

**Towards a conceptual framework for addressing the business-enterprise  
architecture disconnect**

by

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## Abstract

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Enterprise architecture (EA) has gained increasing dominance in organisations as a strategic enabler to manage complexity. However, most organisations are still finding it challenging to materialise the full benefits of EA. Instead, literature reported that most organisations either failed to institutionalise EA or have caused additional complexities due to architecture decisions being disconnected from the broader strategic context. This highlights a need for investigating the root causes of the key challenges and finding ways to improve EA decision-making at the strategic level. In response, this thesis proposes a shift in focus for strategic EA decision-making. It provides a review of literatures, and a qualitative analysis of the points of view of key EA decision-makers and business executives.

The findings were collected from the two of the largest South African retail banks. In-depth interviews were conducted with the key EA decision-makers and the business executives with whom they usually work. Insights were drawn to compare the views on strategic EA decision-making, forming the viewpoints and value propositions of EA service providers and EA customers respectively. This thesis takes the view that the customers, experiences and value co-creation should be the fundamental focus of strategic EA decision-making.

This thesis starts by establishing the strategic role of EA in a typical organisational context. It enables organisations to be highly flexible with reduced level of complexity. However, the current EA institutionalisation is still littered with challenges. The thesis then presents service-dominant (S-D) logic as an alternative lens to examine the current business-EA relationship in strategic EA decision-making. Challenges in the current business-EA relationship are then examined to understand the various points of view and specific aspects that caused the disconnect between business and EA. This thesis analyses each specific aspect and establishes that they are largely ineffective and are grounded in goods-dominant (G-D) logic. Finally, based on the adapted premises of S-D logic, this thesis develops an initial conceptual framework that provides a set of guiding principles to address the business-EA disconnect in EA decision-making.

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## Table of contents

<b>1.</b>	<b>Chapter 1: Introduction.....</b>	<b>9</b>
1.1	Conceptualising EA decision-making as a series of exchange activities.....	11
1.2	Applicability of G-D and S-D logic to EA .....	12
1.3	Research problem.....	13
1.4	Research questions .....	14
1.5	Research scope and limitations .....	15
1.6	Overview of research design .....	18
1.7	Overview of research contribution to existing research .....	18
1.8	Thesis structure .....	19
1.9	Conclusion.....	21
<b>2.</b>	<b>Chapter 2: An overview of the strategic role of EA.....</b>	<b>22</b>
2.1	Introduction .....	22
2.2	Overview of the EA concepts.....	24
2.3	Understanding the strategic role of EA .....	28
2.4	Institutionalising EA within organisations .....	36
2.5	Overview of research related to EA challenges.....	41
2.6	Summary .....	43
<b>3.</b>	<b>Chapter 3: An S-D perspective on co-creating value in EA.....</b>	<b>44</b>
3.1	Introduction .....	44
3.2	Overview of S-D logic and its key constructs .....	46
3.3	Philosophical description of S-D logic .....	49
3.4	S-D logic in organisational context .....	52
3.5	EA: The need for S-D logic to co-create value.....	54
3.6	Limitations identified in S-D logic.....	57
3.7	Summary .....	58
<b>4.</b>	<b>Chapter 4: Research design and methodology.....</b>	<b>59</b>
4.1	Introduction .....	59
4.2	Research paradigm .....	59
4.3	Research approach.....	61
4.4	Limitations .....	68
4.5	Summary .....	70
<b>5.</b>	<b>Chapter 5: Findings – EA decision-making in South African retail banks.....</b>	<b>71</b>
5.1	Introduction .....	71
5.2	Findings.....	73
5.3	Examining the current business-EA relationship .....	83
5.4	Summary .....	89



<b>6.</b>	<b>Chapter 6: Towards a conceptual framework for addressing the business-EA disconnect.....</b>	<b>91</b>
6.1	Introduction .....	91
6.2	Adapting S-D logic for co-creating value in EA decision-making.....	92
6.3	Towards a conceptual framework .....	97
6.4	Summary .....	103
<b>7.</b>	<b>Chapter 7: Conclusion .....</b>	<b>105</b>
7.1	Introduction .....	105
7.2	Key findings .....	105
7.3	Contributions .....	107
7.4	Future research .....	110
7.5	Overall conclusion.....	111
	<b>References .....</b>	<b>113</b>

## List of acronyms

CSIR	Council for Scientific and Industrial Research
EA	Enterprise architecture
EARF	Enterprise Architecture Research Forum
FP	Foundational premise
G-D	Goods-dominant
HoD	Head of division
ICT	Information and communication technology
IS	Information systems
IT	Information technology
KPM	Key performance metric
S-D	Service-dominant
SOA	Service-oriented architecture
TOGAF	The Open Group Architecture Framework

## List of figures

Figure 1: Context of architecture principles, as adapted from Stelzer (2010). .....	26
Figure 2: Chronological aspects of EA, as adapted from Wagter et al. (2005) .....	30
Figure 3: EA Benefits Model, as adapted from Tamm et al. (2011) .....	33
Figure 4: A high-level generic EA value chain, as adapted from Op't Land et al. (2008).....	36
Figure 5: Incorporating architecture activities into the generic EA value chain, as adapted from Glismann & Sanz (2010), Ross et al. (2006) and Op't Land et al. (2008).....	40
Figure 6: Service concepts (Spohrer et al. 2008a; Spohrer et al. 2007; Clavier 2013).....	45
Figure 7: S-D logic at intra-organisational level, as adapted from Schulz and Gnoth, (2008) .....	53
Figure 8: An illustration of a G-D business-EA relationship .....	56
Figure 9: Research framework.....	61
Figure 10: Description of data analysis steps, as adapted from Myers 2008; Ryan & Bernard 2000.....	68
Figure 11: A graphic illustration of EA function(s) in the participating organisations, indicative only.....	73
Figure 12: Towards a conceptual framework for addressing the business-EA disconnect in EA decision-making.....	98

## List of tables

Table 1: Key constructs of S-D logic in contrast with G-D logic (adapted from Vargo et al. 2010; Lusch et al. 2010b).....	46
Table 2: Ten foundational premises of S-D logic (adapted from Vargo and Lusch, 2008a; Clavier, 2013) .....	49
Table 3: General guidelines for interviewee selection.....	65
Table 4: Overview of interviewees' reporting organisation and business area .....	66
Table 5: Overview of participating organisation .....	72
Table 6: A summary of key challenges and insights that resulted from the G-D business- EA relationship .....	89
Table 7: Towards establishing a premise for co-creating value in EA, as adapted from Vargo & Lusch (2008a), Schulz & Gnoth (2008).....	96
Table 8: A summary of the key components and their alignment to the adapted FPs.....	103

Table 9: high-level self evaluation of academic contributions, adapted from Introna (1992)  
and Goede (2005)..... 108



# 1. Chapter 1: Introduction

If there is anything that distinguishes one organisation from another, it is the decisions that it makes. This thesis argues that the enterprise architecture (EA) decisions are often made in the absence of a clearly defined business-EA relationship and subsequently result in sub-optimal EA effectiveness. Key EA decision-makers can benefit from guidance and support regarding those aspects from the organisational context that form the basis of EA decisions. This chapter sets the overarching context for the thesis. It outlines the current EA literature and highlights gaps for further knowledge contribution on EA decision-making through the lens of service-dominant (S-D) logic and co-creating values in EA decision-making.

Every organisation tries to distinguish itself from its competitors. However, strategic advantage is often accompanied by a high cost of increased complexity. These complexities may have several causes, such as mergers and acquisitions, or the high diversity between the operating models of various business units. Executives invest billions of dollars in strategies and practices with the aim of improving organisational effectiveness, efficiency and foundational capabilities by managing complexities better.

One strategy used to manage the complexities is EA. EA is concerned with the planning and design of an organisation, as it addresses the integration aspects of structure, process, knowledge, systems and people. Various researchers advocate the strategic significance of EA, largely stimulated by various motivations such as business imperatives, legislation, corporate governance and information technology (IT) governance (Babar & Yu, 2015; Tamm, Seddon, Shanks & Reynolds 2011; Glissmann & Sanz 2010; Ross, Weill & Robertson 2006; Peppard & Ward 2004). As some have pointed out, organisations need to build an appropriate business foundation as an essential part of their make-up (Maglio, Srinivasan, Kreulen & Spohrer 2006; Glissmann & Sanz 2010; Ross et al. 2006; Chen, Chi & Li 2009; Teubner 2007). In order to establish such a foundation, business executives are often challenged to integrate and align appropriate value propositions across all areas and levels of the organisation.

The need for EA is found in the fragmentation of strategic initiatives taking place on several levels and in several business units of the organisation. Business executives make use of EA to ensure that various organisational resources are optimally utilised to support organisational

goals (Glissmann & Sanz 2010). The general objective of EA is to provide a blueprint for the effective utilisation of organisational resources while pursuing increased organisational agility, integration and alignment (Armour, Kaisler & Liu 1999; De Vries & Van Rensburg 2008; Boster, Liu & Thomas 2000; Jonkers, Lankhorst, Doest, Arbab, Bosma & Wieringa 2006). Through managing change and complexity, EA creates a strategic advantage for organisations by structuring organisational activities to achieve an envisioned organisational state. However, despite the high interest in EA, many business executives are still finding it difficult to justify the return on the investment in EA and are often disappointed with the outcomes. Challenges that organisations and decision-makers face are primarily related to the predominant product-focused view of EA (Janssen 2011; Chuang & Van Loggerenberg 2010), the poor integration of EA into the overall organisation (Van der Raadt et al. 2010) and the ineffective approach to problem structuring and solving by enterprise architects (Espinosa et al. 2010; Van der Raadt, Schouten & Van Vliet 2008; Chuang & Van Loggerenberg 2010; Kaisler, Armour & Valivullah 2005). As a result, the business-EA relationship has proven to be largely disconnected and has left many EA efforts in a void.

In order for EA to be valuable to an organisation, its role and value propositions need to be carefully considered. Business executives need to understand that EA and business strategic initiatives have to be closely aligned at all levels. More importantly, EA decision-makers should know what the key decision points are and how these are informed by the business strategic initiatives. They should also understand how such decisions are made and how to relate this to the larger business strategic context. In this regard, EA decisions are fundamental because they concern the organisation as a whole, or one or more of its core components, and their interrelationships (Zimmermann, Koehler & Leymann 2006; Tyree & Akerman 2005).

Therefore, these EA decisions contribute to the shape of the organisation in the long term. More insight into understanding EA decision-making can assist business executives to improve the quality of these decisions, which can help to improve the effectiveness of the business-EA relationship. This thesis aims to provide such deeper insight into EA decision-making. Drawing on insights gleaned from S-D logic, this thesis investigates and conceptualises the strategic implications of the EA decisions by following a qualitative research approach. South African retail banks are used as a case to explore the key causes of the business-EA disconnect in EA decision-making. The outcome of this research contributes

to the knowledge required to improve the relevance and the quality of EA decisions in EA planning and design.

This chapter begins with the background information to the thesis. Following the background information, the research problem is described and discussed, and a set of research questions is provided to direct the research efforts to address the stated research problem. Next, the scope and the limitations of the thesis are provided and motivated. A brief overview of the research design is then introduced. The contribution of this thesis is discussed and a summary of the remaining chapters is then given.

## **1.1 Conceptualising EA decision-making as a series of exchange activities**

In this thesis, EA decision-making is primarily conceptualised as a broad series of exchange activities with the objective to guide the design and configuration of the organisational structure, business processes, systems and infrastructure (De Vries & Van Rensburg 2008; Jonkers et al. 2006; Lankhorst 2009). EA decision-making is contextualised as various exchange activities that take place throughout the EA value chain, for example, how decision-making is performed by various economic, social and technical actors interacting with each other and engaging in relationships across different business areas to decide how an organisation's architecture should be designed and configured. Furthermore, conceptualising EA decision-making as a series of exchange activities offers opportunities to understand the various relationships, interactions and value propositions in the end-to-end value chain between business and EA. Business executives are considered as the primary customers of EA services. They seek to receive benefits in exchange for reward or reimbursement by engaging EA decisions-makers, and look for specific value propositions which EA decisions-makers, as service providers, fulfil.

In terms of EA decision-making, this thesis identifies that the stakeholders involved in EA exchange have perceptions of their relationships and value propositions and engage in actions that shape these relationships. This includes the various EA exchange activities in which they are involved. Through analysing these relationships and interactions, it identifies typical challenges and common understandings that are shared among many EA stakeholders. These guide the overall business-EA relationship and establish the underlying logic for EA decision-making.

While some of the concepts discussed and proposed in this thesis, such as customer-centricity and service orientation, may not be entirely novel, the integration of these and other concepts (eg S-D logic and EA decision-making) provides a new lens with which to address the business-EA disconnect. These concepts are extensively discussed and further integrated throughout this thesis, specifically in the context of existing paradigm shifts within EA.

## **1.2 Applicability of G-D and S-D logic to EA**

This thesis adopts the goods-dominant (G-D) and S-D logic to examine the underlying logic that guides EA decision-making. G-D and S-D logic are, in a nutshell, lenses, perspectives and philosophies according to which the notion of economic and social exchange can be viewed (Vargo & Lusch 2011a). This includes viewing EA decision-making as a broad series of exchange activities.

G-D logic is a term coined by Vargo and Lusch (2010) in response to their argument that a conceptual shift is needed from traditional views of exchange to an S-D logic view of exchange. G-D logic focuses on value-in-exchange, transfer of ownership and distributable goods. In contrast, S-D logic emphasises the role of customers and value in context. As opposed to the separation of customer and provider in G-D logic, S-D logic questions the traditional views of service (Barrett & Prabhu 2010; Barrett, Davidson, Prabhu & Vargo 2015) and establishes that service is the basis of all exchange (Vargo 2009). S-D logic posits that exchange consists of a sequence of activities (for example, a flow of service) where customer and provider collaboratively interact with each other, with others involved in the exchange. They co-create value by focusing on the customer and the relationship and simultaneously benefit two or more of the parties involved by providing a service rather than simply a tangible product (although the service may be embedded in a tangible product) (Lusch, Vargo, Bolton & Webster 2006).

Although G-D and S-D logic are not new, they have not yet been applied explicitly to examine EA and, specifically, decision-making at the strategic level (to the researcher's knowledge). This thesis suggests that a change in the underlying logic of EA decision-making can largely improve the business-EA relationship. Instead of being grounded in G-D logic, the underlying logic is shifted to S-D logic. This offers a new approach for EA decision-making to potentially overcome many of its challenges.

### 1.3 Research problem

With organisations always seeking to be more agile, integrated and aligned, EA is often suggested to enable these strategic goals. However, research has proven that institutionalising EA has not been an easy task for most organisations. Prior to formulating the research problem, preliminary research was conducted to understand the current business-EA relationship. The preliminary research confirmed the literature, namely, that EA planning and design often lack the specific business inputs in streamlining EA objectives and processes. Key EA decision-makers often lack the understanding and support for effectively making the planning or design decisions in relation to the larger business strategic context (Tyree & Akerman 2005; Espinosa, Armour & Boh 2010; Van der Raadt, Schouten & Van Vliet 2008).

Building on such understanding of the business-EA relationship and its impact on EA decision-making, it is evident that the predominant product-focused view, the sub-optimal design of EA function within the organisation and the ineffective performance of enterprise architects are the main areas that require attention. These challenges should be addressed at a strategic level in order to effectively improve the overall business-EA relationship. In other words, although business and EA intersect across a number of business areas and organisational levels, developing new ways of assisting the architects to perform better remains largely a tactical value addition. It will undoubtedly add value towards bridging gaps in delivering the relevant architecture services, but would have minimal impact on improving the overall business-EA relationship.

Furthermore, researchers have paid relatively little attention to the various perspectives of EA decision-making that can potentially influence organisations to plan and/or design EA. Such absence of a conceptual foundation for EA decision-making is an important incentive for this thesis. There is limited research focused on understanding strategic EA decision-making and how the associated value propositions should be applied to the larger strategic business context. For this reason, this particular study focuses on EA decision-making at the strategic level and aims to develop a more holistic understanding of the value propositions that sustain a quality business-EA relationship. However, one can question whether EA decision-making is similar to or different from other types of decision-making in an organisation. This thesis posits that the decision-making process is usually similar from the governance and life cycle

point of view. However, it should be understood that “just as any other form of strategic decision-making, these are decisions regarding a set of business activities, and each decision often entails some level of own logic on contextual considerations” (Boonstra 2003). Hence, the process (and the governance) of EA decision-making is considered generic in this thesis and more effort is made to improve the business-EA relationship in its decision-making context.

Based on the literature review and the research conducted, the research problem is formulated and substantiated as follows:

EA decisions are often disconnected from the larger business strategic context, resulting in and contributing to sub-optimal EA planning and design.

The problem influences how EA supports and aligns to the business’s strategic agenda. Consequently, the overall strategic effectiveness of EA is largely constrained and undermined. This is critical for its livelihood in any given organisation, as any EA initiative needs to operate in the broader context of the business. This research aims to address the abovementioned problem by investigating the key challenges in EA decision-making and a set of appropriate value propositions that are required to improve the quality of business-EA relationship. It is argued that S-D logic contains the key ingredients that are needed to overcome some of the challenges encountered in EA decision-making. Therefore, an S-D logic-based conceptual framework is meaningful to improve the disconnection between business and EA, thereby contributing to improving the strategic effectiveness of EA.

## **1.4 Research questions**

The research objective of this thesis is to develop a conceptual framework that will guide EA decision-makers to make decisions in relation to the larger business strategic context in order to improve the business-EA relationship. This objective stems from the research problem that business and EA are still largely disconnected at all levels. Hence, by adopting the lens of S-D logic, this research aims to provide key EA decision-makers with a conceptual framework based on the key constructs of S-D logic, with the purpose of improving the overall business-EA relationship.

The primary research question is:

How can S-D logic be used to develop a conceptual framework to address the business-EA disconnect and, thereby add more value to the business strategy formulation through effective EA decision-making?

This question frames the strategic context of this thesis. The primary focus is to establish principles for an improved business-EA relationship in EA decision-making via the lens of S-D logic. Key value propositions that bring together EA decision-makers and business executives are therefore necessary to unlock the value co-creation potential in EA. It also builds on the understanding of the predominant product-focused view that was found in prior research (Janssen 2011; Chuang & Van Loggerenberg 2010) and the questionable positioning of EA within the organisation (Van der Raadt et al. 2010). This research, which builds on the results of previous researchers, proposes that S-D logic offers key constructs that are helpful for developing deeper insight that can address the most significant challenges in EA decision-making.

A list of secondary research questions was formulated to answer the primary research question:

1. Given the strategic context of an organisation, what is the strategic role of EA?
2. What is S-D logic and how does it relate to EA?
3. What are the key challenges and implications for business-EA relationships in strategic EA decision-making?
4. What insights can be developed using the lens of S-D logic to guide EA decision-makers?

The secondary research questions are used to guide individual chapters in the latter part of the thesis. In each chapter, one or more of the secondary research questions are addressed.

## **1.5 Research scope and limitations**

EA decision-making should be considered a complex phenomenon where business and EA

intersect. This requires an in-depth research agenda around the broader context of EA decision-making. In order to build a consistent and comparable corpus of literature, some guidance and boundaries are required. To narrow the investigation, the following three primary topics are identified for the literature review:

1. An understanding of the strategic significance of EA in the organisational context is formulated.
2. A consolidated review of the key EA challenges and their implications is compiled.
3. A comprehensive review of the key constructs of S-D logic and how S-D logic intersects with EA decision-making is undertaken.

Drawing on the existing EA decision-making literature, the main research contribution is to provide S-D logic-based propositions that are focused on improving the business-EA relationship in EA decision-making, thereby improving the overall strategic effectiveness of EA.

This research limited itself to a consideration of the business-EA relationship in South African banks. South Africa has a well-developed, sophisticated financial structure for payment processing, credit risk, information management and enterprise risk management (Vos & Matthee 2011), and its financial-sector legislation is designed to meet international norms and standards. South Africa's banking industry forms part of the financial service industry, which is one of South Africa's largest industries (Statistics South Africa 2014). The 'big four' banks account for approximately 80% of the total industry's assets. The field study was conducted at two of these four banks.

The reason for choosing the banking industry is because EA, as a discipline or practice, is still growing in South Africa. It is anticipated that other sectors might not have EA at a sufficient level of maturity to allow meaningful research to be conducted, at least not in South Africa. It was therefore decided, based on the preliminary research and in consultation with field experts, that this thesis should focus on a specific vertical sector with an adequate level of EA maturity. Financial services organisations in South Africa, especially those dealing with banking functions, are generally characterised by a reasonable maturity of EA institutionalisation (Matthee, Tobin & Van der Merwe 2007).



This thesis is defined within the scope of EA decision-making at the strategic level and primarily focuses on EA planning and design. This creates scope implications on two fronts.

Firstly, the research focuses on those stakeholders involved in EA decision-making at the strategic level, for example, EA executives who are accountable for its business outcomes. Therefore, enterprise architects and those who are involved in lower-level decision-making do not form part of the scope of this thesis. The focus on the enterprise level and the domain level of EA decision-making (Malan & Bredemeyer 2002; Pulkkinen 2006) determine that business executives and key EA decision-makers were considered to be the sole research targets.

Secondly, the focus of EA decision-making is not intended to reinvent the wheel with regard to understanding the decision-making process. This thesis takes the stance that the generic decision-making process is reasonably explored, and it shares strong commonality (Malan & Bredemeyer 2002; Pulkkinen 2006) in EA and other types of organisational decision-making. The choice of using EA decision-making as a case in point is to support how the business-EA disconnect can be largely improved with the appropriate shift in focus and guiding principles. EA decision-making is conceptualised as a series of exchange activities whereby business executives and EA decision-makers co-create values given their continuous interactions. For this reason, aspects relating to the decision-making process, the governance structure, as well as the development and implementation (as opposed to planning and design) of EA fall outside the scope of this thesis, with the acknowledgement that they are just as important as improving the decision-making contents.

The possible implication for this thesis's limitation is that, although the research is defined within the context of strategic EA decision-making, one cannot completely exclude the interrelationship between the architectural decisions and other architectural processes. For example, managerial decisions and architectural objectives would often influence and direct other tactical decisions in the implementation. Thus, although the actual implementation or execution of the decision do not form part of the main focus of this thesis, the interrelationship between the managerial and architectural decisions, implementation decisions, tactical decisions and other architectural processes is, however, still acknowledged and addressed in this thesis.

