enterprise Architecture primarily to arrange for insights of the organizational context in an effort to reduce risks. Parson (2005) sees the Enterprise Architect as a natural part of the software development team, emanating from the IT domain primarily which resulting in a clear IT mindset.

3.8 Research Question

What are the key findings of existing research within the search result returned by the search engines distributed by Basket of Eight publishers, about the Enterprise Architect's profession, in terms of role, competence and responsibility, business and IT domain and mindset concerning reactive or proactive behavior?

4 Result

By examining and categorizing the 22 publications, which remained after the exclusion in step 3 in the selecting process according to our analysis method, we revealed the following result:

4.1 Distribution in Time

Table 1. Distribution of the surveyed publications in time

Year	Surveyed papers & books	#
<2005	(Brown & Watts, 1992)	1
2005-2009	(Chen, 2007)	1
2010-2014	(Bloomberg & Schmelzer, 2013),(Bonnet et al., 2010b),(Bonnet et al., 2010a),(Bonnet et al., 2010c),(Boyer et al., 2010),(Chen et al., 2013),(Oppenheim, 2011), (Parry & Roehrich, 2012),(Potvin et al., 2013),(Rivard et al., 2010a),(Rivard et al., 2010b),(Rivard et al., 2010c),(Rivard et al., 2010e),(Rivard et al., 2010d),(Ryan et al., 2014),(Tambouris et al., 2012),(Wang et al., 2014),(Schmidt & Buxmann, 2011), (Viaene & Isik, 2013),(Janek, 2012)	20

Table 1 shows the distribution of the surveyed publications which remained after the exclusion in step 3, in time. The vast majority of the publications were published during year 2010-2014. Two publications only were published before 2010.

4.2 Surveyed Topics

Table 2. Topics of the surveyed publications

Research topics	Surveyed papers & books	#
Role	(Bloomberg & Schmelzer, 2013),(Bonnet et al., 2010b),(Bonnet et al., 2010c),(Boyer et al., 2010),(Chen, 2007),(Parry & Roehrich, 2012),(Potvin et al., 2013),(Rivard et al., 2010a),(Rivard et al., 2010c),(Rivard et al., 2010e),(Tambouris et al., 2012),(Wang et al., 2014), (Schmidt & Buxmann, 2011), (Viaene & Isik, 2013),(Brown & Watts, 1992),(Janek, 2012)	14
Competence	(Bloomberg & Schmelzer, 2013),(Bonnet et al., 2010b),(Bonnet et al., 2010a),(Oppenheim, 2011),(Parry & Roehrich, 2012),(Potvin et al., 2013),(Rivard et al., 2010a),(Rivard et al., 2010b),(Rivard et al., 2010e),(Ryan et al., 2014),(Tambouris et al., 2012), (Schmidt & Buxmann, 2011), (Viaene & Isik, 2013), (Janek, 2012)	12
Responsibility/ Authority/ Power	(Bloomberg & Schmelzer, 2013),(Bonnet et al., 2010b),(Rivard et al., 2010a),(Tambouris et al., 2012)	4
Proactive/Reactive	(Bloomberg & Schmelzer, 2013)	1
Mindset	(Bloomberg & Schmelzer, 2013),(Oppenheim, 2011),(Parry & Roehrich,	7

Research topics	Surveyed papers & books	#
	2012),(Rivard et al., 2010a),(Tambouris et al., 2012), (Schmidt & Buxmann, 2011), (Viaene & Isik, 2013)	

Table 2 shows the topics of the surveyed publications which remained after the exclusion in step 3. Each publication is in one or more categories. The identified five topics that are particular vital for the profession of the Enterprise Architect is classified as: role, competence, responsibility/authority/empowerment, pro/reactiveness and mindset. Most of the papers contribute to role and competence, some to mindset and very few concerns the topics of responsibility/authority/empowerment and pro/reactiveness.