## 1.6 Overview of research design

This thesis was conducted following an interpretive, qualitative approach. The reason for choosing this approach is because the research of business-EA relationships in EA decision-making requires an in-depth understanding of the perceptions of decision-makers. The interpretive paradigm takes the view that the human factor is intertwined with the overall research process and cannot be separated from the research subject. Hence, an interpretive, qualitative approach helps to reveal people's behaviour and perceptions in a given context. This approach has therefore been chosen to assist the researcher to reveal the holistic meaning of the strategic EA decision-making context rather than taking a reductionist view.

Based on the qualitative nature of this thesis, in-depth, semi-structured interviews were conducted with representatives from the EA and business functions of two major South African banks. Data collected from the interviews was analysed in order to understand and interpret the key challenges and the value propositions associated with EA decision-making in detail. A conceptual framework was structured with the purpose of providing guidelines to key EA decision-makers in managing architectural decisions to ensure that the decisions are relevant to the larger business strategic context. The research design is further described in Chapter 5.

## 1.7 Overview of research contribution to existing research

The existing body of knowledge on EA provides a firm basis to further our understanding of EA decision-making. The research presented in this thesis offers three primary contributions where research gaps are currently identified. Firstly, according to current literature, EA has been relatively ineffective or unsuccessful in some cases. This points to a number of core problems that this thesis will address. This thesis is aligned to previous research by confirming some of the challenges in the South African organisation. Furthermore, it identifies key gaps and provides insight for improving the strategic effectiveness of EA.

Secondly, this thesis addresses the problem through the largely unexplored lens of S-D logic and expands the understanding of EA decision-making in organisations. Through the application of S-D logic, the findings and outcomes contribute to the expansion of the existing body of knowledge, specifically regarding the business-EA relationship. The value

co-creation principle encourages the movement from G-D logic to S-D logic in EA decision-making, and thereby improves the quality of EA decisions at the strategic level.

Lastly, this thesis proposes a conceptual framework to aid organisations and key EA decision-makers to institutionalise EA more effectively. Using the principles of S-D logic and the analysed outcome of the findings, this thesis constructs an initial, conceptual framework that provides a set of guiding principles to aid EA decision-making. Such a framework is novel and expands on the theoretical foundation of EA to improve the quality of EA decisions. EA decision-makers in South African organisations can use this framework as the basis to adapt to their own practical application in the organisation. As a result, they are potentially better positioned to co-create value with business executives and relevant stakeholders and, subsequently, materialise the benefits of EA.

## **1.8 Thesis structure**

This thesis is divided into seven chapters. Except for Chapter 1, the chapters are designed to be guided by both the primary and secondary research questions. Each chapter ultimately contributes to and/or provides answers to a secondary question or questions.

### *1.8.1 Chapter 1 – Introduction*

This chapter sets the overarching context of the thesis. The problem statement and key research questions are presented in this chapter to outline the primary focus of the thesis and to help readers to understand the rationale of this thesis. The scope is then discussed in conjunction with the expected constraints. The purpose of this section is to draw the boundaries and highlight the inter-relationships between key concepts, even though some may reside outside the scope of this thesis.

### *1.8.2 Chapter 2 – An overview of the strategic role of EA*

This chapter describes the role of EA pertaining to its strategic nature within the business environment. It surveys and reviews the relevant literature on the strategic role that EA plays in the organisation and how it supports the various organisational functions. Primarily taking the view that EA provides an appropriate foundation for strategy execution, this chapter discusses how the various organisational benefits are enabled through the institutionalisation

of EA. Following the discussion of the strategic role of EA, the typical EA function within an organisation is described and the boundary of strategic EA decision-making is advocated. This chapter concludes with a brief insight on the need for a different lens for viewing business-EA relationships and strategic decision-making.

### *1.8.3 Chapter 3 – An S-D logic perspective on co-creating value in EA*

This chapter introduces the concepts of S-D logic and provides an in-depth overview of its potential use as a novel lens for examining the key challenges and value propositions in EA decision-making. It introduces key constructs of S-D logic and how it is often quoted in the recently emerged discipline of service science as the underlying theory. Using the key constructs of S-D logic as its basis, this chapter discusses the value co-creation perspective in an EA environment and how this should be achieved through a set of appropriate value propositions. This chapter concludes with a discussion of the intersect between EA and S-D logic in an intra-organisational context and argues that S-D logic provides a valuable lens of value co-creation for addressing some of the key challenges in the business-EA relationship, specifically in the context of EA decision-making.

### *1.8.4 Chapter 4 – Research design and methodology*

This chapter describes the methodological approach of the overall thesis. The motivation for the research paradigm, research design and relevant research techniques are discussed in this chapter. It sets out to address the research process that was followed to conduct the research and also the limitations. This chapter concludes with a summary of the appropriateness of using an interpretive/qualitative approach for this particular thesis.

### *1.8.5 Chapter 5 – Findings: EA decision-making in South African retail banks*

This chapter provides an empirical overview of the previous four chapters through the findings obtained for two of the four big South African banks. The purpose of this chapter is to illustrate the key challenges and the value propositions of EA decision-making in an enriched manner. The main findings are presented to illustrate the managerial/strategic challenges of EA decisions and the complex relationships between business and EA. Furthermore, the implications for EA decision-makers are discussed in detail. It highlights the G-D nature of the business-EA disconnect as the conclusion to this chapter.

### *1.8.6 Chapter 6 – Towards a conceptual framework for addressing the business-EA disconnect*

This chapter argues that, emerging from the findings and the implications of the key EA decision-makers, a conceptual framework can be derived. Through the lens of S-D logic, this framework is developed to assist the EA decision-makers to co-create value with business executives and resonate with the larger business context. In this chapter, a detailed discussion is provided to adapt S-D logic's fundamental premises (FPs) for EA. The insights derived from the adapted FPs are then used as the basis to develop a conceptual framework to improve the overall business-EA relationship in the context of EA decision-making.

### *1.8.7 Chapter 7 – Conclusion*

The final chapter summarises the thesis by addressing the primary research question and its alignment to the research objective and the expected outcome. This chapter concludes by highlighting the significance and the contribution of the overall thesis.

## **1.9 Conclusion**

This research acknowledges and underlines the complexity of institutionalising EA in organisations, especially the South African retail banks. Institutionalising EA requires a significant investment in time, effort and resources. Since resources are limited, EA decisions must be carefully managed to ensure that it supports the larger business strategic context. This research argues that S-D logic provides the key ingredients for addressing some of the primary challenges in EA decision-making, notably the business-EA disconnect. It capitalises not only on the tangible organisational resources, but also on the productivity of the business. Indeed, the business and EA are the value co-creators in the overall EA decision-making.

This research contributes mainly to strategic information and communication technology (ICT) planning by adapting S-D logic as the strategic logic for institutionalising EA and informing EA decision-making. This is evident from the research where it was found that EA needs to be more customer-oriented, rather than be product-focused. Key EA decision-makers should, therefore, co-create value together with business executives in the overall decision-making process by taking into consideration the appropriate value propositions, enhanced customer experiences and aligned business-EA relationship.

## 2. Chapter 2: An overview of the strategic role of EA

### 2.1 Introduction

This chapter sets out to discuss the conceptual foundation of EA in order to explain its strategic contribution in a typical organisational environment. The main purpose is to outline the various fundamental components of EA and how these are applied in an organisational context. By discussing some of the literature, this chapter also reveals the key reasons why EA is often found to be ambiguous, resulting in potential misinterpretations in the organisation. Moreover, this can be attributed to the common phenomenon, whereas the inconsistent application of EA's definition and possibly the inappropriate positioning of EA are often found in modern organisations.

Motivated by the increasing complexity of organisations and the need to become more agile in how they react to an ever-changing environment, Zachman (1997; 2010) introduced the concept of EA. Zachman (1997) defined EA as “descriptive representations that are relevant for describing an enterprise such that it can be produced to business requirements and maintained over the period of its useful life”. This definition was largely attributed to Zachman's observation of how aircraft were designed and built in the 1970s. He compares the enterprise in the information age to the design and manufacture of an aircraft, which is a complex engineering product. This led him to reflect on how organisations could cross the architectural bridge between strategy and implementation. Zachman conceptualised the principles and commented that the aircraft could actually fly because the engineers understood how the architecture works and they built the aircraft based on that understanding.

When an organisation is considered from the same perspective, assembling the components of an enterprise, including the system, application, knowledge and people, into one coherent enterprise often leads to serious challenges, resulting in dissatisfaction among executives. This area of ‘manufacturing of enterprises’ is the area where Zachman contributed his insights in an attempt to answer the following question: “What then is the architecture of an enterprise?” Following this line of thought, he developed the very first EA framework that addressed the various components of an enterprise (Zachman 1997). It constitutes an important milestone in the progression of EA. Zachman's definition of EA and his EA framework are extensively referenced by both academia and industry, specifically informing EA institutionalisation initiatives.

Zachman's work not only established a conceptual foundation for EA, but also led other researchers to expand on this definition by investigating other architectural aspects in relation to a typical organisational environment. Using Zachman's definition of EA as a premise, other researchers (De Vries & Van Rensburg 2008; Jonkers et al. 2006; Lankhorst 2009) described EA as "a management practice that consists of principles, means and representations that are used to design and realise organisational configurations in terms of structure, processes, systems and infrastructure". Ross et al. (2006) further contextualised the strategic nature of EA by suggesting a long-term view of the organisational configuration of processes, systems and technologies, thereby creating an agile capability to link an organisation's operating model and IT engagement model. Various researchers advanced Zachman's initial engineering view and argued that EA, in an organisational context, builds foundational capabilities that will support the execution of various strategies (Ross et al. 2006). Building the capabilities required for any given execution of organisational strategies is considered to be the primary driver of EA. Hence, EA is strategy-driven in nature; it is a management practice that builds a foundation for strategy execution by assisting the business decision-makers in architecting the enterprise to be in line with the business strategies and objectives.

In the following sections, the EA discussion is further extended based on the work of various scholars. It is interesting to see that different researchers tend to define EA differently, depending on the context of their research or practice. However, although it may imply that the overall literature may not necessarily present a coherent view of what EA is and what it entails, it does provide some clarity on how EA should be understood. Section 2.2 mainly focuses on discussing the basic concepts of EA. The section describes concepts such as EA principles, representations, frameworks and other related concepts. Section 2.3 discusses the strategic role of EA and details how various strategic outcomes can be enabled via the effective institutionalisation of EA. A brief overview of the EA value chain is provided in Section 2.4, with a particular focus on institutionalising EA within an organisational environment. Section 2.5 presents a high-level overview of the related challenges in EA. This chapter concludes with the strategic positioning of EA and how it can affect the successful institutionalisation of EA in a typical financial services organisation.

## 2.2 Overview of the EA concepts

Discourses in EA literature range from discussions on the concepts of principles and patterns, to the management and applied use of EA. As the literature covers a wide spectrum of EA viewpoints, this section aims to discuss only the basic concepts that are relevant to this particular research, which are presented in a consolidated manner. Other aspects, such as EA documentation methods, vendor-specific tools and implementation frameworks/details used in and for EA are regarded as separate and not specifically relevant to this research. For the purpose of this research, the ‘extended definition’ of Zachman’s (1997) work, which defines EA as “a management practice that consists of principles, means and representations that are used to design and realise organisational configurations in terms of structure, processes, systems and infrastructure” (Zachman 1997; Chuang & Van Loggerenberg 2010; De Vries & Van Rensburg 2008; Jonkers et al. 2006), is preferred.

### Principles

Upon attempting to understand what guides the organisation towards successful strategy execution in respect of EA, various researchers started with the following question: “What is the underlying principle that guides EA design and implementation?” While there is not yet complete consensus on what this underlying EA principle is, there are certain commonalities found in the literature. Stelzer (2010), for example, analysed the relevant literature on architecture principles and classified the principles into two broad categories: design principles and representation principles.

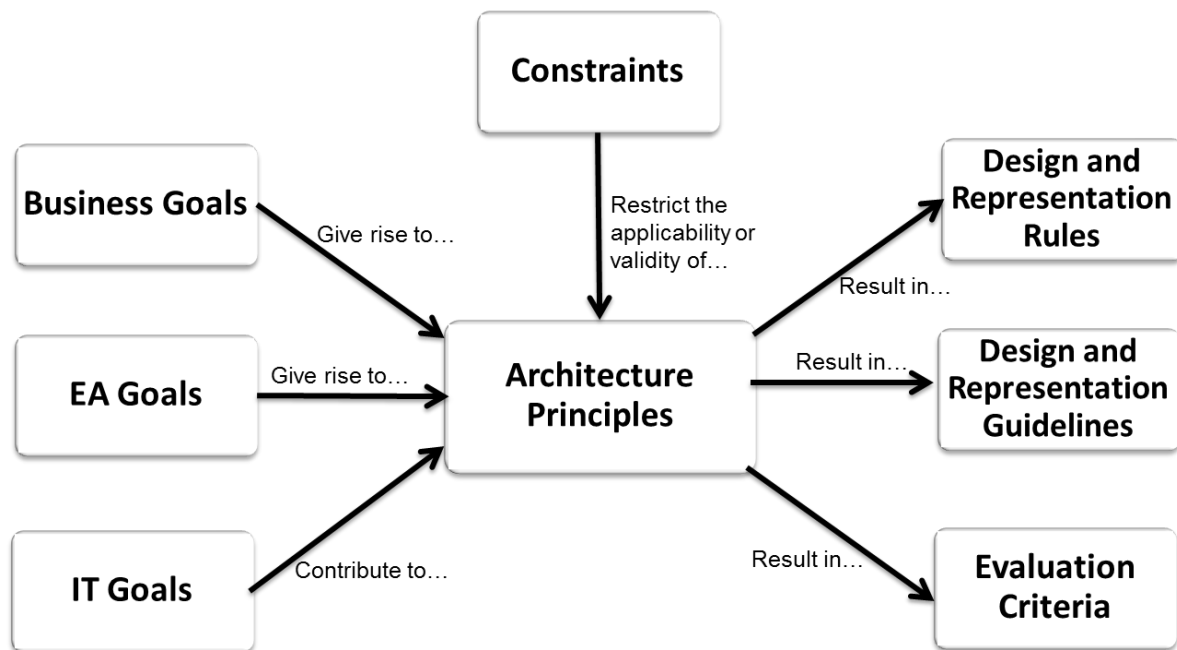
Design principles in EA are understood as “fundamental propositions guiding the construction and evaluation of architectures” (Richardson, Jackson & Dickson 1990; Stelzer 2010). These design principles are often adopted from the organisation’s philosophies and are used to guide the design and development of EA. They usually provide guidelines and rationales for EA decisions, thus placing boundaries on the decisions regarding the architectural landscape (Richardson, Jackson & Dickson 1990; Bommel, Buitenbuis, Hoppenbro, Proper, Reichert, Stecker & Turowski 2007; Lindstrom 2006). Representation principles, on the other hand, place emphasis on the “fundamental propositions for describing, modelling and representing architectures” (Stelzer 2010). Very often, these representation principles are closely aligned with the design principles in delivering EA.



Representation principles guide the process that translates the architectural rationale into actual EA descriptions and models. It directs the abstraction process to ensure that architecture descriptions and models are described and represented at the appropriate level of granularities for the intended stakeholders.

As Hoogevorst (2004) noted, all principles, regardless of design or representation, should entail three fundamental aspects. These aspects are the rationale, the implications and the key actions necessary for making the principle operational. Depending on the context used, these principles often manifest in the structure of rationales and implications, or in goals and rules (Richardson et al. 1990; Armour et al. 1999; Lindstrom 2006; Wilkinson 2006; Bommel et al. 2007). As shown in Figure 1, the context of these principles is largely shaped by two main sets of goals, namely business and EA. Depending on what business and EA have envisaged achieving via EA, it provides direction on how EA should be designed and represented to fit the context.

On the other hand, information technology goals provide a contributing influence, as EA often incorporates system components as part of the overall integration with organisational structure and processes. Principles in EA can be viewed as the ‘imposed law’ within an organisation (Op’t Land, Proper, Waage, Cloo & Steghuis 2008; Bommel et al. 2007). The understanding of the imposed law is similar to traffic laws. EA principles impose laws that address the business flexibility and key stakeholders’ concerns, just as traffic laws govern certain behaviour on the roads. It provides specific guidelines to the operational behaviour, ensuring that it fits into the boundaries set by the principles and its rationales. Consequently, business executives and EA executives can derive a set of evaluation criteria that will assist them in evaluating the effectiveness of EA. Furthermore, the research of Aier, Kurpjuweit, Schmitz, Schulz, Thomas, & Winter (2008) has shown that these principles are among the critical success factors of EA (or EA management in his terminology). The appropriate application of EA principles positively influences the outcomes of EA and its artefacts.



**Figure 1: Context of architecture principles, as adapted from Stelzer (2010).**

While it appears that the importance of EA principles is largely acknowledged in the literature, very little consensus is found in their application – such as how the concepts of principles, rationales and implications are structured relative to the larger organisational context. Research indicated that, too often, these fundamental concepts are found in informal statements of the organisation, leaving too much room for interpretation and subsequently causing misalignment with the organisation’s value proposition (Richardson et al. 1990; Bommel et al. 2006). As Bommel et al. (2006) quoted in their research, “principles are core elements in EA, informal statements [as such] arguably do not provide enough precision to concretely scope the design space. Therefore, they have limited power as a steering instrument”. As a result, even though research has shown that principles are important for EA delivery, the practical application in terms of the formalisation of these concepts and associated principles still require more attention.

## Representations

The complexity of EA is often found in the integration of the organisation’s strategy, knowledge, process, systems and people. Consequently, representations are of crucial importance in EA delivery. It represents the reality in a form (or a combination of forms) that is appropriate for all stakeholders. Generally, there are two general representations in EA, namely models and views.

Models are useful representations/abstractions of reality. More specifically, models are defined as “any subject using a system A that is neither directly nor indirectly interacting with a system B, to obtain information about the system B, is using A as a model for B” (Op’t Land et al. 2008). EA models are often the result of specific conceptualisation of the enterprise, leading to some graphical or non-graphical representations that span multiple dimensions of focus, goals and purpose.

Views are necessary representations, as there cannot be a universal model or representation that serves all stakeholders in a dynamic, yet complicated EA environment. Views are similar to how models are represented, but they are fundamentally different from one another. As such, views “are purposeful representation/abstraction of the reality that can be derived formally from one or more models without changing the way in which the model represents the domain” (Op’t Land et al. 2008). In other words, each model will entail a view, but a view is not necessarily a model, although it can be represented in one or more models. Representations also relate to the various viewpoints in the process of EA delivery, regarding how a specific stakeholder perceives and views the enterprise. Hence, EA encapsulates the various viewpoints of stakeholders and consolidates them into one coherent view of the enterprise, following the design and representation principles.

The representation of EA is sometimes also referred to as the direct and tangible outputs of the planning and design process (Tamm et al. 2011). This may include the physical artefacts of architecture like diagrams, roadmaps, blueprints and other related documentation.

## **Frameworks**

In order to provide some structure for creating a coherent view of the enterprise, EA frameworks were introduced. These frameworks intend to aid business executives or enterprise architects by providing a structure that uses different abstraction levels to map all kinds of information needed (Op’t Land et al. 2008). It is not architecture per se, rather it intends to present a conceptual structure that includes the principles, models, design concepts and even approaches that guide the development of a specific architecture viewpoint. According to Schekkerman (2006), an EA framework typically “provides a generic problem space and a common vocabulary within which individuals can collaborate to solve a specific problem”. These frameworks may or may not be comprehensive (in terms of the level of

granularity required) or holistic (in terms of covering all angles/views of an enterprise), but will help the organisation and EA professionals to focus on a specific set of concerns and issues that matter the most. Due to the broad range of concerns and different types of architectures, these frameworks very often distinguish several architecture layers and views in order to produce a specific set of EA artefacts and models (Winter & Schelp 2008). A framework often positions the expected architecture outcomes and enables diverse communication on the details of these expectations. Frameworks are usually used as best practices to guide the methodological process.

Although it is not the focus of this research to introduce the details of the various EA frameworks and/or how they have evolved over time, it is still worthwhile to note some of the popular frameworks that are used in South African banks. Well-established frameworks, such as The Open Group Architecture Framework (TOGAF) and Zachman, are largely used in EA delivery in the South African financial services sector, including the banks (Matthee, Tobin & Van der Merwe 2007). Usually, these frameworks are adapted and/or modified to suit the needs of individual organisations.

### **2.3 Understanding the strategic role of EA**

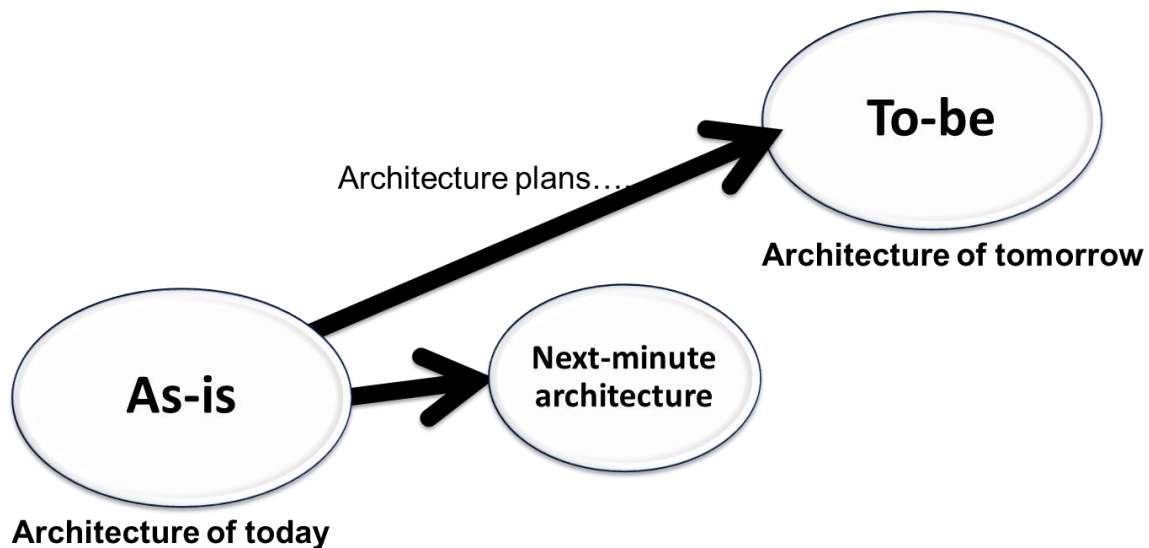
In an organisational context, EA often constitutes a strategic dialogue between all business strategic initiatives, business operating models and IT engagement models (Simon et al. 2015; Ross et al. 2006; Wagter, Van den Berg & Luijpers 2005). This is largely motivated by studies, the findings of which show that different business areas of the organisation tend to give different answers to the same strategic questions (Ross et al. 2006). Business units that have many isolated, yet overlapping functions, usually take their decisions independently without consideration of the larger business strategic context. The rationales and implications of the architecture decision are often done in silos and not clearly revealed to the stakeholders (Glissmann & Sanz 2010). As these experiences suggest, by establishing a strategic dialogue in an organisation and across the various business units, EA is often positioned to establish a foundation that enables the effective execution of various strategic initiatives. This section aims to describe how such strategic dialogue can be facilitated and how the various strategic outcomes are enabled via EA.