4.3 Retrieved Publications from the Basket of Eight's Search Engine Databases

Table 3. Sources of the surveyed publications

Source	Surveyed papers & books	#
European Journal of Information Systems	(Schmidt & Buxmann, 2011), (Viaene & Isik, 2013), (Janek, 2012)	3
Information Systems Journal	(Bloomberg & Schmelzer, 2013) (Bonnet et al., 2010a), (Bonnet et al., 2010b), (Bonnet et al., 2010c), (Boyer et al., 2010), (Chen, 2007), (Chen et al., 2013), (Oppenheim, 2011), (Parry & Roehrich, 2012), (Potvin et al., 2013), (Rivard et al., 2010b), (Rivard et al., 2010a), (Rivard et al., 2010c), (Rivard et al., 2010e), (Rivard et al., 2010d), (Ryan et al., 2014), (Tambouris et al., 2012), (Wang et al., 2014),	18
Information Systems Research		0
Journal of the AIS		0
Journal of Information Technology		0
Journal of Management Information Systems		0
Journal of Strategic Information Systems	(Brown & Watts, 1992)	1
Management Information Systems Quarterly		0

Table 3 displays where the publications that remained after the exclusion in step 3, are found. All surveyed sources are returned by the Basket of Eight databases searching engines. Most of the publications were found in the database of Information System Journal (18 publications) and the second largest source was the European Journal of Information Systems (3 publications). In five of the searched database searching engines no publications at all, were found.

4.4 Type of Publication

Table 4. Type of surveyed publications

Source	Surveyed papers & books	#
Academic journals	(Chen, 2007), (Chen et al., 2013), (Parry & Roehrich, 2012), (Ryan et al., 2014), (Tambouris et al., 2012), (Wang et al., 2014), (Schmidt & Buxmann, 2011), (Viaene & Isik, 2013),(Brown & Watts, 1992)	9
Book Chapter	(Bloomberg & Schmelzer, 2013), (Bonnet et al., 2010b), (Bonnet et al., 2010a), (Bonnet et al., 2010c), (Boyer et al., 2010), (Oppenheim, 2011), (Potvin et al.,	13

Source	Surveyed papers & books	#
	2013), (Rivard et al., 2010a), (Rivard et al., 2010b), (Rivard et al., 2010c), (Rivard et al., 2010e), (Rivard et al., 2010d), (Janek, 2012)	

Table 4 illustrates the type of the publications, which remained after the exclusion in step 3. The publications are categorized into academic journals and in book chapters, which are retrieved by searching the searching engine databases provided by the Basket of Eights' websites. In total, we have studied 9 academic articles and 13 book chapters.

4.5 Domains

Table 5. Domain of the surveyed publications

Domain	Surveyed papers & books	#
Business & IT	(Bloomberg & Schmelzer, 2013), (Bonnet et al., 2010b), (Bonnet et al., 2010a), (Bonnet et al., 2010c), (Boyer et al., 2010), (Chen, 2007), (Parry & Roehrich, 2012), (Rivard et al., 2010a), (Rivard et al., 2010d), (Tambouris et al., 2012), (Viaene & Isik, 2013), (Janek, 2012), (Brown & Watts, 1992)	13
Business, primarily		0
IT, primarily	(Chen et al., 2013), (Oppenheim, 2011), (Potvin et al., 2013), (Rivard et al., 2010b), (Rivard et al., 2010c), (Rivard et al., 2010e), (Wang et al., 2014), (Schmidt & Buxmann, 2011)	8
Other	(Ryan et al., 2014)	1

Table 5 shows the domain of the surveyed publications which are retrieved by searching the searching engine databases provided by the Basket of Eights' websites. The survey depicts that no publication represent a primarily business view and most of the publications (13 publications) are classified to represent both Business and IT domain even if IT as a primarily domain is quite common as well (8 publications).

4.6 Publications' Citations Referred to the Basket of Eight Journals

Table 6. Publications citations referred to Basket of Eight journals

Source	Surveyed papers published in journals	#
European Journal of Information Systems	(Schmidt & Buxmann, 2011)	1
Information Systems Journal		0
Information Systems Research		0
Journal of the AIS		0
Journal of Information Technology		0
Journal of Management Information Systems		0
Journal of Strategic Information Systems	(Brown & Watts, 1992)	1
Management Information Systems Quarterly		0

This table shows the records that are actually *published* in the Basket of Eight journals, in accordance with process step number 4 in this study's analysis method. Table 6 views that two publications only, are published in the Basket of Eight journals.

5 Discussion

Enterprise Architecture is a growing field which is more essential in the future organization than in the past (Brown & Bib, 2011). In the area of Enterprise Architecture, the professionals who create the architecture will be essential. This study is intended to survey the scholars' approach in present research regarding the profession in being an Enterprise Architect, where the surveyed publications are analyzed from the five focused areas, which are distinguished to be fundamental for this survey. The survey is intended to give a clear outlook of the present publications within the high ranked peer-to-peer reviewed sources, to ensure high-quality research, where all analyzed sources are found retrieved by using the searching engine databases provided by the Basket of Eights' websites.

5.1 Distribution in Time

Most publications are quite recent, while older publications are rare, most likely due that the need for Enterprise Architecture is a modern phenomenon.

5.2 Surveyed Topics

The analysis of the surveyed topics (table 2), shows a significant amount of papers focusing on the role and competence while few focus on the topics of responsibility/authority/-empowerment and pro/reactiveness.

- Several surveyed publications describe the Enterprise Architect role with a focus on collaboration among different stakeholders and organizational units to obtain strategic objectives.
- A common view in the surveyed publications regarding the competence of the Enterprise Architect can be described as a holistic approach to the pluralistic enterprise and in addition, to have good communication skills.
- A common description of the responsibility of the Enterprise Architect is a full responsibility within the entire Enterprise Architecture development process (Tambouris et al., 2012) and also to empower the business users to work in their supported area (Bonnet et al., 2010b).
- No consistency in the way the surveyed publication describes mindset and pro/reactiveness could be found. Although, mindset and pro/reactiveness is mentioned in some publication they rarely correspond in a direct relation to the profession of the Enterprise Architect, it rather concerns the environment the Enterprise Architect working in, in an Enterprise Architectural context.

5.3 Searched Publications from the Basket of Eight

This study has focused on the publications retrieved by searching the searching engine databases provided by the Basket of Eights' websites. Consequently, the search in these databases has returned publications related to the Basket of Eight though, these publications might not be part of the journals or being published within the journal.

This survey of publications related to the field of Enterprise Architecture shows that although there are several publications about the Enterprise Architect(s)-(ing) in a generic search of the internet, the presence of related publications in the distributor of Basket of Eight journals are poor. Due to this lack of research published in the Basket of Eight, any conclusions about the circumstances could hardly be made. By this reason, the deduction should be viewed as assumptions, where one guess may indicate an immature field for the Enterprise Architecture in general and another that this field is not a topic of interest for researchers. Alternatively, the applied research work has not provided sufficient quality levels for being published in the Basket of Eight journals.

5.4 Domains

A clear definition of the Enterprise Architecture is missing (Fischbach & Simon, 2014), and due to this state the phenomenon Enterprise Architecture implies different values to various sources. This survey depicts that some publications have a balance towards the IT domain whereas others see Enterprise Architecture as the top node for the organizational balance between business and IT. This survey shows that 13 publications that include the profession of the Enterprise Architect have a balance between the business and IT. However, since the Enterprise Architecture definition is vague, the classification of publications is challenging.

5.5 Type of Publications

The distributors of Basket of Eight journals indicates that records related to the journals should be the search result only. Though, the journals' searching database engines will return records that obviously are not part of the journals, despite these records resulting from the database extraction. To avoid excluding valid records, a decision was made to include all records from the database extraction and to categorize them according to the type of publication.

5.6 Publications' Citations Referred to the Basket of Eight Journals

When the final filter (step 4 in selecting process) was added to specifically study if the publications in the Basket of Eight actually had become published, only two of the previous 22 publications (step 2 in the selecting process), has actually become published. This result shows that it is particularly interesting and important study the returned selection results in order to judge the source's accuracy and not blindly rely on a search engine returns the response as expected. In this study, the returned amount of 22 publications was reduced to only 2 publications, indicating that 20 of the publications the search engines on the websites was not published materials within the journals.

6 Conclusion

This paper has focused on the profession of the Enterprise Architect and how the Enterprise Architect profession is presented in the literature in general and in Basket of Eight. The research question for this survey reads: *What are the key findings of existing research within the search result returned by the search engines distributed by Basket of Eight publishers, about the Enterprise Architect's profession, in terms of role, competence and responsibility, business and IT domain and mindset concerning reactive or proactive behavior?*

The key findings of achieved research within the journals can briefly be summarized by the observation that limited research have been performed in this specific field. In the surveyed publications, the topics role and competence are relatively well described and discussed while less is written about responsibility/authority/power and pro/reactiveness. There is a relatively distinct bias between the surveyed literature concerning the business and IT domain in the surveyed publications. The surveyed publications describe different directions of the Enterprise Architecting domain. Although many publications are in a direct related IT field, the majority of publications refer to a combination of the Business and IT domain. It is also not possible to draw any conclusion regarding if there is guidance within the Basket of Eight journals, about the Enterprise Architect professionals in their mindset concerning reactive or proactive behaviour, due to the poor result of published articles concerning this topic.