Before explaining how EA leads to various strategic outcomes, it is important to note certain characteristics of EA. These characteristics are important, because too often the multifaceted EA may create perceptions like a group of blind people each taking a silo view of a large elephant, whether it is those of business executives, IT practitioners or researchers. In order to set the context for later chapters, this needs to be clarified before one can present a coherent view of EA. According to Wagter et al. (2005), three main characteristics are crucial to understanding and interpreting EA. People often misunderstand EA because they do not consider these main characteristics, and different stakeholders tend to neglect how EA progresses and evolves given the evolving nature of EA and its requirements:

- The chronology of EA
- Contextual aspects that are not carefully differentiated
- The level of abstraction that is not clearly defined according to the intended purpose/stakeholder

The chronological aspects of EA are mainly defined as the different time-related views of EA (see Figure 2). The chronological understanding changes between three viewpoints, namely the ‘as-is’ understanding of the current architecture, the ‘to-be’ blueprint depicting the desired state of architecture and the set of architecture plans, deliverables and movement from the ‘as-is’ to the ‘to-be’, the so called ‘next-minute architecture’.

As some stakeholders may ‘perceive tomorrow’s architecture in today’s terms’, it usually causes many unnecessary conflicting views or debates on the architecture rationalisation and, subsequently, results in many misaligned opportunities. This is especially true when the chronological aspects of EA are not made explicit in interpreting the various viewpoints regarding EA. The chronological aspect of EA includes considering the different growth stages of EA, the varying maturity levels of architecture domains and how this may possibly influence EA viewpoints.



**Figure 2: Chronological aspects of EA, as adapted from Wagter et al. (2005)**

According to Wagter et al. (2005) the contextual aspects refer to domain-specific requirements. The focus is placed on the ‘product requirements’ of EA, mainly on delivering the end-to-end design of architecture, driving key requirements from business architecture to other architectures such as information architecture and application architecture. Wagter et al. (2005) suggest that these architecture domain views are often kept isolated and embedded in one another. In this view, the ‘context’ is largely constituted by the various architecture domain activities. Because they are all interrelated, it should be made explicit. Hence, a single view of business architecture per se may be misleading in terms of the holistic picture of what EA can accomplish in an organisational context. However, this view of context is somewhat insufficient in terms of how contextual aspects need to be defined, as it is predominantly product-focused and it is almost exclusively defined by the EA artefacts. This concept will be explained further in Section 2.5, where the need for considering contextual aspects is examined. Having said this, the argument of Wagter et al. (2005) that contextual aspects need to be made explicit at all times remains valid.

Finally, the characteristic of the level of abstraction remains an important differentiator for all EA-related practice and research. While many studies were carried out to specify the use of EA in different applications and/or to serve different purposes, the abstraction level always needed to be made explicit. This can be worrying at times when the level of abstraction is not clearly stated, resulting in comparing apples with pears and consequently led to EA being rather ambiguous.

For example, organisations can use EA to support the following:

- Retaining more customers by streamlining the sales and service value chain in a bank
- Centralising customer data across different business units to provide a single view of customers
- Improving call centre employees' productivity in following a more efficient process
- Standardising the portfolio of customer relationship management applications within a segmented organisation

All of these statements can be addressed within EA (from all angles of the different domain architectures), but they all reside at different levels of abstraction. Issues like the centralisation of a customer data warehouse can be supported by a lean design of information architecture, providing a sketch to support call centre employees to better service their customers. All of these can be created in models and process flow representations. Yet, the tangible process flow representations are once again at a different level of abstraction. The key message here is to understand that EA itself is a multifaceted concept. It spans both horizontally (across multiple domains and purposes) and vertically (concerning different levels of abstraction and granularity). These characteristics should always be clearly defined and articulated in order to avoid possible confusion of the objectives of EA.

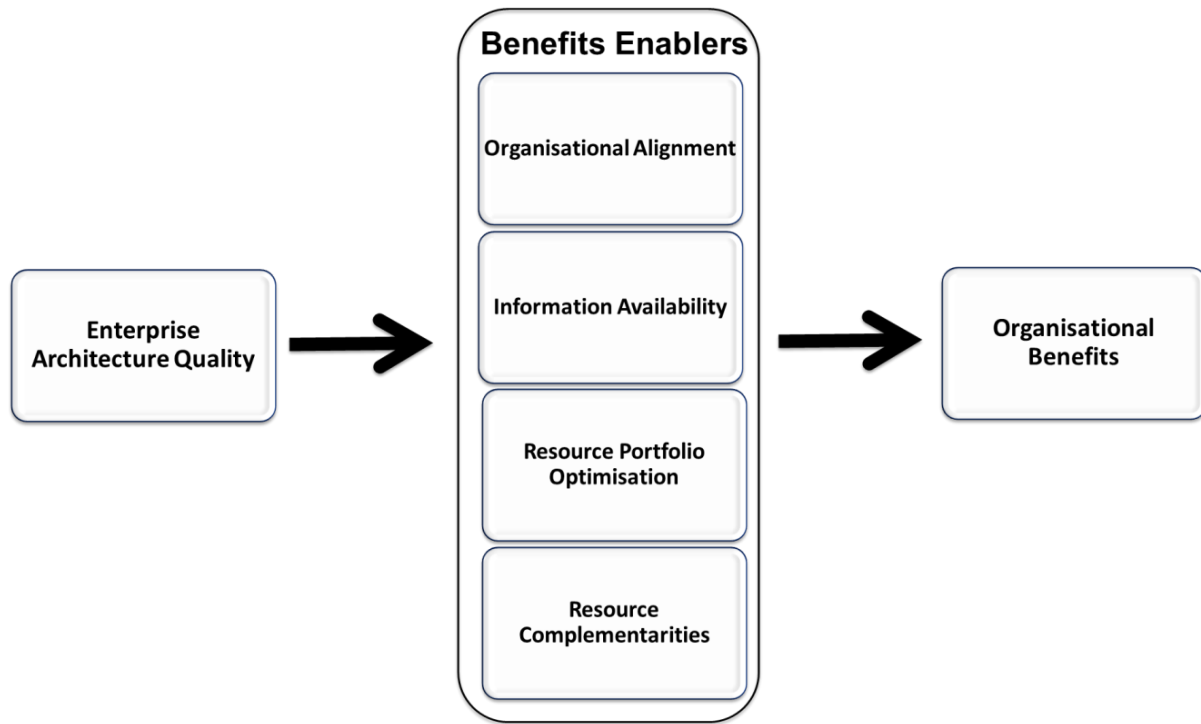
In this thesis, the discussion of EA is maintained on a highly strategic level, focusing specifically on strategic EA decision-making. In other words, rather than presenting a reductionist viewpoint on a specific domain of EA, this thesis looks at EA holistically, based on the definition that was provided earlier. Similarly, attention is focused on the typical strategic EA decisions like the strategic positioning of EA, architectural visions and objectives, as well as how the business-EA relationship guides or influences such decisions. Consider a target architecture business case example, the architecture is designed in view of the target state bank (could be a new market entry or leveraging innovative digital technologies to become a digital bank). The business case provides propositions outlining the current competitive positioning and the changing voice of bank's customer – and most importantly, how EA can be positioned to assist the business to achieve a set of business objectives.

In terms of the strategic role of EA, an effective foundation for strategy execution often relies heavily on a tight alignment between business strategy, organisation design and its capability to execute and communicate the strategic vision (Kaplan & Norton 2004). Unfortunately, while most executives try to do just that, they often run into trouble when attempting to execute the strategy. Many employees in the organisation might have a limited understanding of the strategy. They have little access to clearer and more detailed information regarding the strategy, yet they are expected to function based on the organisation's strategic vision (Kaplan & Norton 2000). The process starts all over again each time executives define another strategic initiative. These phenomena often have the following challenges (Ross et al. 2006):

- Strategic initiatives are not clear enough.
- Even if the strategy is clear enough, it is executed in a piece-meal, sequential manner.
- Because the strategy is executed in sequential manner, organisational resources always tend to react to the latest strategic initiative, for example, fashionable trends in IT.

All of these contribute to the fragmentation of strategic initiatives and the sub-optimal utilisation of organisational resources. In other words, it provides an ineffective foundation that is unable to support the execution of the organisational strategy. It is not agile enough to fully mobilise existing organisational assets to accomplish strategic goals. With more business executives realising the disadvantage of fragmented strategic initiatives and business silos, EA created expectations to assist them to align various organisational resources, including organisational structure and processes, systems and applications, knowledge, and people within the various strategic initiatives (Schmidt & Kieninger 2009; Van der Raadt et al. 2008; Zachman 1997). The rationale is that an architecture blueprint allows the organisation to focus on business-critical activities rather than fighting fires on lower-value activities (Ross et al. 2006; De Vries & Van Rensburg 2008). This is evident in the EA Benefits Model that is depicted in Figure 3 (Tamm et al. 2011), which presents a consolidated view on how EA enables various organisational benefits. It is also a view largely supported by Glissmann and Sanz (2010), Van der Raadt (2010), Shah and Kourdi (2007), Venkatesh, Bala, Venkatraman & Bates (2007), Ross (2006) and Bernard (2005).





**Figure 3: EA Benefits Model, as adapted from Tamm et al. (2011)**

Although the model may still have its own constraints and limitations (Tamm et al. 2011), it depicts a clear, consolidated view on the overall strategic, enabling role of EA which, potentially leads to various organisational benefits. According to Tamm et al. (2011), the strategic role of EA is largely driven by four primary enablers: the focus on the extent to which a common understanding is facilitated across organisational units in terms of its strategic goals (alignment), the extent of the accessibility of organisational strategic information to key decision-makers (availability), the extent to which the existing resources are leveraged (optimisation) and the extent to which the various organisational resources are synergised (complementarities).

These four enablers are at the core of EA's strategic role and they are further elaborated on below:

- **Organisational alignment.** Organisations with a good level of alignment usually achieve better results through the elimination of duplicated efforts and incoherent activities. This is largely proven in the existing alignment literature, including business-IT alignment studies (Chan, Sabherwal & Thatcher 2006; Chan & Reich 2007; Kaplan & Norton 2004; Sabherwal & Chan 2001). Organisational alignment highlighted the significant linkage between organisational performance and the level of synergy

between different business functions and units in terms of strategic goals and objectives. EA planning and design both have the potential to contribute to the organisational alignment aspects, as EA ultimately requires strategic dialogue to take place across the business units. EA goes beyond the alignment of business and IT, and includes other aspects of organisational alignment. EA addresses the interdependencies between the various parts of the enterprise through the facilitation of strategic dialogue (Tamm et al. 2011). The increased understanding of the process and intra-organisational interdependencies and synergies provides a solid basis for involving the appropriate stakeholders in a collaborative decision-making environment. The objective of organisational alignment, specifically the need for business-IT alignment, is among the top reasons why business executives invest in EA (Tamm et al. 2011).

- **Information availability.** EA has the potential to improve on the overall quality of the information, including aspects such as availability, relevance, completeness, timeliness and accessibility (Tamm et al. 2011). EA facilitates a holistic approach towards the organisation. This often contributes to revealing the interdependencies or inefficiencies that were perhaps undocumented, but could also be unknown to the business executives. Research shows that EA facilitates information-sharing by advocating a reference architecture design that allows common information structure and sharing mechanisms (Boh & Yellin 2007). Moreover, enhanced information availability contributes to the benefits of strategic knowledge management, which is argued to be an important source of competitive advantage for organisations (Davenport, Harris & Morison 2010). It is therefore posited that, by enhancing the information availability of organisations, EA could potentially contribute to creating organisational competitive advantages.
- **Resource portfolio optimisation.** In relation to EA, resources can be understood in terms of organisational assets, processes, people and knowledge. In this regard, optimisation refers to the removal of non-value-adding processes or the duplication of resources. Due to its holistic approach to the organisation, EA often identifies potential areas where gaps or overlaps occur in the utilisation of resources. Effective EA planning and design recommend methods of improving the existing usage/allocation/structure of organisational resources (Bernard 2005). It not only involves the establishment of a future architectural vision, but also a detailed analysis of the current architectural state. Therefore, EA builds a more sophisticated view of

utilising resources. This leads to resource visibility, which enables business executives to reduce resource costs, and eliminates unnecessary complexity through the higher reusability of assets (Boh & Yellin 2007; Ross et al. 2006; Venkatesh et al. 2007).

- **Resource complementarities.** EA contributes to improved resource complementarities through the identification of the potential enterprise-wide synergies, and recommends ways to leverage the potential synergies (Tamm et al. 2011). Literature reveals that the fragmentation of strategic initiatives ultimately implies the fragmented use of organisational resources. This becomes inevitable if there is no mechanism to ensure the synchronisation of the various initiatives. According to Tamm et al. (2011), EA sets a roadmap that identifies the core strategic capabilities and their constituent structure and technologies. It provides a view for business executives to leverage the synergy of the various organisational resources, and combine them in ways that competitors cannot easily replicate. EA can facilitate a desirable resource configuration to support the competitive ability of an organisation.

These enablers detail the strategic role of EA that often results in a variety of organisational benefits. All these enablers are directed by the level of quality of the EA. A high-quality EA is one that “provides a blueprint towards future organisational configurations and is well-aligned with the organisational long-term strategic goals, complemented by an optimal roadmap to achieve such blueprint and based on a precise understanding of the current configuration” (Tamm et al. 2011). This visibly outlines how the business-EA relationship affects the overall quality of EA. The business-EA relationship undoubtedly influences the way in which the various organisational benefits can be realised effectively. Taking the alignment objective as an example, the EA planning activity itself requires necessary intra-organisational dialogue between key decision-makers, allowing both vertical and horizontal alignment (Reynolds, Thorogood & Yetton 2010). Should the business-EA relationship appear to be unclear and/or misaligned, such an alignment objective would consequently render the results to be ineffective, as no or limited support from business can be expected. However, when the relationship is clearly defined, articulated and understood by all key decision-makers, it has a strong potential to more closely align the business units (EA and IT) to the business goals (Gregor, Hart & Martin 2007; Ross et al. 2006; Versteeg & Bouwman 2006; Avison, Jones, Powell & Wilson 2004).

EA undertakes a strategic role in the organisation. The enablers clearly depict how the various organisational benefits can materialise. Business executives often benefit from these enablers, as they create a coherent view of organisational resource oversight and visibility (Shah & Kourdi 2007), thereby informing strategic decision-making for the organisation as a whole. Following this understanding of the strategic role of EA, the next section details the process of how organisations institutionalise EA.

## 2.4 Institutionalising EA within organisations

EA provides a firm foundation for strategy execution through four primary enablers, all of which form the core of EA's strategic role. The strategic role of EA is vital in understanding how EA enables the various strategic outcomes. Nevertheless, the tangible and intangible outcomes business executives strive towards still require a process to be carried out. Linking with a "quality architecting process" becomes important in order to translate the quality EA into real actions. Although it remains the interest of this research to focus on strategic EA decision-making, this section briefly describes the process view of EA, which completes the picture of EA's strategic role.

EA institutionalisation involves a number of essential processes before a well-defined architecture can be created. Firstly, the understanding of EA needs to be established and communicated in line with its purpose. This directs the overall EA efforts in terms of how the various principles, representations and frameworks can be applied. Furthermore, in order to remain relevant and useful (given the changing environment of the organisation); EA has to be continuously maintained over time. The rest of this section expands on the detail of these processes (see Figure 4).



**Figure 4: A high-level generic EA value chain, as adapted from Op't Land et al. (2008)**

In organisations where EA might be a new concept, an introduction is often called for. This includes introducing the fundamental concepts of what EA is to stakeholders. It opens up conversations about the process that is followed in creating EA, the requirements of adopting EA thinking and the benefits of following such an approach. Typically, for the type of transformation that EA enables, one wants to involve, get access to and obtain buy-in from key stakeholders before presenting any EA institutionalisation initiative to the initiative's sponsors (Niemi & Pekkola, 2015; Op't Land et al. 2008). At this stage, communication is the key to establishing the EA concept within the organisation.

Once the EA concept is communicated and a baseline understanding of EA has been established, one should start applying EA thinking to different organisational practices. This includes applying EA principles, representations and frameworks to organisational practices, using it as a steering instrument to analyse the relevant viewpoints within the organisation. By applying the principles to different organisational practices, EA contributes to the scoping of the overall organisational objectives, from the highest level of strategy to the lowest level of detail. This allows business executives to see what is currently happening in the organisation and depicts a roadmap toward architectural changes, aligning the use of organisational resources to the overall vision. This relates to what was discussed in Section 2.3 (Figure 3), where it was shown that a chronological view of EA can be provided to business executives, which demonstrates a roadmap to move the organisation from the 'as-is' to the 'to-be' scenario.

On executing the roadmap presented by EA, business executives can make informed decisions based on a number of options. This includes implementing architectural changes across the organisation. At this stage, EA often takes the form of a strategic transformation project, realising one or more parts of the 'to-be' blueprint. Special attention is often required to make the necessary link between EA and the change management programme. It specifies the relationship between EA (as a transformation project) and other projects relevant to the scope. Subsequently, the project has the responsibility to support and develop EA for a solution within the so-called 'architecture contract' (Op't Land et al. 2008; The Open Group 2010).

The maintenance stage of EA addresses monitoring and updating the architectural changes. The created EA, or portions of it, requires efforts to be continuously monitored and updated

so that it constantly and realistically reflects the right architectural state. In other words, creating EA is not a once-off event, but is an integral part of the organisation's overall continuous transformation process. EA artefacts and all the associated strategic outcomes that were enabled via EA represent a serious set of organisational assets. The monitoring aspect of EA maintenance should therefore assess whether EA should be updated by estimating the impact of typical change drivers. Thus, it reveals the need to adapt the EA. A typical example of this may include the change of key stakeholders, either by person or role, which may imply the need to see new concerns introduced and to give other concerns a different priority.

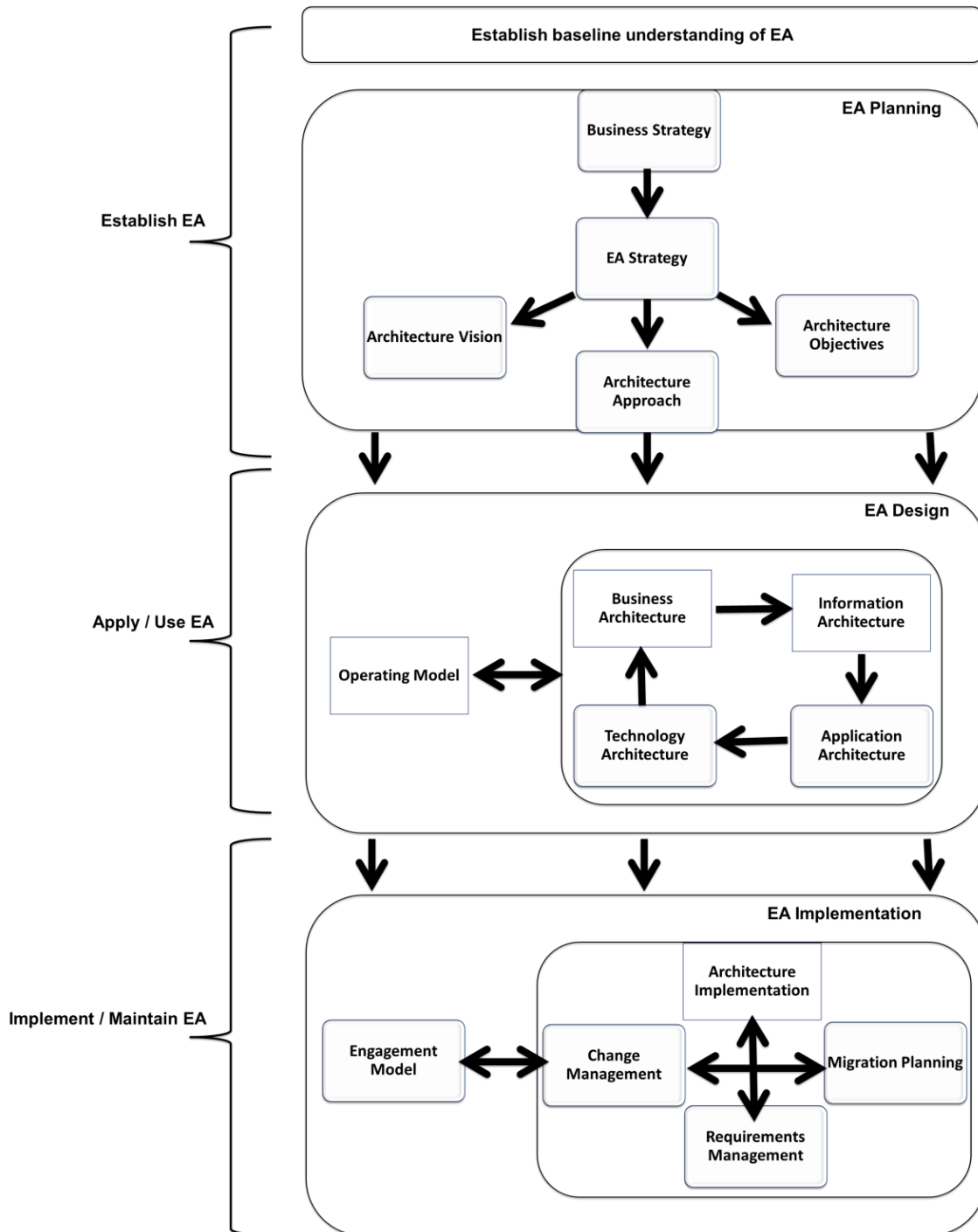
In Figure 5, the typical architectural activities identified by different researchers were introduced and synthesised by using the generic EA value chain. These architectural activities may differ in scope and order, depending on the organisational context. The diagram, however, provides detail to indicate how these different stages (establishment, application, implementation and maintenance) materialise following the completion of various architectural activities.