In summary, the result of this survey shows that there is an increasing interest in the field of Enterprise Architecture, while the shortage of existing research about the Enterprise Architect as a profession is obvious, where the outcome of the current research is with a no distinct direction for this profession. By studying the date of the surveyed publications, an increasing trend can be observed in a growing number of publications in present time. This study shows a requisite for further research in the field of the Enterprise Architect as a profession.

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The Enterprise Architect Profession: An Empirical Study

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Abstract: The field of Enterprise Architecture (EA) is rapidly evolving why there is a need for increased professionalization of the discipline. Therefore, understanding the profession of the Enterprise Architects in enterprise transformation and development becomes important. However, there are very few empirically based studies, which have reflected these professionals within their work domain of an every-day business. The purpose of this paper is to increase our understanding of how the Enterprise Architect's practice their profession and in addition, to study how these professionals describe their occupation. Five different topics are of particular interest to portraying the occupation of the Enterprise Architect's profession; the role, competence, power, style of acting and main focus. The study is based on interviews with Enterprise Architects in ten large Swedish organizations. In conclusion, the architect is considered as a proud individualist with an entrepreneurial vein who endeavor consideration, reflection and the guidance capability.

Keyword: Enterprise Architect profession, EA role and competence, EA power, EA mindset, EA style of acting

1. Introduction

The discipline of Enterprise Architecture (EA) has evolved since John Zachman introduced his Framework for Information System Architecture in 1987 (Zachman 1987). EA is considered as a general approach to aligning business and IT within an organization (Langenberg & Wegmann 2004). Today's challenging business world and the increasingly rapid technological advancement requires additional demands on organizations' resources to act strategically and use IS/IT for development for business improvements and new business opportunities. In a recent study of EA research, Simon et al. (2013) conclude that the increasing interest in EA is driven both by practitioners and academics. As EA has become increasingly important for large organizations, a new organizational profession has emerged as Enterprise Architects (Strano & Rehmani 2007). The capabilities and abilities of the Enterprise Architect are essential in promoting EA within an organization and facilitating architectural development (Perks & Beveridge 2004). An Enterprise Architect is intended to be the organizational guide for an accurate balance of the technology utilization and its costs (Potts 2013). Therefore, understanding the profession of the Enterprise Architect in enterprise transformation and development becomes necessary due to complexities of environmental contingencies and interdependent business relationships. Previous research related to the Enterprise Architect profession has mainly focused on defining the role (Strano & Rehmani 2007), how the role is changing (Götze 2013), and responsibilities and competence requirements (Steghuis & Proper 2008). However, few empirically based research studying the professionals within their work domain of an every-day business.

The purpose of this paper is to increase our understanding of how the Enterprise Architect's practice their profession and in addition, to study how these professionals describe their occupation. Our research question is: *What characterizes an Enterprise Architect's profession today and what are these professionals' main ambitions?*

Based on an initial literature survey, we found five different topics of particular interest in portraying the occupation of the Enterprise Architect's profession; the role, competence, power, style of acting and main focus. The empirical research was conducted through ten semi-structured interviews with respondents from ten large Swedish organizations. Four organizations were public and six were private with an average of 30.000 employees, within a range of 1.200 - 95.000 employees. The ten respondents were all senior architects and practicing within an EA function on a daily base, though some of them without an explicit title of Enterprise Architect. Six of the selected respondents are members of a Swedish professional Enterprise Architect network. All interviews were conducted as live meeting at the respondent's workplace, lasting on average 80 minutes and were digitally recorded.

2. Research Model

The intended focus of this study is the Enterprise Architect as a profession. An extensive literature survey was initially performed and where the result forms the basis of the research model. The result from the literature survey showed that there are five different topics, which are particularly interesting when portraying the occupation of the architect's profession; the role, competence, power, style of acting and main focus. The interview questions in the empirical study have been derived and grouped by the five topics according to this research model. The knowledge base achieved in the study of the Enterprise Architect's professional field is described in this section.

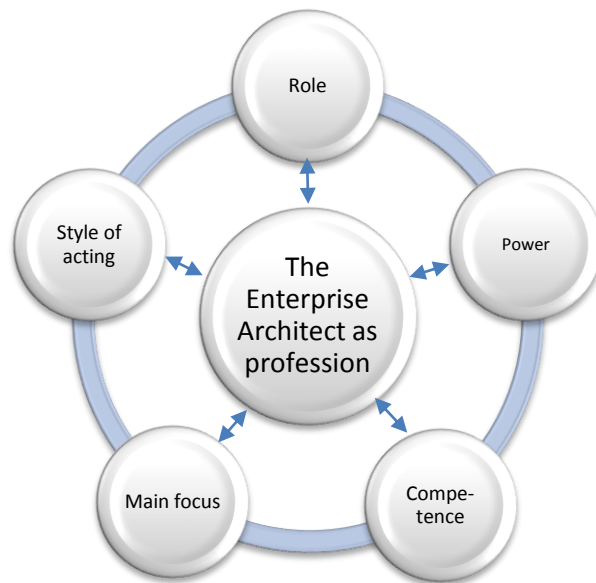


Figure 1. Research model

2.1 Role

A central aspect of studying of a profession is its role and its description. In many organizations, the role description aims to clarify the employee's commitment and engagement. There are no legal or regulatory criteria that strictly defines the role and what qualifications and credentials are necessary to the Enterprise Architect profession (CAEAP 2012). Since EA is an evolving discipline, the role of the Enterprise Architect is continuously changing (Bredemeyer & Malan 2004) and the role will become ever more important in the future (Gøtze 2013). Today, the role includes multidimensional organizational disciplines such as change agent, communicator, leader, manager and modeler (Strano & Rehmani 2007) but the role's composition and abundance can vary depending on the organizational size (Roeleven & Broer 2009). The main tasks of the Enterprise Architect's role are to align IT operations with business strategic goals by managing the complex set of interdependencies and furthermore to communicate and maintain an agreed business strategy (Strano & Rehmani 2007). Nsubuga et al. (2014) argue that especially during strategic situational and design analysis, the Enterprise Architect plays an essential role.

2.2 Competence

The Enterprise Architect's competence can be described in terms of relatively extensive requirements in both personal and professional skills (Gøtze 2013). The architect's competence should embrace several different areas and include skills in both business, technological, management and the social disciplines (Tambouris et al. 2012). The architect must have the accurate knowledge, insights, attitudes and behavioral skills, and have the ability to apply these in their profession (Wagter et al. 2012). Since the profession is continuously working with the creation of architectural design, the knowledge of modeling is a core competence (Potts 2013). Steghuis & Proper (2008) highlights the top five intermediary competencies for the Enterprise Architect as skills: analytical; communication; negotiations; abstraction capacity; and sensitivity empathy. Meanwhile, Hsin-Ke & Peng-Chun (2012) argue the competence as a collection of related abilities, commitments, knowledge, and skills that enable a person to act efficiently. Another core competency is the ability to maintain, in both a long- and short-

term strategic alignment, between the business model and the operating model with mitigating risks (CAEAP 2012). Skills as being a communicator and negotiator are crucial for the profession in order to build trust among the stakeholders concerned (Wagter et al. 2012). A common and shared language within the organization is preferable in essence to sharpening the alignment process (Sidorova & Kappelman 2011).

2.3 Power

The Enterprise Architect's power in terms of authorization, empowerment and responsibility, in both an organizational and a task-oriented way, are central when performing in a successful way. The profession must also have equivalent power relative the liability and the responsibility. Different authors within the academic literature describe this responsibility differently and highlight diverse responsibilities as the most important for the EA profession. Steghuis & Proper (2008) point out that there is no universal set of tasks and responsibilities for the role of the Enterprise Architect. Unde (2008) illustrates the responsibility of implementing the organization's vision and strategy for IT. This responsibility includes defining the standards and guidelines, and composing a governance mechanism to align implementation to the agreed standards and guidelines.

2.4 Style of Acting

The successful Enterprise Architect seeks according to Bredemeyer (2002) proactively for a network of relationships where the collaborative incentive is to form the mutual objectives through partnering, conferring Bahrami & Evans (2010). These shared aims will induce the proactive enterprise transformations where the dynamic capabilities will evolve (Abraham et al. 2012). Grant & Ashford (2008) have found proactively behavior at work could be distinguished as in-role or as extra-role, where the in-role behavior determine what is expected, while the extra-role determine the efforts by the individual to strengthen its role by widen the individual's enterprise. Proactivity is a readiness for planned but also unplanned changes to the environment, while considering the evolvability, vigor and elasticity of the available solutions (Dencker & Fasth 2009). Dikkers et al. (2010) advocate the responsibility of management to foster the organization in the proactive manner contrasting the reactive. Nevertheless, a request for proactive behavior may disguise an assignment of delegation (Sinclair & Collins 1992). Nonetheless, the deadlines and time to achieve a task is to be synchronized among the stakeholders involved, to obtain temporal dynamics (Weiner et al. 2012).