As shown in Figure 5, EA establishment is often found in the 'planning phase' of EA, originating from some form of baseline understanding of what EA is and what benefits it can provide. Based on such a common understanding, inputs from business strategy are used to formulate the overall EA strategy. The EA strategy consists of building blocks, such as the EA vision and objectives. These should outline the ultimate vision for adopting the EA strategy, focusing on short-, medium- and long-term objectives. At the same time, many strategic decisions are required in the EA planning phase to determine the relationship between business and EA. Example decisions are the following:

- How does the organisation position EA?
- How will EA support the business in the short, medium and long term?
- What is the overall approach towards EA?
- How many resources are required to effectively execute EA?
- What can the organisation benefit from EA?
- Is there a convincing business case for adopting EA practice?
- How should the business prioritise various strategic initiatives within an EA roadmap/blueprint?

These are the typical strategic EA decisions that needed to be made in conjunction with key business executives.

With regard to the application of EA, it can be seen from Figure 5 that the design phase often concerns the actual application of EA thinking in different organisational practices. It often starts with understanding the business model of the organisation, including how the various business units operate. This guides the design efforts of the domain architecture activities. These activities include addressing the aspects of integration, alignment and synchronisation of all domain architectures, improving processes and structure (business architecture), facilitating information requirements and knowledge-sharing (information architecture), managing application portfolios and their interfaces (application architecture) and optimising the use of technological assets (technology architecture). During the EA design phase, a number of strategic decisions regarding the design scope of the operating model and the domain architectures are made. These decisions require significant insight into the consequences of decisions. Such insight enables informed trade-offs in terms of time, money, risks, feasibility and values. Choosing a particular option often has different implications and/or benefits for different stakeholders. Hence, the EA decision-making in the design phase can be quite diverse, as all stakeholders need to be involved and trade-offs between options must be considered (Op't Land et al. 2008).



**Figure 5: Incorporating architecture activities into the generic EA value chain, as adapted from Glismann & Sanz (2010), Ross et al. (2006) and Op't Land et al. (2008)**

In the implementation and maintenance stage of EA, the interrelationship of the engagement model, change management programme and the actual project implementation of EA becomes critical. The EA decision-makers (often the champion of the EA institutionalisation initiative) need to work closely with project managers when implementing all the design decisions across the organisation. At this stage, the impact resulting from the actual change



implementation needs to be carefully managed and controlled. During implementation and maintenance, many of the EA decisions are related to the supporting aspects of EA in specifying and contracting the architecture implementation life cycle.

Figure 5, therefore, provides a simplified, generic view of the activities, addressing the end-to-end creation of EA. It further distinguishes strategic EA decision-making in the planning and design phase from the actual execution phase. As expected, the application of EA is different for different organisational contexts, for example, public organisations (Anthopoulos, Gerogiannis & Fitsilis 2010; Gregor et al. 2007; Hjort-Madsen & Pries-Heje 2009; Janssen & Cresswell 2005; Peristeras & Tarabanis 2000; Saha 2009), financial services sectors (Matthee et al. 2007; Van Der Raadt & Van Vliet 2008; Steenberg & Brinkkemper 2010; Aier et al. 2008) and a few others like the education and health sectors (Venkatesh et al. 2007; Lin & Hsia 2011; Athanasiadis 2007). However, the generic view discussed above can be considered to be equally applicable across different organisational contexts.

## 2.5 Overview of research related to EA challenges

In an ideal world, business executives want to see a perfect organisational configuration where all processes, structures and systems are aligned well and standardised to allow business flexibility. Business executives can launch any new products/services at any time, and respond to market shifts as they happen. However, this never happens in a typical organisational environment and it is certainly highly unlikely to happen for any EA institutionalisation initiative.

EA advocates support for business strategy and providing a long-term, unified view of the business configuration of structures, processes and systems. The efforts for achieving such a goal are fraught with challenges and complexities. Kaisler et al. (2005) described a set of challenges that needs to be overcome to realise the objectives of EA. Their work corresponds with the work of Chuang and Van Loggerenberg (2010) that current challenges are largely non-technical in nature. Most challenges fail to adequately address the social/human side and the service delivery process of EA, because a predominant product-focused view is often adopted (Janssen 2011; Chuang & Van Loggerenberg 2010). The argument for the existence of a product-focused view is grounded on the fact that much of the EA efforts have centred on the architectural products/artefacts, such as the tools and frameworks and/or the domain-

specific deliverables. Relatively little attention is paid to the social or socio-political aspects of EA, which leads it to become almost purely a technical instrument (Janssen 2011). This is evident where EA has often been called an example of the ivory tower syndrome, where architects tend to isolate themselves from the business and focus on their own value propositions without engaging the appropriate inputs from the concerned stakeholders (Chuang & Van Loggerenberg 2010; Van der Raadt et al. 2008).

Similarly, little emphasis is placed on considering the customer involvement. Researchers like Ross et al. (2006), Wagter et al. (2005), Op't Land (2008) and Bernard (2005) discuss the strategic role of EA and its benefits extensively. These discussions are valuable, but from a customer involvement point of view, these researchers go as far as facilitating an effective communication and collaboration with stakeholders. This, however, does not provide in-depth detail on involving the stakeholders. Wagter et al. (2005), for example, focus their contextual aspects almost exclusively on architecture domain activities. This is very risky, as the business-EA relationship forms the core of the larger business-strategic context and is certainly not limited to only domain-specific requirements or activities. Hence, one would find that most of these researchers tend to be more product-focused rather than focusing on its soft context, which leaves room for contributions on the non-technical aspects.

Chuang & Van Loggerenberg (2010) suggest that, from the enterprise transformation point of view, the social structure and the cultural aspects of the organisation are, among others, some of the most influential factors for the success of EA institutionalisation in organisations. EA institutionalisation often results in some significant level of enterprise transformation, both in terms of design and implementation. When transformation is involved, social aspects always need to be considered. Related literature also argues that the failures of IT or information systems (IS) are too often due to underestimating the role of the organisations' social structures, such as organisational politics and culture (Avison & Myers 1995; Biazzo 2000; Hoffman & Klepper 2000; Walsham 2001; Bergman, King & Lyytinen 2002). This is particularly important to organisations in South Africa, where cultural diversity is undoubtedly very high. This points to higher levels of complexity when addressing the social or so-called non-technical dimensions of the organisation.

Van der Raadt et al. (2008) and Espinosa, Armour & Boh (2010) confirm the need for a more extensive focus on the social/non-technical side of EA. EA planning and design require close

coordination and involve many stakeholders, such as business managers, project managers, system champions, data owners, policy owners and enterprise architects. Each EA stakeholder focuses on a specific area of the organisation and is always in pursuit of specific objectives. However, many of these objectives may be conflicting. It therefore causes EA decision-making to be complex due to the multiple implications imposed on numerous organisational areas.

## 2.6 Summary

EA decision-making is characterised by its enterprise-wide scope. The decisions in architecture planning and design often influence the overall organisation and it typically involves multiple stakeholders, perspectives, requirements and strategic decisions. Unfortunately, there is limited research on understanding the decisional perspective of EA.

Most decisional research (specific to EA) focuses on identifying the decisional points, which improves its process efficiency and the effectiveness of reaching certain outcomes. The insights resulting from these studies are valued, but the EA decision-making should apply the same principles as in other forms of organisational decision-making. The logic that drives the decision-making has its own uniqueness, as its contextual factors are unique to EA. Hence, this thesis adopts the extended definition of Zachman's work, describing EA as a management practice that consists of principles, means and representations that are used to design and realise organisational configurations in terms of structure, processes, systems and infrastructure. With this in mind, this thesis strongly argues that a predominant product-focused view implies the lack or the neglect of customer involvement and it is one of the major reasons for EA decision-making to often be disconnected from the larger business context. This is the same reason why the non-technical perspective is advocated in prior research. Thus, it is proposed that the use of a different lens with the focus on involving customers to co-create values is required. The recently emerged perspective is known as S-D logic, providing a paradigmatic shift from traditional G-D to S-D logic for value co-creation. The next chapters will further characterise EA decision-making and discuss S-D logic in more detail.

### 3. Chapter 3: An S-D perspective on co-creating value in EA

#### 3.1 Introduction

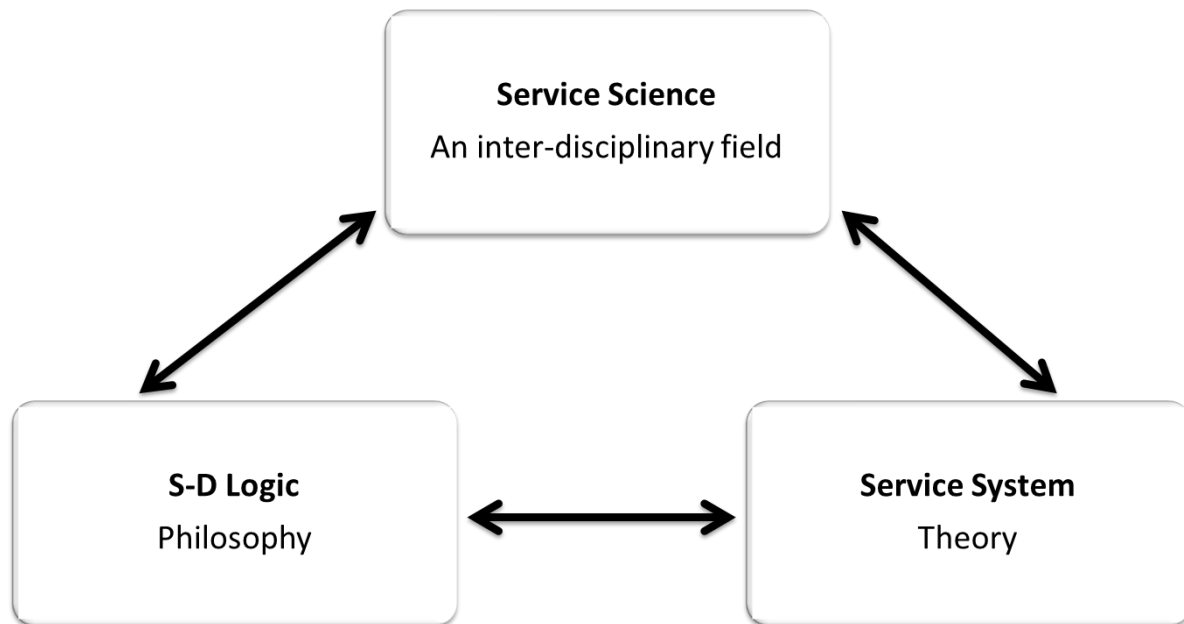
The previous chapter discussed the fundamental concepts of EA and described the challenges related to institutionalising EA within an organisation, recognising that EA's challenges are largely non-technical and are caused by the predominant product-focused view. Evidence of an underlying product-focused view emerges when the challenges are examined through the lens of S-D logic in this chapter. This part of the literature review establishes the basis of understanding of S-D logic that is necessary for the later chapters.

The concept of service has been widely used across diverse disciplines and contexts. However, “while the majority of computer scientists associate the term ‘service’ to web services and service-oriented architecture (SOA), there is a broader story to be told of the remarkable growth in the transitioning into service economy” (Spohrer & Riecken 2006). The distinction between service (singular) and services (plural) represents a fundamental shift in understanding the shift in focus from a goods to a service economy. The term ‘services’ creates some confusion, as it carries the connotation that only traditional services are included, while ‘service’, as referenced by S-D logic, has a significantly broader sense of application (Vargo & Lusch 2008a; Vargo & Lusch 2008b; Rust & Thompson 2006). In terms of S-D logic, service is defined as the application of competences (skills and knowledge) through deeds, processes and performances for the benefit of another entity or the entity itself (Vargo & Lusch 2004; Vargo & Lusch 2008a).

Service occurs within service systems, which are identified as an emerging world view (Spohrer & Maglio 2008). Spohrer and Kwan (2009) describe the service systems world view as a world consisting of populations of normatively interacting service system entities, such as people, businesses, government agencies, nations, cities and universities. Service science is a multidisciplinary research and education effort to understand the methodology and technology for service innovation, design and delivery (Lin & Chang 2009). Service science studies the service system. According to Spohrer, Maglio, Bailey & Gruhl (2007), service science entails the “value co-creation configuration of people, technology, other internal and external service systems, and shared information such as language, processes, policies and laws”. It ultimately encompasses people and technology that adaptively adjust to a system's changing value of knowledge (Spohrer et al. 2007).

Service systems can be connected to each other internally or externally and thereby form a value co-creation network consisting of various service systems.

Ni



**Figure 6: Service concepts (Spohrer et al. 2008a; Spohrer et al. 2007; Clavier 2013)**

As illustrated in Figure 6, service science is supported by S-D logic as a philosophical foundation and the service system as a theoretical foundation (Spohrer et al. 2008a; Maglio & Spohrer 2008). The knowledge bodies of both the service system and S-D logic continue to grow throughout the knowledge development from various disciplines. They influence each other along with the inter-disciplinary field of service science (Clavier 2013) and share a symbiotic relationship across many theoretical and practical developments, such as service management, service computing and architecture, service engineering, service orientation, and service marketing (Day 2006; Gummesson 1997).

This chapter begins by providing an introduction on the background of S-D logic, how it was conceived by Lusch and Vargo (2008a) and later developed into a sophisticated premise used to understand the phenomena of marketing and related value co-creation thinking. Then, this chapter elaborates on the key constructs and the FPs of S-D logic in detail. Next, a brief description of value co-creation is provided. Then, existing literature is reviewed to demonstrate how S-D logic can operate on different levels of the organisation, focusing specifically on co-creating values within the intra-organisational application of S-D logic in

EA. This chapter concludes with a discussion on S-D logic-based conceptualisation and EA decision-making.

### 3.2 Overview of S-D logic and its key constructs

S-D logic emphasises the role of the customer's involvement within service science. It provides a view of exchange with a specific focus on value co-creation as a process that necessarily includes the participation of all involved (Vargo, Lusch & Akaka 2010). As opposed to the provision of tangible goods, S-D logic argues that service is central to all value creation and economic exchange. In other words, exchange is driven by reciprocal and mutually beneficial service provision. Service, as defined and interpreted under S-D logic, is more a process of applying resources to benefit one another, rather than merely an intangible form of output (Vargo et al. 2010). While other scholars like Gummesson (1997) and Grönroos (2000) agree with this concept, it is important to highlight why this definition of service has only been attracting attention in the past decade. "It is only from the perspective of a model that includes the fundamental assumption that exchange is driven by goods that the importance of service is just now becoming apparent and that the economy is perceived to be transitioning from goods focused to service focused" (Vargo et al. 2010). Based on this understanding, the core constructs of S-D logic are discussed through contrasting it with G-D logic (as shown in Table 1).

**Table 1: Key constructs of S-D logic in contrast with G-D logic (adapted from Vargo et al. 2010; Lusch et al. 2010b)**

Core constructs	S-D logic concepts	G-D logic concepts
<b>Service</b>	Service and experiencing Relationship and collaboration	Goods and services Transaction
<b>Value</b>	Value co-creation Value-in-context Value proposing	Value-added Value-in-exchange Price
<b>System</b>	Value-creation network Symmetric information flows	Supply chain Asymmetric information
<b>Interaction</b>	Open source communication Learning via exchange	Promotion/propaganda Maximising behaviour
<b>Resources</b>	Operant resources	Operand resources

Core constructs	S-D logic concepts	G-D logic concepts
	Resourcing	Resource acquisition

One of the main constructs of the concept of ‘service’, as defined in S-D logic, is the shift from transactions to relationships and collaboration. The focus of servicing and experiencing is on the interaction between the service provider and the service beneficiary (customer). In other words, the emphasis in service is placed on the collaborative process where both the service provider and the service beneficiary participate in the experience. This means that it is more than just the transfer of ownership, as is usually the case in G-D logic. It implies something more than just a productivity issue. It strongly affects the experiences of customers and, to a large extent, their ability to co-create value together with the service provider. This perspective highlights the fact that organisations should not only be concerned about the productivity dimension of their employees in terms of effectiveness and efficiency. G-D logic essentially argues that value is delivered to the service beneficiary through the exchange of goods or services. S-D logic fundamentally differs from this view and argues that value is co-created through a collaborative effort between service provider and service beneficiary. S-D logic suggests that the organisation should pay more attention to the other dynamics of service provision, such as the experience and the ‘productivity’ of the customer.

Value is the crux in understanding the overall applicability of the S-D logic, particularly in the context of this thesis. According to Spohrer et al. (2008b), value co-creation entails three main activities: proposing appropriate value propositions, accepting and engaging in value propositions and realising the proposed values. Hence, there will always be at least two or more parties involved in both applying and integrating resources in order for value co-creation to occur. It is worth pointing out the general perception of the customer-oriented nature of S-D logic where the service beneficiary is always considered to be the value determiner. One should consider that such a perception could potentially neglect the values for the service provider and focus solely on the values for the service beneficiary. Value co-creation is directly opposed to a one-sided value creation as implied by G-D logic. Co-creation of value essentially means that the value created through exchange is based on the mutually beneficial relationship. Therefore, decisions can be taken whether or not to pursue the results of the exchange, based on the context and the appropriateness of the value propositions. Additionally, should the value-in-context be aimed at achieving competitive

advantage, the proposed value propositions should be more compelling than those of the competing service providers (Vargo & Lusch 2004).

“Given the foundation of G-D logic and its ties to manufacturing, it is natural that the use of the resources necessary for value production was conceptualised in terms of a linear supply chain” (Lusch et al. 2010a). In contrast, the system construct in S-D logic encompasses the dynamics of service provision by re-conceptualising the relationship within the value co-creation network. It does not limit itself to linear, vertical arrangements, “rather it can be arranged in an infinite number of ways” (Lusch et al. 2010a). This re-conceptualisation facilitates innovation and competitive advantage. More importantly, such a network includes not only an association of available service systems, but also the final customer in the value co-creation network. Thus, customers can simultaneously co-create value within the network of service providers, service systems and other service beneficiaries.

In the interaction construct, S-D logic specifies a symmetrical form of value network, where interactions between service providers and service beneficiaries should be characterised by collaborative communications among multiple parties, rather than unidirectional instructions from one party to another. Collaborative communication is founded on trust, learning and compromise (Vargo et al. 2010). A typical collaborative communication should not be limited to the context of an organisation (service provider) and its customers (service beneficiaries), but must include the interaction between and among the employees and other key stakeholders. This indicates that interactions do not occur on a dyadic basis, but it is possible to have a ‘many-to-many’ dialogue (Vargo et al. 2010). Dynamic interaction and open communication also signify a mechanism for learning via service exchange (Vargo et al. 2010). In S-D logic, social and economic actors exchange with other actors to improve the existing conditions and offerings, thereby providing the opportunity to improve again and again how the organisation is delivering value in the market.

The resource construct in S-D logic suggests that, whatever service providers provide, it should not be understood in terms of outputs with value, but rather as resource inputs for a continuing value-creating progression. The focus is placed on ‘resourcing’ rather than ‘producing’ (Lusch et al. 2010a). Value creation occurs when a resource is turned into an explicit rather than a tacit benefit. “The general principle is that resources do not have intrinsic value, but rather are valued when integrated and positioned through resource-based



value-creating networks, including the network of customer” (Lusch et al. 2010a). The process of creating value through transforming and/or integrating resources into an explicit benefit is known as ‘resourcing’.

The underlying philosophy of S-D logic essentially states that the value is not created by the service provider and then delivered to the customers, but rather that the customer is an integrator of inputs provided by the service provider with its other resources to create value. Thus, this thesis contextualises the definition of S-D logic in such a way that it encapsulates multiple dynamics, especially when the full spectrum of the service value chain is studied.

In other words, at the strategic level, key EA decision-makers are conceptualised as the service providers who supply the architectural service to the organisation and business executives, which are perceived as being the ‘customer’. A similar notion applies to the architects at the operational level. The value network in which it is conceptualised in EA includes that of the business executives from various business areas, key EA decision-makers who are responsible for different architecture outcomes and architects who actually perform at the operational level. In what follows, the philosophical aspects of S-D logic are further explained.

### 3.3 Philosophical description of S-D logic

The sections above introduce an overview of the concepts of S-D logic. However, a deeper understanding of S-D logic is provided through an explanation of its 10 FPs, as compiled by Vargo and Lusch (2004; 2008). In 2004, Vargo and Lusch published an article “Evolving to a new dominant logic for marketing”. Their S-D logic work received much academic attention, leading to debate and discussion, and expanding from the marketing discipline. In 2008, they revisited their initial S-D logic article, enhancing their initial insights by updating the original eight FPs with a further two.