2.5 Main Focus

The business domain has expectations on EA as being the solution to the current problems, while there is vague consistency on the problem description nor how the resolution should look like (Burton 2010). In contrast, the business domain could hardly understand why the IT domain suffering in the delivery of benefits to the business, i.e. the productivity paradox (Brynjolfsson 1993). Quietly, the heavy cost cutting in the ICT domain has been going on for years (Harris 2004). Though, architecture is considered a core business competence, the balance between the business and IT domains are rare (Bredemeyer & Malan 2004). Ross (2006) claims that the IT assimilation of the business domain is essential for the organization, while some organizations have assimilated the IT department into the business, comprehended as core for a future success (Steiber 2014). Bytheway (2014) advocates investing in know-how where technology is ubiquitous, and border lines on the micro and macro perspectives are dissolving opening for the globalization to come. Although a single Enterprise Architect could gain benefits for the organization (Meyers 2012), still a critical mass of the Enterprise Architectural team is necessary to attain efficiency for the architecture (Short & Burke 2010). In this light, Luftman (2000) dispute the maturity of the domains to obtain efficacy. The organizational ambidextrous effort to monitor and control the organization is multi-dimensional and will involve considerations, among others, as a balance between anarchy and despotism referred to by Lilliesköld & Taxén (2008) and efficiency and flexibility described by (Adler et al. 1999).

3. The Enterprise Architect Profession in Practice - Empirical Results

The purpose of this study is to explore what characterizes an Enterprise Architect's profession today and these professionals' main ambitions. The empirical retrieved data from the respondents' answers during the conducted interviews are presented and analyzed by the characteristics presented in figure 1.

3.1 Role

The role primarily focuses on questions concerning how the respondents' professional job description is compiled and to explore what kind of working tasks the architects practically work with on a daily basis. The majority of the respondents have a description of the profession that directly reflects decomposed objectives of the organizational EA mission. This description is often based on a mission such as govern IT but also as

performing tasks within the application landscape and information management. One respondent describes the mission within the role as *"ensuring that the changes taking place in the IT landscape, IT services and IT systems are in agreement with our long-term strategies, goals and principles"*.

Several respondents state that their organizations have no specific measurement tools to determine how efficient their work is carried out. One of the respondents is measured on the primarily cost-saving basis while the majorities are evaluated by vague EA performance indicators only. The results of the study show that it is not uncommon that the respondents have other parallel assignments besides direct EA and some respondents estimate that they periodically work more than half their time on non-direct EA activities. Several respondents argue that the complexity of the role reflects the maturity of the organizational EA where one of the crucial factors is the time that EA, as a function, has existed in the organization. The vast majority considers that their EA function is relatively well established within the organization and consequently that their role description is well defined. Several respondents consider the Enterprise Architect profession as superior to other architectural roles. A substantial part of the interviewed architects regard a CIO's position as a natural next step in their career.

3.2 Competence

The interviewees responded substantially identical in terms of the most important competence for the Enterprise Architect profession. The majority describes business knowledge, the processes and their interactions involved as a core competence of the profession. One respondent describes what is important in terms of core competencies as *"it is necessary to have good knowledge about the company and its processes while knowledge about IT, is not very important"*. Communication skills are argued by several respondents as a critical competence to be an effective Enterprise Architect and needs to be able to articulate, relatively abstract details of the strategic plan from various perspectives to different stakeholders in accurate terminology. Another key skill that was mentioned during the interviews was the managerial skills in terms of both understand how formal and informal decisions are made. None of the respondents state certification requirement within a framework as a core competence, although most respondents indicate that framework and modeling are important skills within the profession. Almost all respondents describe continuous acquisition of knowledge through academic studies, participate in forums, read trade magazines, visiting fairs and collegial networking as important to be able to develop themselves and the business within the EA field.

3.3 Power

The power as aspects of the profession is surveyed by questions concerning the capacities of authorization, responsibility and obtainable resources. Most of the interviewed architects state that they have a relatively comprising power that is in most aspects consistent with their professional responsibilities. The architects describe they have a considerable degree of freedom and full mandate to make decisions concerning architectural issues, even if they have to take into account general directions such as IT security, data privacy, compliance and data retention. However, when an architect becomes aware of a lacking project that does not conform to the agreed architecture, most architects have not the power to alone stop such a project. In these cases, a discrepancy report is created and escalated to decision-makers with more power. This responsibility can be illustrated with quotation from one of the respondents as *"I prepare and give my technical point of view in the technical part. Then we have another party where the formal decision is actually taken, and there is only the CIO member of"*. The interviewed architects can be considered as satisfied professionals in terms of available resources. None of them expresses an explicit desire for extensive resources in terms of more time, increased budget, more accountability and need for improving education.