The following is the complete set of FPs:

**Table 2: Ten foundational premises of S-D logic (adapted from Vargo and Lusch, 2008a; Clavier, 2013)**

Premise	Description
FP1	Service is the fundamental basis of exchange. As in the essence of all exchange, capabilities are exchanged for capabilities. For example, it is not only the

Premise	Description
	exchange of the end outcomes of fishing and farming (trade of goods or intangible outputs of services), but the fishing knowledge and skills for farming knowledge and skills (Vargo & Lusch 2004).
<b>FP2</b>	Indirect exchange masks the fundamental basis of exchange. Indirect exchange occurs when exchange delivery vehicles, such as money, salaries and products, are used to facilitate exchange. Indirect exchange may lead to separation of the customer and provider, which results in loss of knowledge-sharing and mutual adaptation opportunities, time lags and loss of quality (Spohrer et al. 2008; Vargo & Lusch 2004).
<b>FP3</b>	Goods are a distribution mechanism for service provision. Goods (both durable and non-durable) derive their value through the service they provide. It is not an operand resource (for example, a tangible product) that is exchanged, but an operant resource (for example, knowledge and skill) (Vargo & Lusch 2008a). An example is the on-demand nature of cloud-based software that is being provided as a service, where the use of the software is possible without owning it (Zhao, Hsu, Jain, Spohrer, Tanniru & Wang 2008).
<b>FP4</b>	Operant resources are the fundamental source of competitive advantage. Resources that are difficult to transfer, copy or combine are sources of competitive advantage, for example, the knowledge and the analytics embedded in such resources (Normann & Ramirez 1994; Lusch & Vargo 2006).
<b>FP5</b>	All economies are service economies. The notion of a service economy is clear, given that service is at the core of every exchange (FP1) and – even though tangible goods were the focus of previous periods due to a G-D logic – goods are distribution mechanisms for service provision (FP3). Therefore, even hunter-gatherer and agriculture/manufacturing eras exchanged services and were markets of service (Spohrer et al. 2008a).
<b>FP6</b>	The customer is always a co-creator of value. In an interactional relationship with other service system entities, the customer plays an interchangeable role of customer and provider according to the nature of the relationship and service (Chesbrough & Spohrer 2006).
<b>FP7</b>	The enterprise cannot deliver value, but only offers value propositions. Value is created upon consumption (Gummesson 1997) (so-called value-in-use). Therefore, it is the customer who determines the value. Similarly, the enterprise can offer and apply resources collaboratively to create value following the acceptance of the value proposition, but cannot create or deliver the value alone.

Premise	Description
	The value proposition represents what the customer stands to gain or sacrifice when accepting what the provider offers (Spohrer et al. 2008a).
<b>FP8</b>	A service-centred view is inherently customer-oriented and relational. The service-centred view is intrinsic and participatory and focuses on the customer and the relationship. The customer and provider both have rights and duties in terms of an agreement and they inseparably co-create value in a relationship with each other and other service system entities.
<b>FP9</b>	All social and economic actors are resource integrators. Whether economic or social, service system entities or actors (individuals, technology, organisations, etc.) dynamically combine, construct and employ operand and operant resources to co-create value (Vargo & Lusch 2008b).
<b>FP10</b>	The beneficiary always uniquely and phenomenologically determines value. Value is only created upon the usage of the customer (beneficiary) (Gummesson 1997). It is personal, experiential, contextual and meaning-laden (Clavier 2013).

S-D logic suggests that service is the basis of all exchange (FP1) and that service is always exchanged for service. Therefore, all economies are service economies (FP5). One needs to realise that the shift in the economy is not merely a focus from goods to services, but rather a shift from focusing on the tangible and static to the intangible and dynamic integration of resources (FP4). S-D logic establishes the primacy of operant resources (those that act upon other resources to create benefit), such as competences, over operand resources (those resources that must be acted on to be beneficial), such as natural resources, goods and money (Vargo & Lusch 2004). S-D logic argues that value-creating resources are not limited to organisations. Customers, suppliers and other stakeholders (e.g. government or society as a whole) all constitute operant resources and contribute to value creation. Moreover, S-D logic recognises that a web of interconnected intermediaries associated with exchange (FP2) represents the service-for-service exchange. As the intermediaries, such as goods, money and organisation, contribute to the complexity of the market, they maintain important roles in the facilitation of exchange (FP3). The FP6 and FP7 emphasise the role of customers in the value co-creation process. These FPs posit that value is always co-created in a process that requires the active participation of the organisation, its customers and other stakeholders. More specifically, value is not produced and then delivered alone by a firm, but can only provide service as an input to the service beneficiary's realisation of value. The service beneficiary is

usually the customer. Additionally, value cannot be created until the beneficiary of a service integrates and applies the resources of a particular service provider with other resources.

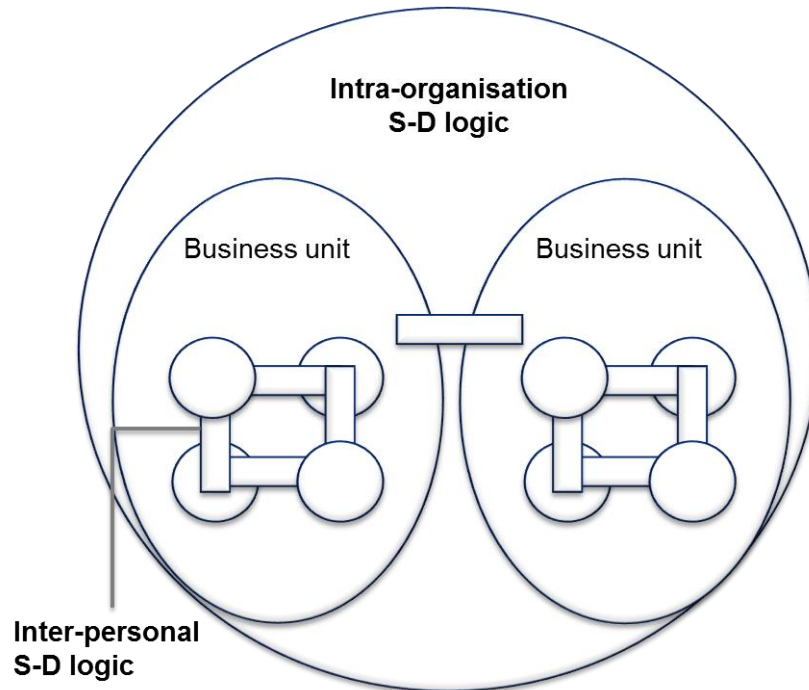
Many guiding principles can be inferred from the knowledge development of various disciplines that inform service science. For example, the key constructs (Section 3.2) and 10 FPs (Section 3.3) provide guidance for the customer and provider in terms of their relationship and interactions. An example is the construction of value co-creation and FP6, which implies that the customer must be involved and is responsible along with the provider in co-creating value. However, the current state of literature is still developing towards a comprehensive body of knowledge for service science (Vargo 2011). Therefore, it does not yet provide a clear landscape of guiding principles that are widely acknowledged and debated or accepted in the same way as the key constructs and the 10 FPs. Practical applications of S-D logic and service science can be found within its knowledge development, such as service computing, IT service management and SOA. Other literature also provides direction into developing service frameworks in the context of organisations. For example, Nam and Lee (2010) developed typologies addressing service innovations and Doan and Kosaka (2011) developed a service model that mediates web information exchange based on S-D logic thinking.

### **3.4 S-D logic in organisational context**

S-D logic has been employed in a variety of organisational contexts such as strategy (Barnes, Collier & Lueg 2009; Spring & Araujo 2009), branding and marketing (Payne, Storbacka, Frow & Knox 2009; Ballantyne & Aitken 2007) and a few others (Yazdanparast, Manuj & Swartz 2010; Lusch et al. 2010b). S-D logic has predominantly amplified the role of the customer's involvement and thereby encourages the co-creation of value in the context where it is applied. However, as much as S-D logic has been used in other contexts, the direct link between EA and S-D logic has not been clearly described. Thus, this section contextualises the use of S-D logic following the notion that S-D logic can also be applied at the intra-organisational level to inform value co-creation activities (Schulz & Gnoth 2008).

The contextualisation of S-D logic in an intra-organisational and inter-personal context is similar to that of S-D logic in the organisation-customer context, but occurs more at the micro level. In this view (see Figure 7), the fundamental basis of exchange takes place between individuals and business units. It values the departure point of S-D logic that there have to be

at least two parties involved in order for value co-creation to take place, thereby participating in the activities of proposing appropriate value propositions, accepting and engaging in value propositions and realising the proposed values (Spohrer et al. 2008b). More importantly, despite the actual roles one may undertake given the organisational structure and hierarchy, employees and stakeholders should be perceived as the co-creators of value.



**Figure 7: S-D logic at intra-organisational level, as adapted from Schulz and Gnoth (2008)**

This means that, although in one instance, the EA decision-makers can be perceived to be the sole providers of EA services within the organisation, they can also undertake the role as a customer in other instances, say, when an IT development house provides services to EA. This indeed depicts that the value network in which EA is dynamically conceptualised includes the interaction between business executives from various business areas and key EA decision-makers, the interaction among the decision-makers from each of the architecture domains and the possible interaction among the various business executives.

As such, S-D logic at the intra-firm and inter-personal level is in line with other prominent marketing thinking. The metaphor of threads (interaction) and nodes (actors such as provider and customer) easily aligns with how S-D logic is contextualised (Håkansson & Ford 2002). This suggests that value co-creation is not located uniquely with the supplier (for example,

EA decision-maker), nor even exclusively within the customer domains (for example, the business executives), but it is between them (Ballantyne & Varey 2008) via a thread. In this thesis, this thread is the business-EA relationship.

Vargo and Lusch (2008a) argue “even in the somewhat limited focus of the S-D logic of marketing, it is directly applicable to firms, employees, suppliers, customers and a variety of other stakeholders”. This thesis subscribes to this argument and further uses S-D logic to examine EA and its key relationship with business in an attempt to overcome the challenges identified in the institutionalisation of EA.

### **3.5 EA: The need for S-D logic to co-create value**

G-D logic, which is conceptualised as the logic resonating with the product-dominant view in EA literature, appears to contribute to many of the EA challenges. As Vargo and Lusch (2004) point out, G-D logic is inadequate because it renders the customers the destroyers rather than the co-creators of value. This thesis therefore suggests that a G-D logic lens to EA largely restricts how EA optimally connects with the larger business-strategic context. An S-D logic lens, on the other hand, has the key ingredients that can assist with overcoming the prevailing EA challenges. This section elaborates on this argument in more detail.

According to G-D logic, value is determined and created upfront by a provider in the production process, which is then stored or transferred to the customer upon exchange (so-called value-in-exchange) (Lusch, Vargo & O’Brien 2007). Value is largely pre-determined by the provider or the producer, based upon their assumptions of what is valuable to the customer or a group of customers. The customer then consumes or depletes the value after the exchange has taken place (Edvardsson et al. 2011: 540). G-D logic emphasises the provider, production and tangible goods that are produced to offer the customer some value, which the provider can or cannot perceive to be useful or relevant. Based on Clavier’s (2013) summary of G-D logic, this is largely a product-focused or provider-centric type of exchange where the focus is placed on the linear exchange process (Edvardsson, Ng, Min, Firth & Yi 2011), standardisation and production efficiency (Lusch et al. 2010a), tangible units of outputs (Boden & Miles 2000) and separation of customers and providers so that customers do not form part of the production process (Lusch et al. 2010b).

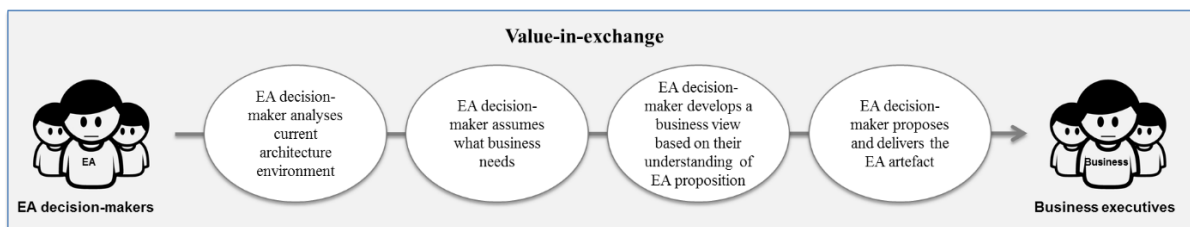
G-D logic, while it is largely product-dominant and provider-centric, is restrictive, as it sees customers as a static resource that can be captured or acted on. By implication, G-D logic concerns the productivity of the production process and the tangible unit of outputs over those of the customer needs and their propositions. Additionally, G-D logic overlooks the customer's integrative role in co-creating value (Vargo & Lusch 2004). This impairs the provider and the associated network of entities to co-create value.

Consider the Nike+ experience as an example of a contrasting view to G-D logic. Nike enabled a full system of interactions through utilising innovative technologies for athletes to track their running progress, set personal goals and challenge friends to races (Ramaswamy 2009). Thus, Nike+ empowered runners to have valuable, qualitative experiences and, through partnering with other ecosystem players, such as Apple, Nike collaborates with its customers to redefine its value proposition. In G-D logic, the product is usually the end of the customer value, but Nike+ successfully integrated multiple co-creators, leveraging the skills and talents of millions of people to form an open and co-creative value system (Ramaswamy 2009). This makes the product the beginning of the value co-creation journey, not the end. A product-dominant view would often mean perceiving or finding value in the exchange, rather than in the use (Akaka 2007). However, the viewpoint of value solely in exchange is likely to cost the opportunity of a longer-term relationship that enables mutual adaptation and growth. Because the customers should not be value-destroyers, they should rather be integrated to co-create value (Lusch & Vargo 2006).

On a similar vein, BMW also reinvented its business model through extending its customer relationship into car sharing business (Coumau et al. 2015). DriveNow, a joint venture between BMW and a rental company Sixt, provides urbanites with shared access to cars. In return for a registration fee and time-based charges, customers can choose from a fleet of Minis and BMWs. This gives a highly convenient access to customers with a powerful proposition that people can save themselves from the hassle of owning and maintaining cars and still being able to drive luxury brand such as BMWs and Minis. BMW described the venture as a “strategic response to the growth in urban living and shared ownership” (Coumau et al. 2015). This largely points toward the evidence of co-creating value with its partners and customer in the open, dynamic value network - slowly moving away from the traditional mentality of selling cars and motor plans.

G-D logic contributes to understanding the challenges in EA in a number of ways. Based on the discussion of G-D logic and S-D logic, it is noted that G-D logic places no or limited emphasis on the role of customers and the integrated nature of co-creating value within the value network. Thus, as illustrated in Figure 7, the EA customer's voice is usually not captured or is overlooked (Prahalad & Ramaswamy 2003). The customers are isolated from the value creation process (Vargo & Lusch 2004) and are disempowered to be part of the collaborative decision-making process (Edvardsson et al. 2011).

G-D logic does not add to the success of EA and focuses its efforts on production efficiency, for example, how efficiently this architecture blueprint can be delivered and how the different frameworks should be adapted to produce the necessary outcomes. It certainly fails in its efforts by neglecting the value-in-use. EA will always be sub-optimal if value is produced and delivered in silos. However, should the S-D logic be adopted as the lens to drive the underlying strategic logic of EA, the larger business-strategic context and the associated customers, such as the c-level executives and the transformation champions, will be drawn into a value co-creation process. This will enable the shift in focus, from goods and production to customers and the appropriate value propositions that will consequently co-create the strategic value of EA.



**Figure 8: An illustration of a G-D business-EA relationship**

Although there are still debates on certain FPs of S-D logic (Vargo & Lusch 2008b; Grönroos & Ravald 2011) and further theoretical development and practical application are still needed, it certainly provides a novel lens for examining the root causes for the business-EA disconnect. For this reason, this research is not intended to use S-D logic to construct novel forms of service offerings or to prove the relation that EA is currently 'G-D logic based', but rather to use S-D logic as a lens to promote value co-creation and thereby contribute towards improving the business-EA relationship. Neither does this research intend to add to the body of knowledge on G-D and/or S-D logic or to address any of their challenges.



### 3.6 Limitations identified in S-D logic

This thesis uses S-D logic as a lens to examine the business-EA relationship. It is important to acknowledge that S-D logic and service science thinking is still being developed and integrated. According to Spohrer and Kwan (2009), service science is “at the beginning of the beginning” and a significant amount of work is still needed to integrate and consolidate the various insights. More empirical research is required to further establish and refine S-D logic concepts. The scope and boundaries of S-D logic are yet to be debated, discussed, and established (Vargo & Lusch 2008). Furthermore, O’Shaughnessy and O’Shaughnessy (2009) argue that S-D logic is mainly positioned within the marketing discipline and the major contribution is restricted to the USA. Vargo and Lusch (2011b) responded to this argument by referencing the numerous contributions that have been made towards service science since their 2004 article (including those from other parts of the globe). This highlights the interdisciplinary and global nature of service contributions and discourse.

Another aspect of S-D logic development is the lack of research on governance structures or mechanisms. A visible gap in governance may result in the misuse or abuse of services. For example, the role of customers may be manipulated in the co-creation process to benefit the organisations or the providers themselves. This causes potential agency problems for configuring organisations in ways that may not necessarily be the best for achieving organisational objectives. Opportunities are therefore acknowledged for further governance research in parallel with S-D logic advancement.

Other potential limitations that have to be considered are that S-D logic is still a “pre-theory” (Vargo 2011), and that there is much ongoing debate and discourse on the topic of service science, including the development of S-D logic and related theories, as well as its application across various disciplines. Vargo and Lusch certainly introduced S-D logic and it attracted many debates and dialogue. These debates and dialogues continuously add to the refinement of S-D logic thinking. However, it is worth pointing out that this young body of knowledge is still growing and evolving through a collaborative effort of scholars and practitioners across disciplines and regions.

### 3.7 Summary

Based on the previous sections, three key ways were identified where S-D logic provides a powerful lens for taking a closer look at the business-EA relationship and the subsequent value co-creation in EA decision-making. Firstly, the concept of service is a direct replacement of inappropriate product-focused views in EA, which renders S-D logic an appropriate framework to analyse the business-EA relationship to form a decisional perspective. Secondly, the quality of EA and the associated service delivery process affects the level of effectiveness in terms of how the various strategic objectives can be realised.

Therefore, the concept of deriving value from the tangible EA artefacts provided by the EA decision-makers becomes particularly salient in this research. Thirdly, the relevant, powerful concept of value co-creation is critical in the EA decision-making context because of the need for a well-aligned, clearly understood business-EA relationship in order to improve the overall strategic effectiveness of EA.

Although S-D logic is not without controversy, it cannot be proved or disproved (Williams & Aitken 2011; Grönroos & Ravald 2011). However, it certainly has been demonstrated as a viable approach or specific lens to address EA's challenges. It has the key ingredients to provide a useful lens for examining the root causes of the business-EA disconnect. Furthermore, the use of S-D logic in this thesis does not suggest that it is superior to other logics, whether existing or emerging. It simply presents a different frame of mind that is required to address the business-EA disconnect in the EA decision-making context. It brings new insights to the EA environment and accepts that the S-D logic thinking is conceptual and in need of further research and refinement.

## **4. Chapter 4: Research design and methodology**

### **4.1 Introduction**

This chapter describes the methodological research approach of the overall thesis. In order to gain an in-depth understanding of EA as a series of exchange activities, this chapter is dedicated to discussing and justifying the appropriate research design. The chapter begins by introducing the overarching context of the research. Following on the research context, the research paradigm and the design appropriate for addressing the problem are described. Next, the different execution techniques are discussed. This chapter is concluded with a summary of the overall discussion.

The aim of this thesis is to develop a conceptual framework that will guide EA decision-makers by ensuring that EA decisions are always made with a comprehensive understanding of the relationship between business and EA. Thus, the researcher has to understand the views of human stakeholders concerning the management of the decisions and the organisational contexts within which EA institutionalisation is taking place. In this thesis, the underlying paradigm that guides the research approach can be broadly considered as ‘interpretivist’. There is an increasing body of research in the IS field that is based on the interpretivist approach (Walsham & Sahay 1999; Walsham 2006; Walsham 1995; Klein & Myers 1999; Orlikowski 1991; Orlikowski & Baroudi 1991). However, it still appears that significant differences exist in understanding how the different approaches and methodologies are adopted and why they are chosen in comparison to other research alternatives. It is for this reason that this chapter is dedicated to discussing the specific research approaches that were adopted for this thesis and the justifications for these choices.

### **4.2 Research paradigm**

Interpretive research is a well-established research paradigm in the field of IS research. Among various research paradigms and models, interpretivist research lays an ontological and epistemological foundation for IS and related research on what reality is and how it can be observed, understood and interpreted. The paradigm received widespread attention from scientific researchers in the IS discipline (Walsham 1995; Orlikowski & Baroudi 1991; Lee & Baskerville 2003; Klein & Myers 1999). A key feature in interpretivism that differentiates itself from other paradigms, such as positivism, is that it assumes that our understanding of

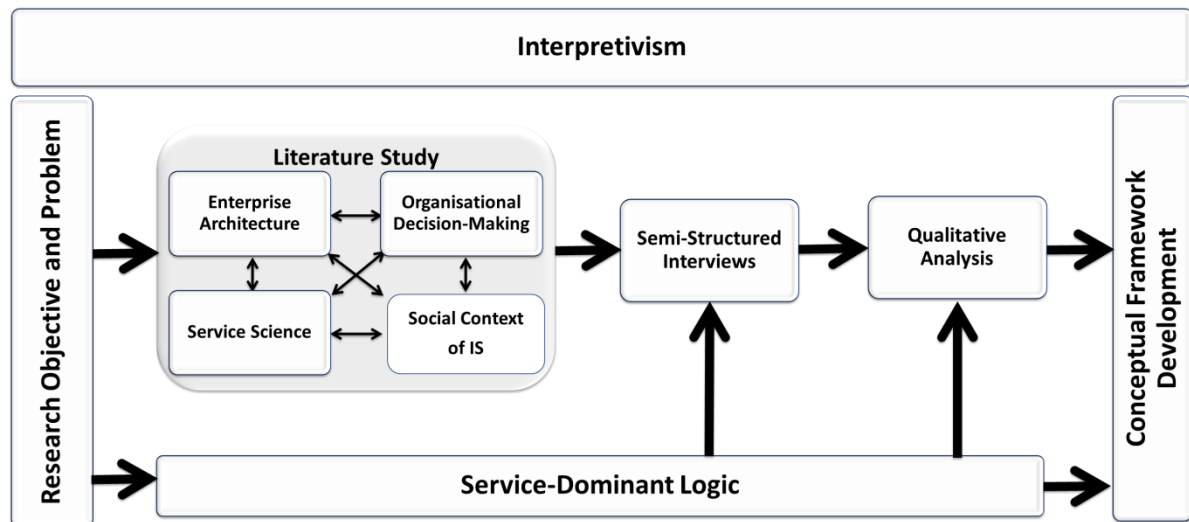
reality is gained only through social constructions, such as a language, consciousness, shared meanings, documents, tools and other artefacts (Klein & Myers 1999). Lee and Baskerville (2003) add to this understanding by arguing that interpretivism acknowledges the existence of a phenomenon that is not present in the subject matter, but is rather subjective to the understanding, the settings and prior experiences of the observer.