3.4 Style of Acting

The Enterprise Architect has a vision of acting in a proactive manner, while the circumstances and the organizational culture will force them to act reactively upon the every-day occurrences and tasks. The architect spends a significant part of the work in promoting EA; nevertheless, organizational initiatives to enterprise transformation give rise to incompliance with the EA. This weakness could originate from lack of EA knowledge by the transformation project's members or by conflicting objectives. Nonetheless, these findings will induce a controlling style of acting for the architect, i.e. reactive approach, while most architects interviewed are strictly rejecting such attitude. The mission from the architects seems to focusing a transformation of knowledge to colleagues in an effort to reduce complexity aiming to reduce the architect's workload on acting reactively upon misbehavior from the organizational members from an EA perspective. Quite a few respondents report their work on the one hand as mainly problem-solving and less problem-finding. On the other hand, a few respondents see their work as primarily business oriented enhanced with technology utilization. Allocating

time for consideration and reflection is essential to most architects; thus, the lack of architectural resources will force the architect to act reasonably hands-on. The architect seems to desire the proactive habit in favor of reactive work, while circumstances will force them to occupy a particular position to correct and re-direct transformational initiatives in a late stage. Accordingly, one respondent states *"reflection is an important part of the architects work"*.

3.5 Main Focus

The majority of the Enterprise Architects identify the organizational culture as affecting the EA and vice-versa. The architectural work is sometimes performed as undercover, disguised in other words accepted and understood by the organization. However, the widely held attitude derived from the respondents' depiction, is that they interpret their position as balancing the requirements from the IT domain and the business domain in a conscious manner. Commonly, the architects emanate from the IT domain, with a previous clear IT role, but have progressively adopted the role as part of the business domain. Indeed, the organizational pace as a capability between the IT and business domain is of importance. For some organizations, the EA has been developed to a level of an ivory tower, and then rejected by the organization due to preventing the organizational innovation capabilities. Other organizations have established a council with members from the EA function and corporate innovation team to balance the structural EA in an aim to increase speed from various change initiatives. According to one referent *"if the accurate individuals are meeting, powerful outcome occurs"*. This hint social interaction is crucial to success.

4. Discussion

In this section, we discuss the five characteristics presented in figure 1, to explore what the Enterprise Architect professionals do.

4.1 Role

Despite there is no sanctioned framework available to define the profession as Enterprise Architect (CAEAP 2012), the studied architects have similar working issues, recommend similar solutions and think significant alike in several aspects. They are the guardian, counselor and mediator and acts by a pragmatic ideology. The most obvious differences between the respondents can be traced to dissimilarities, which derive from different organizational settings and the level of maturity that EA achieved within the organization. The description Strano & Rehmani (2007) offer the profession in terms of what the architect needs to understand and articulate the capabilities of the organization as well as the capabilities required to implement the goal of the business, which has been verified in this study. This study confirms the assertion that the role is changing as new technologies and features are introduced to the organization, like Bredemeyer & Malan (2004) argue. A few interviewed architects describe their role to a large extent containing the task of finding new solutions for the future while most did not consider that this task was clearly defined in their job description. Almost all respondents described, however, that one of the main tasks was to identify areas for reuse of already existing resources as central to the role.

4.2 Competence

Regarding the desired competence for the profession, the respondents answered almost consistently that the most important skill is to understand the business, in addition, to be a good communicator and to be able to manage and work according to the established IT strategy. Numerous existing research states that communication skills are crucial for the role and this statement is confirmed by the respondents. A most interesting finding in this study is that this knowledge is vital in *promoting* the EA function within the organization in order to strengthen the EA's ability to success. Another interesting finding is the fact that many of the researchers mention Change Management as a core competence, while none of the respondents expressed this as an essential skill. Just like Potts (2013) argues, the interviewed architects verify that the knowledge of modeling and architecture design is a core competence. The respondents state additionally that during recruitment of a new Enterprise Architect, a certification or experience in a particular framework is not essential.