Walsham (1995) referred to Archer (1988) in terms of describing the epistemological and ontological differences between positivism and alternatives. Epistemology is concerned with the nature of knowledge claims, whereas ontology is concerned with the nature of reality (Walsham 1995). Positivism is essentially defined as “all facts and values are distinct and consist of only facts, and the reality exists independently of the observers” (Walsham 1995). Such a world view is fundamentally different from interpretivism, which takes the stance that reality is subjective and internalised. It is an inter-subjective, social construction of the shared cognition, where each person constructs his or her own reality (Walsham 1995; Myers 2008; Lee & Baskerville 2003). Therefore, its meanings and interpretations are socially subjected to the views of the observer; it is ideological.

The appropriateness of an interpretivist approach to this thesis is related to understanding EA decision-making in the organisational context. From the research point of view, this thesis aims to improve EA decision-making by, firstly, examining the interactions and perceptions of human actors in detail and, secondly, the context within which these interactions took place and perceptions were formed. This context includes what the different actors (representing both EA and business) perceive to be the value propositions of EA, aspects of their power relations, as well as the particular outcomes that result from the interactions of the actors and their networks. Hence, instead of providing a generalised view of how EA decision-making can be improved, this thesis provides a reductionist viewpoint based on the given organisational context. This not only enables the researcher to reveal people’s behaviour of a given situation, but also allows sufficient flexibility for the researcher to present an enriched, overarching view to the reader. The interpretivist approach is more appropriate for this research because it allows the researcher to stay close to the phenomenon (in this case, the decision-makers and the associated decision-making), to interact and observe the human discourse and, thereby, construct a ‘rich’ story.

### 4.3 Research approach

Based on the philosophical point of departure, a research framework was developed to ensure research continuity and cohesion. The framework was designed following the argument made by De Villiers (2005) that an explicit theoretical framework is essential for the continuity of the overall reasoning process. Figure 9 depicts a framework that was developed to guide the research process. The different components are discussed in detail in further sections.



**Figure 9: Research framework**

The theoretical base of this thesis evolved over time in order to adapt to the deepening knowledge of the subject matter and the changing idea regarding the appropriateness of the theoretical underpinnings. It is noteworthy that this thesis is largely influenced by a continuous review of the literature on IS, EA, S-D logic and related fields. The main influences include S-D logic (Lusch et al. 2010; Vargo et al. 2010) and organisational aspects of EA (Janssen 2011; Chuang & Van Loggerenberg 2010; Van Der Raadt & Van Vliet 2008; Espinosa et al. 2010; Kaisler et al. 2005). Conceptions from these main influences were adapted for preparing the interviews and interpreting the feedback received in the interviews.

As shown in the framework (Figure 9), the research is conducted through a qualitative, interpretivist approach. This thesis comprises two main components: a literature review and empirical research. The literature review focuses on surveying the relevant literature in order to understand the current state of related research activities. It entails a survey of the relevant literature on S-D logic, EA and the organisational context. The empirical research primarily

describes the process of collecting and analysing the research data, presenting the findings, as well as linking it to the overall literature review and how it potentially informs the development of the conceptual framework. The research data was mainly collected through in-depth interviews with key EA decision-makers and is complemented by the preliminary research with field experts and participation in EA research forums to validate key findings.

#### *4.3.1 Literature review*

As an essential element of any research, the review of prior, relevant literature provides a firm foundation for advancing knowledge (Webster & Watson 2002). An effective literature review examines past research activities and appreciates potential knowledge gaps motivating future research. Such a review often emerges from a coherent understanding about the phenomenon under discussion. It aids the researcher to gather and present evidence to support the motivations and claims made for the research. In the initial phase of the thesis, various areas of literature were explored to form a structured logic regarding the topic of interest, namely, the business-EA relationship in EA decision-making. The explored literature included a number of related topics, such as strategic IS planning, EA planning and design, and business-IT alignment. These investigations revealed that the complexity of EA decision-making has advanced from what IT has inherently experienced in the past decade. Based on this understanding, preliminary research was conducted to assess the EA context, and it consequently led to specific research focus of EA, S-D logic and organisational decision-making.

#### *4.3.2 Data collection*

In this thesis, the primary research data was mainly collected by semi-structured interviews (see appendix for a list of guiding questions). Semi-structured interviews offer the opportunity to explore certain topics of concerns in detail and gain an appreciated understanding of the context. “It allows interaction between the researcher and the interviewees, so that where there is any ambiguity or misunderstanding, each party can provide further explanation and clarification” (Cornford & Smithson 2006). It is vitally important to this particular study, as it allows the researcher to have sufficient levels of sensitivity to capture complex and subtle social implications. As Rubin & Rubin (2005) rightly said, qualitative interviews are like night goggles, “permitting one to see that which is not ordinarily on view and examine that which is looked at but seldom seen”. A good

interview allows the researcher to focus and understand the subject's world. Moreover, it is often not rigorously self-restricting.

Qualitative interviews permit the researcher to adjust the line of thought according to the interviewees' responses, embedded in their contents and behaviours. It prevents the researcher from going into the field with a completely predefined mindset that could potentially mislead the interviewees towards certain perspectives. In this way, the complexity of the context can be truly revealed as rejecting the possibility of an incomplete viewpoint. For this reason, a list of key questions was compiled prior to the interviews to outline the topics that needed to be covered during the interviews. These questions mainly focused on understanding the context of the participants, the value propositions of EA and the strategic decision-making, as well as the challenges associated with EA decision-making. This is necessary, as the list of questions guides the interviews to ensure that the same topics are covered in each interview, but the emphasis can be adjusted as appropriate.

The primary research data was collected through semi-structured interviews with senior business executives and key EA decision-makers. As pointed out in the earlier section, preliminary research and consultations with field experts were conducted to determine the most appropriate research subjects for this particular thesis. As a result, this research focuses on banks that provide various financial services such as transactional and lending products, like credit cards and personal lending products. This decision was based on the results of preliminary research, where EA maturity was primarily used as an indicator. EA maturity entails that the organisation must have an EA division with a dedicated mandate. Such a mandate means that the EA division is responsible for establishing the architectural vision and developing target-operating models. The EA division should also be architectural blueprints for the bank that support the bank with its strategic goals and objectives (Ross et al. 2006). The actual architecture environment has also been considered in terms of whether it was appropriately designed and deployed given the adoption of EA design principles. An organisation was considered appropriate for this research, should all of the above be available and operating with a reasonable history of EA institutionalisation.

Based on this decision, four retail banks were identified and approached. These banks are the major players in the financial services sector in South Africa. They provide the majority of the banking services in the country and are seen as the 'big four' within the entire South

African retail banking sector. In approaching the banks for interviews, access to senior business decision-makers proved challenging. Even though recommendations and connections were received from the EA executive, the process of accessing the most appropriate interview candidate was not conducted without any challenges. The process took several months, as the senior executives often have to be contacted a month in advance to make an appointment. One also has to compete for an appointment among many other business priorities. One senior executive had to reschedule the interview three times before the meeting actually took place. Nevertheless, although it renders a high level of inconvenience in terms of the research process, the inputs that were received and the opportunities to discuss EA issues hands-on were invaluable.

It is important to note that numerous preliminary discussions took place with field experts simply to identify appropriate organisations and potential candidates that could be approached. That, unfortunately, still did not guarantee access to such organisations and individuals. Out of the four banks that were approached, only two agreed to participate. The other two banks declined, stating that they were not ready to provide meaningful inputs as they considered their EA to be too immature for this particular research. This was evident in one of the email communications:

“Due to the level of effort and amount of time still required to get [bank name]’s EA capability to a level where its value can be realised and measured, this site may not be ready to contribute productively to your research effort. However, I invite you, anytime going forward, to join us to see where we are, even if it is watching us on the journey and progressing up the maturity ladder.”

Eventually, two banks participated in this research, with 14 interviewees. These interviewees comprised senior business executives and key EA decision-makers.

However, one may question the use of only two case organisations, as it may place constraints on the data available to inform the research. Walsham (2006), and Lee and Baskerville (2003) arguably suggested that there are different ways in which the data can be used, as generalisability can take the form of meaningful descriptions, concepts, theories, specific implications or rich insights. As it may often be the case in interpretative research that the access to organisations is limited (Walsham 2006), one should consider that



generalisability can be achieved in four different ways: from data to description, from description to theory, from theory to description and from concept to theory (Lee & Baskerville 2003). All of these are viable from a single case study or a small set of case studies (Walsham 2006). Furthermore, it is also argued that sufficient interviews were held in case conceptual saturation was reached.

Eleven pre-meetings took place with the EA consultants and EA executives to identify and assess the appropriateness of organisation's participation, including the organisational structure and the EA function's maturity level. Based on the inputs received, the literature findings were confirmed and a number of criteria were recommended as a measure for selecting appropriate interviewees. As shown in Table 3, these criteria were recommended by most field experts as a general guideline. These criteria were then discussed with the EA executive of the two banks to get their inputs on inviting potential interview candidates.

**Table 3: General guidelines for interviewee selection**

EA	Business
<p>The individual:</p> <ul style="list-style-type: none"> <li>• is involved in EA planning and design;</li> <li>• has some good level of decision-making power;</li> <li>• has a good understanding of the EA environment as a whole; and</li> <li>• has awareness of EA's relationship with business.</li> </ul>	<p>The individual:</p> <ul style="list-style-type: none"> <li>• is aware of EA;</li> <li>• has some level of decision-making power or influence in EA decisions; and</li> <li>• has a good understanding of strategic goals and objectives (can be on enterprise level or business unit level).</li> </ul> <p>It would be a bonus if the individual:</p> <ul style="list-style-type: none"> <li>• has close experiences with EA; and</li> <li>• has upward influence on the establishment of strategic goals and objectives.</li> </ul>

Six of the 14 interviewees represented senior business decision-makers and six represented key EA decision-makers. The remaining two represented a 'hybrid' of the two. 'Hybrid' indicates architectural departments that are organisationally positioned between the business and the EA function. While, at first, being rather apprehensive of including such a 'hybrid'

function in the research, it later provided the authors with an interesting, unanticipated factor when the findings were analysed.

All 14 interviewees were senior decision-makers in the banks and had a good level of decision-making power. Interviews lasted for about an hour and a half, depending on how the interviewees related to the questions. A list of guiding questions was developed before the actual interviews to ensure that the same topics were covered in each interview. Permission to use a voice-recording device was obtained prior to the meeting.

Table 4 provides an overview of the participating interviewees. They were senior business executives consisting of heads of divisions (HoDs), directors of business units and executives reporting directly to the organisation's high-level executives. For the protection of the interviewees' confidentiality, no titles are mentioned in this thesis. Business executives, directors or business HoDs will all be referred to as business interviewees, whereas hybrid and EA executives, directors or HoDs will all be referred to as EA interviewees.

**Table 4: Overview of interviewees' reporting organisation and business area**

	<b>Report to business</b>	<b>Report to EA</b>	<b>Hybrid</b>
<b>Business area</b>	<ul style="list-style-type: none"> <li>• Business integration</li> <li>• Customer strategy</li> <li>• Credit and risk</li> <li>• Governance</li> <li>• Retail business design</li> <li>• Business architecture</li> </ul>	<ul style="list-style-type: none"> <li>• Group architecture</li> <li>• Enterprise architecture</li> <li>• IT architecture</li> <li>• Application architecture</li> <li>• Solution architecture</li> </ul>	<ul style="list-style-type: none"> <li>• Information architecture</li> <li>• Customer data environment</li> </ul>

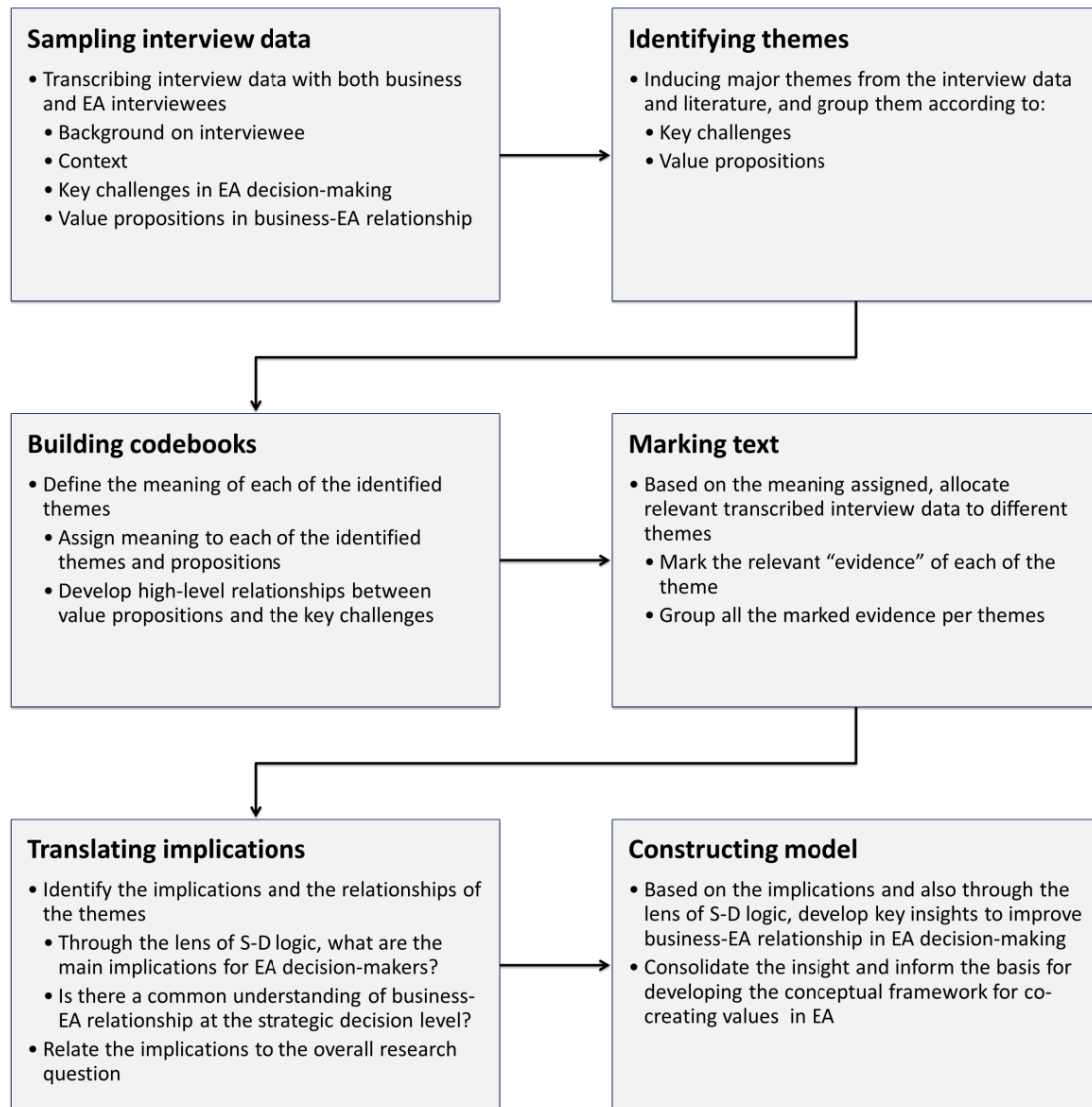
#### 4.3.3 Qualitative analysis

Following the literature review and data collection, a set of qualitative interview data was obtained and analysed. The main techniques that were used to analyse the data were memos and coding (Esterberg 2002; Myers 2008; Ryan & Bernard 2000). Memos were made during the interviews as a form of field notes, these focused on the comments made by the interviewees and contained ideas about what the data meant (Esterberg 2002). Coding is a

more sophisticated technique, which is often used to analyse qualitative data. According to Myers (2008), coding consists of tags or labels for assigning units or groups of meanings to a set of descriptive information.

The data was analysed by transcribing interview data (the voice recordings were transcribed into text). Then, based on the transcribed data, major themes across all interviews were identified, which in this case, are the challenges and value propositions that were revealed. Once these themes were identified, a codebook describing the meaning of each theme was used. For example, the quality of engagement should mean more than mere conversation on a project basis, but should also include the frequency and level of the strategic dialogues. This codebook then informed the nature of the messages that were shared by both business and EA decision-makers; these were categorised according to the identified themes. Once all data was categorised and linked to specific themes, a detailed analysis was done to understand and interpret the interdependencies and implications of the views of different interviewees (see Figure 8 for a description of each of the steps).

As part of qualitative analysis, the high-level key findings, together with the identified themes, were presented to the Enterprise Architecture Research Forum (EARF) hosted by the Council for Scientific and Industrial Research (CSIR). EARF is a research forum where industry, researchers and academia meet once a month to work on EA-related research focuses (EARF, 2011). Although the themes were only presented at a high level, the purpose of the presentation and the open discussion that followed was aimed at strengthening some of the findings with inputs from practitioners and academics.



**Figure 10: Description of data analysis steps, as adapted from Myers 2008; Ryan & Bernard 2000**

Following the steps outlined in Figure 10, interview data was interpreted and later used to inform the development of a conceptual framework that will aid the decision-makers to manage architectural decisions.

#### 4.4 Limitations

As for any research, a clear boundary that specifies the scope and the limitations is needed. In this thesis, the limitations are largely defined by the context in which the research took place. Financial services organisations, especially the retail banks, are the primary research targets.

Access is needed to interview senior decision-makers from both EA and business organisations. However, it appears to be a major task to gain access to senior decision-makers, especially business executives. Even though pre-meetings took place with the people who lead EA divisions at the bank, and connections and recommendations were received to approach certain senior executives in the bank, it remained a challenge to convince business executives to spare time for sharing their views on EA decision-making. A number of rejections were received from business executives for various reasons. One should acknowledge that this process of gaining access to research subjects entails a strong element of chance, luck and serendipity (Walsham 2006). Hence, it is noted that this challenge ultimately limits the diversity of the data set.

The field research was designed in accordance with how EA and S-D logic are conceptualised and intersected given the intra-organisational context. However, the dynamic network nature of key decision-makers is not fully explored. This is due to the potential widening of the scope of understanding the key causes of the business-EA disconnect and the absence of an existing empirical understanding of the various roles of EA decision-makers and their influences. Given his or her professional and personal capacity, to establish the impact of the various motives, needs and desires of key decision-makers and business executives on the business-EA relationship and to form a decisional perspective about it, a closer observation of the participant is required. This is because a typical EA decision-maker can play multiple roles, such as manager of a division, subordinate of a high-level executive, customer for IT vendors and a provider for his or her family (Vargo & Lusch 2011a).

Consequently, it becomes extremely complex to clearly define the individual's motives, needs and desires, given the various roles (and interactions) that the participant may play to fully paint the picture of a dynamic network. Having acknowledged this, this thesis has designed the field research so that the dynamic network nature is featured in the way the decision-makers interface with various stakeholders at different levels. While EA decision-makers are mandated by the CEO to achieve a specific vision, they play the role of service provider to various business executives. They are also a customer of, for example, the IT function. Similarly, as much as the business executives are conceptualised as the customers for EA, they are also consistently looking for ways to improve service delivery to their customers. Hence, both EA decision-makers and business executives play multiple roles and thereby feature the characteristics of a dynamic network.

The other important limitation is the use of data sources. Due to the nature, and partially the culture of the organisations interviewed, access to other data sources was limited. The organisations considered data sources, such as meeting memos, emails, EA/business strategy documents, and the meetings and minutes of executive committee discussions, as highly sensitive, and for this reason, the semi-structured interviews were the only data source available to understand the context. This can largely be related to how a typical financial services organisation operates. The organisations are highly sensitive with regard to information-sharing, especially with those from outside the organisation. For this reason, the researcher acknowledges that the use of semi-structured interviews could have been complemented by other methods such as the investigation of documents and/or observations, but in order to protect the interest of the interviewees and the organisation approving the research, no other data sources were used. Additionally, it was not possible to conduct this research using organisations in other sectors, as financial services organisations are by far the most mature in terms of their EA efforts.

#### **4.5 Summary**

There are a number of techniques and methodologies that measure and assess the investment in ICT, including architecture. However, most of these methodologies follow a strong quantitative approach and hence have a great level of difficulty in assessing the intangible assets that are associated with the architecture (Li 2008). Such methodologies are biased towards encouraging competition in efficiency and do not promote exploration of value creation (Li 2008). In reflection of such phenomena, this thesis follows an interpretative, qualitative approach towards EA decision-making in order to promote value exploration on the intangible assets of the architecture.

## **5. Chapter 5: Findings – EA decision-making in South African retail banks**

### **5.1 Introduction**

This chapter presents the main findings of the research. Through in-depth interviews and discussions, the views of both business executives and key EA decisions-makers are analysed and interpreted. The findings support the literature and further point towards the main cause and consequences of the challenges encountered. A clear disconnect was identified between business strategic initiatives and EA, which consequently deemed EA sub-optimal, if not unsuccessful. This chapter begins by providing a general overview of the context of the interviewed organisations. Then, a detailed report of the interviews is given to highlight how EA decision-making is currently managed in a typical financial services organisation in South Africa, including the main challenges facing business executives and key EA decision-makers. Following the report of interview findings, the implications are analysed and interpreted. This chapter concludes with insights into how EA decisions could be managed between business executives and key EA decision-makers on a strategic level.

As pointed out in the previous chapters, a preliminary round of research and consultations with field experts was conducted to determine the most appropriate research subject for this thesis. As a result, the research focuses on financial services organisations, as they seem to have the most mature EA function in comparison to other sectors. The thesis was eventually conducted with two of the ‘big four’ South African banks.

The EA function in these two retail banks is more mature, as these banks have dedicated organisational functions addressing the need for EA. This, for example, includes business units or divisions that are mandated to design target operating models and ‘to-be’ architecture blueprints for the bank and to assist the bank in expanding its footprint in other sub-Saharan African regions. An EA division with a dedicated mandate is not the only indicator of its EA maturity, one also considers the actual architecture environment that is designed and deployed given the adoption of EA design principles (Ross et al. 2006). Priorities are given to EA initiatives as business executives expect there to be a definite value in funding EA to assist the organisation to manage change and complexity – an essential foundation for strategy execution.

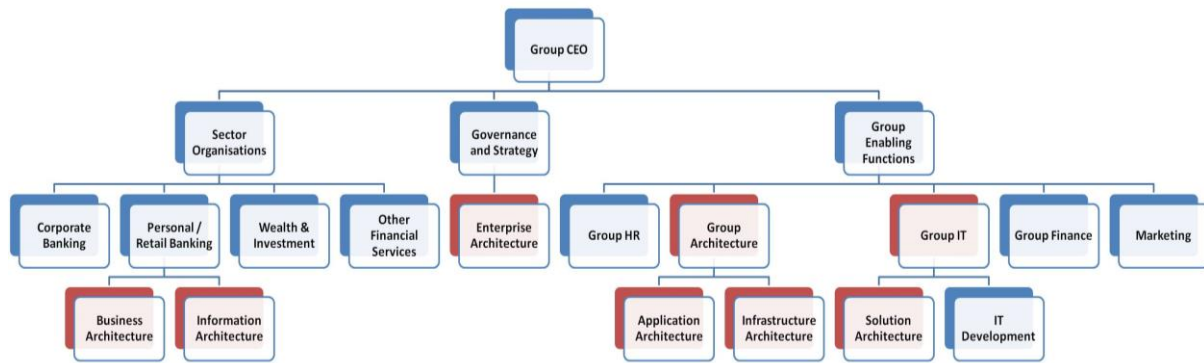
The participating organisations are the local subsidiaries that take the overall responsibility of banking operations in Africa. With this in mind, the participating organisations, although operating in an international environment connecting Africa with rest of the global operation, the context of the field research is largely related to the local EA activities. Table 5 summarises the organisational information of the local subsidiary.

**Table 5: Overview of participating organisation**

	<b>Bank Group A</b>	<b>Bank Group B</b>
<b>Bank group size</b>	Approximately 36 150 employees in South Africa at the time of the interview	Approximately 28 000 employees in South Africa at the time of the interview
<b>Type of company</b>	Financial services – banking	Financial services – banking
<b>JSE listed</b>	Yes	Yes
<b>Core offerings</b>	Personal/retail banking Investment banking Corporate banking Wealth management service	Personal/retail banking Investment banking Corporate banking Assets management
<b>Participating organisation</b>	Personal/retail banking sector organisation Group enabling functions (EA)	Personal/retail bank sector organisation Group enabling functions (EA) Governance and strategy

The EA function in both of these organisations cuts through a number of business units (sector organisations). As shown in Figure 11, the different architecture domains are split between the business units. Business architecture and information architecture are designed to reside in the different sector organisations to focus on specific organisational requirements. While business architecture executives are highly positioned in terms of accountability and the level of seniority, information architecture is usually positioned as the bridge between business and EA. Other architecture functions, such as application architecture, solution architecture and infrastructure architecture, all formed part of the group’s enabling functions. One noticeable difference between these two banks is that there is another EA entity in Bank B that falls directly under the governance and strategy function of the group. This entity focuses specifically on defining the EA engagement model from a governance and strategy point of view. However, this function is found to be very similar to that of business architecture, thus its positioning is not emphasised.





**Figure 11: A graphic illustration of EA function(s) in the participating organisations, indicative only**

The following sections describe the key challenges and value propositions of the interaction between business and EA, that is, the interaction between the key EA decision-makers in each of the abovementioned units and the business executives from the retail banking sector organisation.

## 5.2 Findings

This section reports on the findings of the interviews. Six major themes and three symptoms were identified, given the inputs from all 14 interviewees. It is worth noting that even though they were from two different banks and from different divisions, strong commonalities were found among all 14 interviewees.

Interviews were voice recorded with the interviewees' permission and transcribed afterwards to identify the common themes of challenges and propositions. Meanings of the themes were defined based on the evidence collected, and direct quotations of interviewees' inputs were marked and grouped into the identified themes. The themes were further examined through the lens of S-D logic to further establish the key implications.

Within the EA decision-making context, the following themes were identified:

- Inconsistent quality of business-EA engagement
- Divergent roles: 'run' versus 'build'
- Disconnect of business priorities and architecture life cycle

- Inconsistent reward structure (measurement and incentives)
- Misaligned propositions of business-EA relationship
- Inconsistent and irrelevant architecture decision-making
- Other symptomatic challenges: lack of use of common terminology and culture differences

These themes are discussed in an extensive level of detail in the following sections.

### *5.2.1 Inconsistent quality of business-EA engagement*

Throughout the interviews, one concern that consistently emerged from both business and EA interviewees is the quality of engagement. Decision-makers raised the concern that both parties do not seem to engage each other at the most appropriate organisational level or in alignment with each other to provide for one another's needs. Most engagements take place as a response to project operationalisation, as opposed to strategic dialogues, such as the alignment of architecture principles or managing trade-offs of business outcomes. The nature of business-EA engagement is subsequently characterised by operational engagement and ad hoc change requests. This indicates a sub-optimal engagement between business and EA, with operational issues tending to constitute the major portion of the business-EA relationship.

As one EA interviewee commented: "We'd like to be engaged at the same level, from the very start". Most EA decision-makers feel that they are not empowered the same way as other business decision-makers are; hence they are not engaged at the appropriate level. Two dominant views regarding the cause-and-effect relationship of the quality of engagement emerged from the EA interviewees. One view is that, even though a good relationship exists between EA decision-makers and business, the strength and also the depth of such relationships are not effectively rooted in the minds of the business decision-makers. Some EA interviewees feel that they should be part of strategic business meetings where most decisions are made without taking cognisance of the architectural implications. As one EA interviewee commented: "Business decision-makers see EA as something that has evolved from the technology space and therefore this is a technology thing that is not even important". This places a huge constraint on how EA is invited to engage in business strategic dialogues. All EA interviewees believe firmly that this is not a simple result of how well one can

communicate or share information; it is about how business decision-makers value such a relationship in the journey towards maximising shareholder value.

Another dominant concern raised by EA interviewees is that EA is usually perceived as dictating to business decision-makers how the business should be operated. The EA interviewees indicated that this is usually the case because business decision-makers do not perceive EA as equally important to other business drivers that impact on the bottom-line of the bank. “At worst, business sees EA as somebody coming in to dictate how business executives should run their business” was a concern raised by the EA interviewees regarding the engagement between business and EA. However, when speaking to the business, most of the business interviewees strongly feel that EA should greatly improve its focus on the broader organisational objectives. All business interviewees agreed that EA decisions and the associated implications are often not well articulated and the engagement between business and EA tends to be isolated, with EA imposing prescriptive thinking rather than collaborative principles. This is largely caused by EA’s closed approach to driving architecture agendas, such as process standardisation and simplification. Examples were referenced in the interview where key EA decisions are made in the architecture forum with no or limited participation of the business, as opposed to conducting an open, collaborative engagement in relation to the broader organisation objectives.

All interviewees agreed that an engaging relationship exists between business and EA, but the challenge is to consistently engage and collaborate at the right time, at the appropriate organisational level and to openly and clearly articulate the key architecture implications in light of key organisational objectives.

### 5.2.2 *Divergent roles: ‘run’ versus ‘build’*

An analogy raised by most EA interviewees was the notion of ‘run the bank’ versus ‘build the bank’. While some may take it for granted, EA in organisations is often given the mandate of leading the design and implementation of organisational configurations; this entails how the various business processes, people, data and information, application and technology should be configured and synchronised. However, EA interviewees note that, although they are given the mandate of establishing an architectural vision and guiding the overall organisation towards materialising the target state configuration, their role is often split due to the varying

expectations of the business. As one EA interviewee commented: "...with the limited resources, my team finds it difficult to split between maintaining the day-to-day running of the business and building the new organisation". A typical example is found in EA being expected to support the day-to-day running of the business operations and, at the same time, reduce the longer term costs of maintaining the bank's application portfolio. This fundamentally consumes a significant portion of the EA team's capacity and consequently affects the EA team's ability to implement the target state designs.

Furthermore, various other business initiatives are often requested of EA to establish or strengthen operating model changes within the bank, which often results in EA capacity being spread too widely and diluting the focus to fulfil its mandate. EA interviewees agreed that these roles are two sides of the same coin and it is definitely necessary to look after the interests of both roles, but it is still a challenge that has yet to be dealt with. Consequently, it often leads to EA having a divergent focus and often being under-capacitated when working with business executives; causing an inability to focus on materialising the architectural vision.

When the business interviewees addressed the same point, their views tended to praise the outstanding service of the EA division, specifically in terms of EA's run-the-bank role, complimenting EA's dedication towards the day-to-day operation of the legacy systems and the associated continuous improvements. Nonetheless, such positive appraisals are soon replaced by other emotions when they start sharing their concerns regarding how EA decision-makers perform their role in advising and guiding the organisation towards achieving the target architecture. One business interviewee commented: "I think too many times they allow run to overtake build, which should not happen in the first place". Another interviewee adds to this by saying that "EA too often tries to please too many people at the same time, when you try to do that, you set yourself up for failure". Business interviewees agreed that EA, at least in its building role, should consider how other stakeholders would resonate with EA's proposition and give credibility, before they start targeting any radical, transformational changes and create the perception of "eating the elephant in one bite".

It is worth noting that, during the interviews, emotional behaviours and signs of frustration were observed when discussing EA's build-the-bank role with business decision-makers. It was apparent that two of the business interviewees had unpleasant experiences with this

specific issue of the divergent roles of EA. Most business interviewees bring this discussion back to a concern about the quality of engagement, and to the next challenge of the disconnect of timing and business priorities that are often the trade-off between architectural elegance and immediate business delivery.

### *5.2.3 The disconnect of business priorities and architecture life cycle*

According to both EA and business interviewees, one of the most challenging parts of their collaboration is the manageability of the timing of the deliverables, where the immediacy of delivering a business outcome is almost in direct conflict with long-term architecture delivery. As one EA interviewee commented: “Nine out of ten times we will come with long-term thinking, in other words, what’s the impact three years from now; but the business executive is thinking about what’s going to happen to my bottom-line by end of the quarter”.

EA often requires upfront investment of millions of rands and business executives cannot wait to see the return on EA in only three to five years’ time. This happens frequently as many EA decision-makers have to find a way to convince the business executives that even though it looks more expensive right now, it will be cheaper in the end. One EA interviewee notes: “EA facilitates the vision of our customer, but with a longer-term goal in mind, which is beyond the immediate need of the business”. This creates a conflict between the priorities of deliverables, and EA decisions often become a decision of trade-offs. EA decision-makers are mostly concerned with and are often forced to decide what deliverables one can postpone and how one can accommodate the immediacy of the business need. As a result, EA often requires costly fixes at a later stage. As one EA interviewee remarked: “Too often things remain tactical implementations and the architecture vision becomes very messy”. Once the architecture becomes inconsistent due to satisfying short-term needs, the cost of maintaining and fixing the architecture increases. “In my opinion, doing it half is more expensive than doing nothing at all”, commented one EA interviewee.

EA decision-makers indicated that they are always pressed to deliver short-term outcomes of three to six months. This is evident when they are questioned about architecture outcomes in response to financial cycles. Financial services organisations are often geared towards two major financial releases: half-yearly interim and year-end. In the context of the two major financial cycles, while most architecture deliverables may require two to five years, business

executives are less concerned with long-term returns in comparison to the EA decision-makers. “I have never heard a business executive say that he or she doesn’t mind losing money for the next three years, as long as I make a lot in Year 5. Never”, noted one EA interviewee. This is largely a reflection of the disparity between business and EA: what EA is mandated to achieve and what business executives think they need to deliver. This creates conflicting timing and a misaligned business-EA relationship, resulting in many EA decision-makers being perceived as not meeting the broader objectives set by business executives.

Business interviewees, on the other hand, acknowledge the challenge of managing trade-offs between short-term delivery and long-term sustainability. At the same time, however, they accuse EA of over-engineering their proposed solutions. The argument is that, even in business, one has to consider how to most appropriately manage the balance between operational execution and strategic focus. The problem that most business executives have is that EA decision-makers can never be the expert in all business areas, especially in highly specialised areas such as credit and risk strategies. EA is seen to interfere with business outcomes without sufficient knowledge of the business context. One business interviewee commented: “...and this is extremely naïve, telling me what to do and what not to do.” As much as they appreciate EA as an excellent business school concept, they feel it is over-complicating business by trying to standardise or integrate ‘everything’. They conceded, however, that EA plays a vital role regarding the architecture of tomorrow.

All interviewees agree that both business and EA should be educated to understand the nature of joint goals and objectives in the larger business context. They feel that awareness and education are the keys to business executives appreciating EA in its entirety and vice versa. In other words, if the business executives are not appreciating what EA is aiming to achieve, it is largely due to the lack of understanding of architectural implications and business consequences.

#### *5.2.4 Inconsistent reward structure (measurements and incentives)*

Following on the previous challenges, all interviewees agreed that, even though they are aware of the gap between business and EA, they are unable to fill the gaps unless the organisation’s reward structure is realigned in terms of performance measurements and incentivising appropriate behaviours.

EA interviewees, in particular, have a number of comments to make about the organisation's reward structure. "There's this one major cause to all challenges in EA, that is, the super inefficiency in the way that the business performance is measured and incentivised... It is based on short-term goals – not longer than a year – sometimes even in three-month cycles", commented one EA interviewee. EA interviewees are of the opinion that EA is very much a journey of long-term value creation, but because the measurement system is geared towards measuring and rewarding short-term performance, business will usually decide in favour of short-term achievement over long-term benefits. The measurement system apparently has limited ways of rewarding a decision that has long-term benefits, especially if it may first result in short-term investments. The same applies to EA internal stakeholders, including different architecture teams and development communities. One EA interviewee said: "So for as long as your reward measures are based on your performance this year, you are going to get people who only do things that deliver value for this year. This is not always optimal in the mid to long term."

Unclear accountability and line of reporting were raised as other consequences of having an inconsistent reward structure. Interviewees point out that with each of the functions, such as EA, IT development or any other business lines residing in their own reporting structures, it is neither clear how the various performance measures come together to deliver the intended business outcome, nor can the organisation clearly articulate the ultimate ownership and accountability for the delivery of end-to-end architecture outcomes. Business-EA relationship is fundamentally constrained, given limited alignment regarding how key decision-makers' performance and behaviour are encouraged and rewarded. Business interviewees are particularly verbal on this issue. "One should remember that, at times, even business executives have to seek approval [on architecture changes] from EA before launching a new product, but because they are not responsible and accountable for business outcomes, they can turn down any request without worrying about delivering business outcomes", said one business interviewee. This is a significant gap between business and EA, and the two are rewarded based on different key performance metrics (KPMs), which is made worse by reporting to different organisational structures. Business and EA are both encouraged to seek varying rationales in their strategic decision-making.

"They [EA] are sitting in a parallel structure with their own measurement, their own incentive models, so there's really no incentive for them to listen to you", said one business

interviewee. In other words, within the structure of the organisation, there are limited mechanisms that compel either business or EA to engage with each other and to be held jointly accountable for business and architecture outcomes. Interviewees suggested that: “Only when both EA and business have a single organisation-wide measurement model, the two can be motivated towards achieving goals that are aligned.” Otherwise, as stated by one business interviewee: “People can even run wild if they wish.”

This is very much an organisational design challenge, which may or may not be under the control of either EA or business executives. However, all interviewees agreed that if a vision that links the EA outcome to business initiatives and vice versa can be consistently and clearly articulated by all leadership members within the organisation, this gap can definitely be minimised. A properly aligned reward structure can reduce the impact of the forces pulling and pushing EA and the business in different directions.

#### *5.2.5 Misaligned value propositions of business-EA relationship*

The misalignment of value propositions is another challenge that negatively affects the business-EA relationship. This particular challenge, possibly attributed to the previous challenges, is largely associated with how the value proposition is established and delivered. Most EA interviewees noted that the business strategy is very rarely articulated to inform the overall architecture goals and objectives. More often than not, EA decision-makers have to rely on the IT requirements of the business and use it as a basis to inform key architecture planning and design decisions. One EA interviewee added that: “The problem is, business often does not know what it wants, so they tell me they want flexibility, as opposed to telling me exactly what they want.” Furthermore, such poor visibility of business strategy also results in most dialogues being IT-centric and focusing on short-term tactical solutions, which eventually lead EA to be poorly positioned for realising strategic outcomes. Both business and EA are constrained to provide meaningful inputs to each other due to the misalignment of value propositions.

Business interviewees, on the other hand, have different views on the alignment of the value propositions. While a few business interviewees characterise this challenge by the lack of committed engagement, others add to this discussion by arguing that: “...there’s a clear alignment to what the CEO wants and what I’m driving: my activities are what the CEO



wants for next year.” The view is clear that the organisational directive is geared towards producing business outcomes, and business executives firmly believe that EA’s value proposition is not established on the same basis. This adds complexity to the business-EA relationship as business does not feel that EA is correctly positioned to support it and it is not getting any strategic value out of the service that EA is providing. Most business decision-makers feel disengaged due to the misaligned value propositions, and over time, they start to lose interest in what EA has to say.

It is critical to highlight the fact that all interviewees acknowledged that if the value propositions are established in a more collaborative manner and the directive from the chief executive is consistent, the business-EA relationship will certainly become more strategic in nature. The interviewees confirm that there is a need to move away from the silo thinking of business or EA and to further transform the technical/tactical mentality into a customer-centric one. One business interviewee added that: “Our organisation is transforming into a customer-oriented organisation and we want EA to support us to materialise that transformation.”

#### 5.2.6 *Inconsistent and irrelevant EA decision-making*

Keeping architecture decision-making consistent and relevant is the one challenge that confronts EA decision-makers the most. As raised by all EA interviewees, architectural decisions are strongly influenced by company politics and power relationships. The EA interviewees acknowledged that there would always be a few powerful individuals in the organisation who will have far more influence than their peer groups (mostly business over EA). However, if EA is not empowered or trusted by the business executives to make the right architectural decisions, it stands little chance to deliver meaningful value to the business. Hence, it was noted that EA essentially needs a powerful business leadership that can steer the initiative throughout the organisation. EA interviewees pointed out that: “...because EA decisions have high impact on business areas, it will always find its way and get escalated to the chief executive level”. So, irrespective of how well the architecture rationale is established and communicated, the decisions are often reversed based on the request of the business, to suit their needs. “This is happening where decisions are even made in forums where we have all key architectural decision-makers, including business stakeholders”, added one EA interviewee.

Business interviewees tend to disagree with the above viewpoints of EA decision-makers. A few of them dispute the view that architectural forums are largely made up of EA decision-makers. Furthermore, the business case accompanying architectural decisions often does not support the broader business needs and strategic directions. As a result, business decision-makers find it difficult to support the overall architecture decisions (and the rationale behind these decisions). They further added that, should the architecture engagement take place at the incorrect level with the inappropriate value propositions, EA should not be surprised if the decisions are not widely accepted. This is also supported by some of the views of the EA interviewees. They also pointed out that EA decision-making is fragmented within the EA community and across the various domains. “We all still work in silos...between business and EA, as well as within EA”, said one EA interviewee. Business can minimally relate EA to its context because the decisions in the various architecture domains are often not integrated or aligned. This subsequently affects how business executives and EA decision-makers collaborate, which causes a greater downstream impact on value creation.

Business interviewees commented that it is critical to keep EA decisions relevant and close to the heart of business objectives. EA decision-makers have to be able to articulate the value of EA in a collaborative, non-technical manner. In this way, the business-EA relationship can be established on a common ground, which encourages collaborative decision-making. On the other hand, EA interviewees suggested that a proper decision-tracking mechanism should be introduced. Such a mechanism could ensure that the diversity of views (business and EA, as well as the various domain perspectives) are incorporated and aligned on a high level, and that the benefits realisation of architecture outcomes are governed and clearly communicated. All interviewees believe that if such a mechanism (or structure) can be introduced, it can definitely improve the overall relationship between business and EA, as well as within EA. It was further noted that the current EA frameworks or methodologies are still unclear regarding the various strategic decision points in the overall architecting process. A decision framework can therefore be required in order to articulate relevant strategic EA decisions for the business.

### 5.2.7 *Other symptomatic challenges: lack of use of common terminology and culture differences*

This section briefly discussed the challenges that correspond to what was found in the literature. Based on the feedback from the interviewees, the challenges are mostly symptomatic of those that were detailed in the earlier section.

All interviewees, except for the solution architecture interviewees, agreed that the ways in which business and EA communicate are essentially different and certainly added complexities to how business and EA collaborate with each other. Business interviewees agreed that if common terminology can be used, it can conveniently facilitate an easier dialogue. However, they also noted that it is only symptomatic of the current structure. “They are not disrespectful to the business, I don’t blame them because that’s their skill, and that’s their language,” said one business interviewee. This largely indicates that the participants appreciate each other’s background (in terms of skill diversity and to some extent the ‘culture’) and the ways that different parties communicate. The key is to establish quality engagement with the appropriate propositions, which is more than just using the same terminology. EA interviewees largely agreed on this view and added that: “These [lack of use of common terminology and communication differences] are convenient labels for the manifestation of the symptoms.”

Another symptomatic challenge that was raised is cultural differences. Similar to the communication differences and lack of the use of common terminology, some interviewees raised their experiences regarding how cultural and skill differences possibly contributed some level of barrier in terms of establishing an effective business-EA relationship. However, most interviewees did not relate such differences as the major cause of the business-EA disconnect, but rather acknowledged that it can be alleviated by means of the right leadership with a common vision articulated by someone who has a comprehensive understanding of the relationship between business and EA.

## **5.3 Examining the current business-EA relationship**

The notion of effective EA is largely described in the dynamic nature of how EA intersects with the business and how business and EA can together achieve a common set of strategic

objectives. Chapter 2 explored how EA provides a firm foundation for strategy execution and further warrants key business enablers, such as organisational alignment, information availability, resource portfolio optimisation and the complementary design of organisational resources. However, these enablers require a tightly coupled business-EA relationship so that EA can be positioned and designed with the appropriate strategic intent and not just as another means coming out of the technology space. To address this, EA requires a different lens towards developing or improving the overall business-EA relationship in a typical banking organisation. This section synthesises the author's understanding of the literature and examines the key implications of the current business-EA relationship. This will also be used to form the basis for developing a conceptual framework in the next chapter.