4.3 Power

Steghuis & Proper (2008) present an extensive list of diverse responsibilities an Enterprise Architect should possess and our understanding is that the interviewed architects' responsibility areas correlates relatively well with this description. An interesting finding is that the responsibilities described in the academic literature often concerns areas, which mainly relate to the architectural responsibilities within an EA/IT Governance area

in terms of creating, applying and maintaining the current application landscape within the organization. The empirical study shows that the architect's responsibility extends beyond the direct EA issues and concerns responsibilities such as promoting and supporting organizational innovations and to promote EA as an organizational service offering. Most interviewed architects describe themselves having the full power to decide within the architectural area, but their decisions can relatively easily be circumvented since the role's responsibilities are primarily characterized by a recommendatory nature. Several respondents clarify that the area of responsibility and power should not be associated with an organizational *police* permitting authorization or actively searching for scapegoats who violates the architectural guidelines. A distinctive feature of the respondents is their desire to be positioned higher up in the organizational hierarchy. Thereby, their role might be strengthened as a strategic capability.

4.4 Style of Acting

Temporal dynamics has been confirmed in some organizations, where the respondents determine the pace not just on transformation speed, but also in the adoption and the balance of a proactive and reactive manner, as key to success. The organizational culture and the habit of the managerial style will affect the inherited pattern of acting proactively or reactively to the concurrent circumstances. Proactivity as a starting point for new initiatives to obtain a new state in the organizational development is quite evident to the respondents in this study. For some organizations, the proactive behavior of the architect may address delegation where current assignment for the architect should have been requested elsewhere. The architects' in-role reactive approach could be distinguished as reacting to the concurrent enterprise and IT strategy, while the in-role proactiveness in anticipating shortcoming course changes in strategy. The architects' extra-role as the reactive approach might be present while the architect is forced to *police* utilization of incompatible business approaches and actions. The extra-role as proactive, suggest new technology advantage that will affect a course change in the corporate strategy.

4.5 Main Focus

Most architects pronounce the balance between the IT and the business perspective in an effort to bridge the two, although most architects stem from and are employed by the IT (department) domain. For some architects, the most troublesome subject is employees representing the business domain neglecting the IT supportive function as something that the IT people will deal with, despite the information in the systems is supplied by them. Nonetheless, the majority of the respondents acknowledge business knowledge as key to success. A tricky part experienced by the architects is to quantify the business value derived from (IT) technology while important to the business leaders (Evans 2009). In some organizations, enterprise transformation speed is prioritized while EA is considered as time-consuming and inhibiting the innovation speed. Less evidence has been found about the clear borderline between the IT and the business domain is dissolving, which might delay the opening for a globalization to come (Bytheway 2014). An understanding about and correct treatment of the office politics is essential to the architects involving the balance of dual challenges for the ambidextrous organization. Thus, a proper wording rendering the organizational culture and by then understood by the organizational members might have a tremendous effect on how EA will penetrate the organization.

5. Summery and Conclusion

This study is intended to explore what characterizes an Enterprise Architect's profession today and these professionals' main ambitions. We have characterized the Enterprise Architect profession from five topics; role, competence, power, style of acting and main focus. The architect is considered as a proud individualist with an entrepreneurial vein who endeavor consideration, reflection and a guidance capability. The architects are working relatively alike within their profession.

Role: This study confirms that the main purpose of the role, corresponds well with the description by Strano & Rehmani (2007) explanatory the Enterprise Architects' efforts to seek to understand and articulate the capabilities of the organization as well as the capabilities required to implement the goal of the business. This study, however, cannot confirm the Change Agent role as important, nor the knowledge thereabouts.

Competence: The architects describe communication as the single most important core competence for the Enterprise Architect's profession. The communication skills are considered essential to promote the EA as a strategic capability of the organization while certification is not reflected as essential.

Power: The architect has a large degree of freedom and full mandate to make decisions concerning architectural issues but less power to implement their recommendations.

Style of acting: Most architects report their everyday work as a considerable portion of hands-on assignments, which for some organizations is encouraging, while more time could be spent on consideration and reflection in an effort to act more proactively. The architect's in-role is commonly reactive while the extra-role encompasses mainly proactivity in convincing the organization about the EA's strategic capability.

Main focus: The majority of the architects emanate from and are employed by the IT domain, whereas all respondents claim their mindset as a suitable balance between the IT and business domain. Their missions are mostly business-driven with a guiding strength in supporting a sound business development.

In summary, the main ambition at work for the Enterprise Architect is to promote the EA where the architects uphold the communication skills as key to success in their missionary work about the EA's strategic capability. We interpret this as an indication of that the Enterprise Architect profession is still under construction.

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