### *5.3.1 Value-in-exchange forms the crux of the current business-EA relationship*

The inadequacies of predominant product focus in EA point towards the need for a shift to S-D logic. The findings show evidence that a product-focused view is a restrictive logic and causes a business-EA disconnect, which results in many restrictions or challenges described in chapters 2 and 3, as well as in the findings. G-D logic often overlooks the role of customers and its contextual insight, which often leads to further separation of customer and service providers. The views of business executives confirmed that EA decision-makers tend to establish and design the propositions on their own without taking a collaborative approach that incorporates the views or objectives of the business. By implication, EA decision-makers do not value the customer other than as a production or marketing variable that must be considered. They only need to market to the business executives. This largely discounts EA decision-making. Although business executives and their inputs are not seen as useless or non-essential, customers are restricted in contributing to the co-creation of value. Instead, EA is often limited to a linear series of internal architecture activities, whereas the various architecture domains work in their own silos and come up with propositions that are mostly relevant to them and less relevant to the business. This coincides with the value-in-exchange concept of G-D logic where the point of exchange is where value is seen to occur, as opposed to the point of use. Consequently, EA decision-makers tend to focus their time and efforts on the process of production and distribution to business. Even the communication process is more of a 'push' towards business, hence, the reaction of most business executives is largely resistant, as they feel intimidated by such an approach. The lack of two-way strategic

dialogue between the customer and the provider fully characterised the current business-EA relationship in EA decision-making as predominantly product-focused and goods-dominant.

Furthermore, the inconsistent reward structure constrains the business-EA relationship and further encourages business executives and EA decision-makers to seek the outcomes on which only they are measured. Neither business executives, nor EA decision-makers are compelled to collaborate or focus on delivering integrated business outcomes – as pointed in the earlier chapter, business executives are largely motivated by their quarterly cycles in the banks. This signifies that the G-D business-EA relationship focuses on standardisation, efficiency and the separation of business executives and EA decision-makers so that customers do not interfere with the value creation process.

### *5.3.2 Current business-EA relationship utilises more operand resources than operand resources*

The focus of G-D logic remains largely that the goods are seen as the end of the production and it provides competitive advantage to the banking organisation. Providers of goods and services unilaterally determine and embed value in their goods and features. Consequently, value is not personal, contextual or experiential. The production process and its efficiency is emphasised more than the competence and skills that are needed to co-create an operand resource. The current state of EA largely focuses on architectural artefacts and the process of high efficiency. This is evident in the lack of attention to the socio-political context of EA, the disconnect of business priorities and architecture cycles and an over-emphasis on the technical aspects of EA. At the same time, EA decision-making across domains is also highly fragmented. Business executives' perceptions that EA is a technology-driven practice that dictates how banks should operate highlights the fact that EA decision-makers emphasise the architecture artefacts. The key consequences and business trade-offs are not connected and articulated by EA decision-makers as the artefacts are deemed to be the end of the production. As a result, EA is unable to relate to business outcomes of the banks and the experience of business executives has been a tactical one.

### *5.3.3 The current business-EA relationship is transactional in nature*

G-D logic typically posits that the producer can manufacture value upfront without customer inputs. Customers are seen as the passive recipients of the outputs. Once the outputs are delivered by the producer, the customer consumes or destroys the value of the goods. In this view, the producer is the creator of value and the customer is the destroyer who consumes and depletes the value. Consequently, the producer emphasises the efficiency and productivity of the manufacturing process and its outcomes. Such a view implies that both the producer and the customer have no contextual knowledge of each other's environments.

Production is the end of value creation. For this reason, G-D logic perceives that the goods or outputs are the fundamental bases of exchange. The producer and customer both undertake a distinctive role with no need to understand each other's objectives and context. EA decision-makers, business executives and other stakeholders within the bank have largely different perceptions of EA, which is understood as a series of linear activities. Furthermore, the separation between EA and business is amplified by the different backgrounds, use of different terminology and different cultures of business units. The focus tends to be placed on the differences between them. As a result, such a restrictive approach leads to the business-EA disconnect and ivory-tower syndrome, to which the EA customer and provider tend to relegate themselves. This marks the importance of moving away from products or EA transactions as the fundamental basis of exchange.

#### *5.3.4 The current business-EA relationship is maintained as a linear set of exchange activities*

Given the description outlined earlier in terms of how EA resonates with the G-D logic of being perceived as a technology-driven practice that focuses on the efficiency and productivity of manufacturing EA artefacts, it emphasises that EA is driven solely from the provider's view. Furthermore, the business-EA disconnect also signifies that there is a strong separation between the customer and the provider. As stated in the findings (refer to Section 5.2), project operationalisation and ad hoc change requests remain the primary dialogues for EA and business. EA decision-makers are not engaged at the right level with the appropriate strategic dialogues. Similarly, EA generally does not see the need to engage business executives and other related stakeholders upfront to understand each other's goals and contexts.

Arguably, EA's predominant product-focused view on efficiency and productivity of the manufacturing process may be associated with the concepts of airplane engineering or its equivalent. Those informing G-D logic can be seen to promote, for example, manufacturing excellence, market acquisition through increased sales and maximisation of outputs that can be sold for profit. Such excellence may have served the purpose of 'engineering and manufacturing' the enterprise during the industrial age. However, given the nature and the shift towards a service economy, it creates challenges associated with linking to the larger business context, including collaboration between the social and economic actors within the organisation. For EA to operate from the ivory tower largely speaks for itself. As a result, business executives find it difficult to appreciate the value propositions and, subsequently, do not engage EA at the appropriate level. The current business-EA relationship in a typical bank is therefore argued to be highly asymmetrical with no or limited value integration across its enterprise network.

#### 5.3.5 *Key insights for EA decision-makers*

With the current business-EA relationship largely G-D focused, a number of insights can be drawn to the attention of EA decision-makers.

Firstly, there is a lack of understanding of the role of customer in overall EA decision-making. EA decision-makers were often too silo-focused in the architecture outcomes and were unable to rationalise and articulate the key decisions to the business executives across multiple areas of the bank. Such a silo approach implies the oversight of the role of business executives, which consequently affected the communication and prioritisation of business outcomes. Findings revealed that business executives take directives from the high-level executives to focus on strategic targets, such as customer experience (non-financial goals) and headline earnings (financial goals). However, EA decision-makers do not seem to align key decisions to the same set of targets. As a result, between EA decision-makers and business executives, their needs, goals and expectations are often overlooked by one another.

Secondly, there is the use of inappropriate value propositions in EA decision-making. Currently, as pointed out in section 5.2, business and EA collaborate on a largely ad hoc, operational basis in terms of the day-to-day management of the bank. The importance of the business-EA relationship is built on transactional needs rather than strategic, long-term relationships. While business executives may not hold the appropriate perception regarding EA within the bank, the value propositions offered by EA decision-makers need to be at the

heart of the broader bank's objectives. Tactical, G-D value propositions are too far removed from what the business executives seek; eventually business executives lose interest in terms of what EA can offer.

Last, but not least, there is inconsistent EA decision-making. EA decision-makers were criticised for using mostly architecture forums and their own business cases to make key decisions. These decisions were made without articulating business consequences to the broader bank. This signifies that the larger customer context, together with organisational political ecology, is not being considered in EA decision-making. The fact that EA decision-makers navigate their own decision-making in a multi-faceted environment creates opportunity for politics and EA decisions to be perceived as being poorly governed and highly inconsistent. Therefore, EA decisions were often reversed due to imposing prescriptive thinking and a lack of quality engagement with business executives and other key stakeholders within the bank.

#### 5.3.6 *Key insights for business executives*

Business executives undertake a critical role as part of the overall EA decision-making. An effective business-EA relationship cannot disregard the committing role of business executives within the bank. Herewith, a number of insights that can be learnt from the findings.

Firstly, there is the perception that qualifies EA as a technology practice only. Business executives are still largely being educated on what EA is and what EA could offer the bank, including even specialised business areas such as risk and credit strategies. EA decision-makers would not be successful in transitioning their focus from a G-D to a customer-centric one if EA is only perceived as a technological practice. Such a perception led business executives to feel that their ownership is being challenged and they often become defensive. Consequently, the business-EA relationship recycles the misaligned value propositions with business becoming less collaborative and open towards strategic dialogues.

There is a need to acknowledge business executives' role as customer and resource integrators. Business executives are the key points of representation for synergising the integrated business outcomes within and across the bank. They are primarily responsible for translating the directives of chief executives into tangible outcomes through deploying a mix



of strategies and programmes. However, most business executives currently under-utilise EA in building the bank for the long-term objectives. Instead, as evident in section 5.2.2, they only utilise EA in bank management because they positioned EA as an ad hoc, transactional service. While EA is often under-capacitated as well, it encourages EA to move away from the foundational focus of becoming a strategic enabler. Consequently, the collaboration between business and EA starts to take the form of a waterfall process, where EA decision-makers just embed value and deliver this to the business executives as a finished product – minimal collaboration is expected.

## 5.4 Summary

This chapter details the key value propositions for two representative stakeholder groups in the business-EA relationship in EA decision-making: the business executives and the EA decision-makers. Overall, various themes and implications outlined in 5.2 and 5.3 point to the fact that current business-EA relationships are largely driven by G-D logic. The current relationship focuses on value-in-exchange, efficiency of production and maximising the outputs of operand resources. The business-EA relationship is maintained as a linear set of activities, which led EA decision-making to be highly waterfall-like (transactional and sequential), and customers and providers are separated. Furthermore, the findings added to what has been revealed in the literature and the earlier chapters about the strong evidence of a predominant product paradigm in EA decision-making. This renders EA decision-making to be silo based, failing to maximise the value from the co-creation point of view. Table 8 summarises the reported challenges and key insights resulting from a G-D business-EA relationship.

**Table 6: A summary of key challenges and insights that resulted from the G-D business-EA relationship**

Key challenges	Insights drawn from the current business-EA relationship
<ul style="list-style-type: none"> <li>• Inconsistent quality of business-EA engagement</li> <li>• Divergent roles: ‘run’ versus ‘build’</li> <li>• The disconnect of business priorities and the architecture life cycle</li> <li>• Inconsistent reward structure</li> </ul>	<ul style="list-style-type: none"> <li>• Value-in-exchange forms the crux of the current business-EA relationship</li> <li>• The current business-EA relationship utilises more operand resources than operand resources</li> <li>• The current business-EA relationship is</li> </ul>

Key challenges	Insights drawn from the current business-EA relationship
<p>(measurement and incentives)</p> <ul style="list-style-type: none"> <li>• Misaligned propositions of the business-EA relationship</li> <li>• Inconsistent and irrelevant architecture decision-making</li> <li>• Lack of use of common terminology and cultural differences</li> </ul>	<p>transactional in nature</p> <ul style="list-style-type: none"> <li>• The current business-EA relationship is maintained as a linear set of exchange of activities</li> <li>• For EA decision-makers:               <ul style="list-style-type: none"> <li>○ lack of understanding of the role of the customer</li> <li>○ use of inappropriate value propositions</li> <li>○ inconsistent EA decision-making</li> </ul> </li> <li>• For business executives:               <ul style="list-style-type: none"> <li>○ misinformed perception about EA</li> <li>○ need for acknowledging the role of the customer</li> </ul> </li> </ul>

Based on the implications and the key insights presented in this chapter, this thesis argues that a shift away from G-D logic may present opportunities to overcome the identified challenges in the current business-EA relationship. The next chapter adapts the lens of S-D logic and details an underlying logic for developing a conceptual framework that will assist with addressing the business-EA disconnect.

## **6. Chapter 6: Towards a conceptual framework for addressing the business-EA disconnect**

### **6.1 Introduction**

With the current business-EA relationship seemingly driven by G-D logic, this chapter explores the opportunity to overcome the key challenges via adopting the key lens of S-D logic. The key constructs and FPs of S-D logic were to address the business-EA disconnect. A conceptual framework is thereby proposed to assist EA decision-makers to focus on co-creating values in the dynamic network of value co-creators, operant resources and with other resource integrators.

This thesis has identified and analysed the broader perspective of the business-EA relationship by introducing the viewpoints of the business executives of two large retail banks. Insights were drawn by comparing the viewpoints of EA decision-makers and business executives. It is quite clear that no organisation can expect to excel at achieving its intended business objectives without making difficult decisions. EA decision-making is no exception to this. But before any organisation can effectively manage the trade-off decisions of business outcomes and architecture implications, the business-EA disconnect, along with the identified challenges, needs to be addressed first. These challenges, as described in the previous chapter, are largely related to the product-focused view of the overall business-EA relationship, which results in a poor understanding of the customers, an inability to relate to business outcomes, the use of inappropriate value propositions and inconsistent EA decision-making.

S-D logic is attributed to the value co-creation in EA decision-making that involves business executives as the co-creators of value. The surveyed literature and the field research confirmed the need to adopt a more customer-centred approach to improving business-EA relationship in EA decision-making. The conceptual framework presented in this chapter starts with recognising the shift in focus towards customers and value co-creation, emphasising that EA decision-making should be viewed as a set of quality engagements and resources with which the business seeks to create superior value propositions. This chapter is designed to adopt the lens of S-D logic, establish the underlying basis of an effective business-EA relationship and produce a set of value co-creation principles laying the foundational thinking of the conceptual framework. A conceptual framework is then proposed to guide EA decision-makers to focus on co-creating values with business

executives in EA decision-making. This chapter is concluded with how the conceptual framework can assist EA decision-makers to approach EA decision-making in a more effective manner.

## 6.2 Adapting S-D logic for co-creating value in EA decision-making

By conceptually shifting the G-D business-EA relationship to become more customer focused, it may be possible to overcome the challenges caused by the current business-EA disconnect, potentially reducing the prevalence of its challenges and augmenting the benefits for which it is acclaimed. The shift from G-D to S-D logic is described comprehensively in academic literature in terms of the conceptual shift that is proposed for exchange. However, to the researcher's knowledge, there is no literature available that describes the shift specifically from an EA decision-making point of view. By adapting the S-D logic lens, this section provides research that can potentially narrow this gap in the literature.

### 6.2.1 *Adapting the value-in-context for EA*

The current business-EA relationship typically sees value in the linear series of activities of manufacturing and distributing tangible goods, designed and built by a producer, with a consumer in mind. The point of exchange is where value is seen to occur, rather than the point of use, and is referred to as value-in-exchange (Chesbrough & Spohrer 2006; Nam & Lee 2010). As a result, business and EA are often disconnected and the engagement often takes place from the viewpoint of the provider: through the promotion and marketing push to its intended audience, instead of having an open, two-way dialogue.

A shift to value-in-use is hereby proposed. Shifting from value-in-exchange to value-in-use relates to S-D logic's FPs 6, 7 and 10 (refer to Section 3.3). FP6, "the customer is always a co-creator of value", emphasises the necessity of shifting the current focus on EA artefacts and processes to a focus on customers and their experience of decision-making. This will develop the business-EA relationship to the next level, extending beyond project operationalisation into strategic dialogues. Therefore, EA decision-makers must ensure that business executives are able to assist in co-creating values, and business executives need to play an active role in value creation. FP7, "the organisation cannot deliver value, but can only offer value propositions", points towards the fact that the value is not manufactured by EA

alone and then delivered to the business. EA cannot impose prescriptive architectural thinking or objectives to business and expect that it would be valuable or useful to the business. EA, as a service provider, can only identify appropriate value propositions and propose that what is delivered could offer value if it is accepted by and co-created with the business. This requires EA decision-makers to understand the context of business executives, which ultimately also entails the culture, social structure, use of terminology and others. In so doing, EA decision-makers can better identify propositions that are appropriate and compelling to the business executives. FP10, “the value is always uniquely and phenomenological determined by the beneficiary”, indicates that value is created in use by the customers. Based on this use, which is personal, contextual and experiential, customers are able to relate and determine whether or not the proposition or the service is valuable. For this reason, it is important for EA decision-makers to identify what is valued in the context of business executives, so they can focus on establishing the compelling propositions, co-develop the propositions, and eventually co-create the strategic value of EA.

### 6.2.2 *Adapting the use of operant resources for EA*

The current business-EA relationship is measured on the architecture artefacts and the tactical outputs that EA decision-makers have been delivering. However, this places constraints on the relationship and reduces the ability to collaborate and innovate. S-D logic’s FP3, “goods are distribution mechanism for service provision” and FP4, “operant resources are the fundamental source of competitive advantage”, highlight the fact that competitive advantage can be increased if knowledge and ideas are not just embedded in EA artefacts or processes, but are embedded in a value network made up of value co-creators and service entities. Even in the case where EA artefacts are delivered and service takes place, EA artefacts and processes are just distribution mechanisms for service provision. For such reasons, the shift towards the view that competitive advantage is gained through service where operant resources are embedded in value networks is advocated.

In terms of utilising operant resources for EA decision-making, the interactions between the various actors enable an effective sharing of human network, social and intellectual capital and technological assets. This enables the organisational network of EA decision-making to provide value propositions to each other more vividly, thereby establishing a competitive advantage for themselves (Normann & Ramirez 1994).

### 6.2.3 *Adapting the experience- and relationship-driven focus for EA*

Separation of the customer and provider in EA occurs at different levels. This was evident in the inconsistent quality of business-EA engagement. For example, EA is often not positioned to take part in the strategic dialogues of business. Similarly, with business and EA reporting to different organisations and being rewarded on different KPMs, business and EA are not encouraged to embrace each other's acumen or context. Value creation fails when different cultures, objectives and contexts are not understood, articulated or shared among the network. This is why FP7, "the enterprise cannot deliver value, but only offer value propositions", is critical for EA decision-makers to make a success of the business-EA relationship.

It needs to be understood that to co-create value with the business, value cannot be determined upfront without any inputs from the customers. Both EA and business need to be educated about each other's context, culture and objectives. Through this education, they are able to co-develop a value proposition that can be established to achieve a common set of outcomes that will benefit each other. Hence, FP6, "the customer is always a co-creator of value", becomes essential. Unfortunately, one can gather from the findings that, in most cases, business executives play the role of passive recipient. Business executives and other potential stakeholders (as per the literature review in Section 2.5) wait for EA artefacts or services to be delivered to them. This is further complicated by the separated nature of the business-EA disconnect. Both business and EA miss the opportunity to learn about each other in terms of objectives and priorities, including opportunities for EA to offer competitive value propositions offering value-in-use.

The shift towards an experience and relationship focus is therefore recommended for EA. This does not simply address the separation of customer and provider; it entails a change of focus away from the silo-based, ivory-tower mentality of EA decision-makers and architects. As proposed in FP1, "service is the fundamental basis of exchange", and in FP8, "a service-centred view is inherently customer-oriented and relational". This includes a fundamental shift in the overall business-EA relationship. Not only the EA decision-makers, but also the EA decision-makers, business executives and other related stakeholders need to invest in working towards creating values and benefits for all parties involved. In other words, EA and business share joint roles in establishing quality engagement and co-creating values.

Additionally, in the proposed experience and relationship focus of EA, the business-EA relationship is characterised by the exchange of specialised knowledge and skills of EA, as in FP2, “indirect exchange masks the fundamental source of competitive advantage”. EA decision-makers and business executives can focus on their relationship in terms of the skills and knowledge that they are exchanging, their mutual responsibilities and their joint roles in co-creating values.

#### 6.2.4 *Adapting the focus on social and economic actors for EA*

The findings revealed that the current business-EA relationship centred its focus largely on means, production and the producer, which is primarily G-D logic (Gummesson 1997; Lusch & Vargo 2006). By implication, it can be argued that the current business-EA relationship is in a way similar to that of the traditional IT application development where the end users are only involved when they need to be involved, or even just once-off in a requirement gathering session.

However, the findings confirmed that this resulted in major disconnects between business and EA when business executives feel highly intimidated by the imposed prescriptive thinking and with limited connections to the broader objectives. For this reason, it is advocated that a shift from a linear series of activities to an inter-connected set of value networks is required. As per FP9, “all social and economic actors are resource integrators”, EA decision-makers should understand that various organisational resources are often required to sustain the co-creation of value. The business-EA relationship is often littered with challenges, not only because the value is largely placed in exchange, but it is also the function of not aligning the network of organisational knowledge and resources. Therefore, EA decision-makers should acknowledge the interconnectedness of actors, organisational knowledge and resources. It is critical to the overall sustainability of the business-EA relationship, leading to effective resource integration as in S-D logic terms.

#### 6.2.5 *Summary*

Table 7 summarises the discussion that S-D logic provides an appropriate lens for us to examine the business-EA relationship in EA decision-making. With G-D logic being a restrictive logic that separates customers and the provider, the business-EA relationship requires a fundamental shift in approach so that EA decision-making can be improved largely at the strategic level.

**Table 7: Towards establishing a premise for co-creating value in EA, as adapted from Vargo & Lusch (2008a), Schulz & Gnoth (2008)**

Ten FPs from Vargo & Lusch (2008a)	Adapted premises for co-creating value in EA decision-making
FP1: “Service is the fundamental basis of exchange.”	1. Service is the fundamental interaction between business and EA.
FP2: “Indirect exchange masks the fundamental source of competitive advantage.”	2. Direct interaction masks the fundamental source of competitive advantage.
FP3: “Goods are a distribution mechanism for service provision.”	3. EA artefacts are a distribution mechanism for service provision.
FP4: “Operant resources are the fundamental source of competitive advantage.”	4. Operant resources, knowledge and skills of EA are the fundamental source of competitive advantage.
FP5: “All economies are service economies.”	5. All organisations are service economies.
FP6: “The customer is always a co-creator of value.”	6. Business executives and other key stakeholders are always co-creators of value.
FP7: “The organisation cannot deliver value, but can only offer value propositions.”	7. EA cannot deliver value, but can only offer value propositions.
FP8 “A service-centred view is inherently customer oriented and relational.”	8. A service-centred view in EA is inherently customer-focused within a relational setting.
FP9: “All social and economic actors are resource integrators.”	9. All business units and employees are resource integrators.
FP10: “Value is always uniquely and phenomenologically determined by the beneficiary.”	10. Value of EA is always uniquely and phenomenological determined by the beneficiary.

Based on Vargo and Lusch (2008a) and Schulz and Gnoth (2008), this thesis adapted the FPs to inform value co-creation opportunities in EA decision-making. Primarily targeted at addressing the business-EA disconnect, the next section presents a conceptual framework that

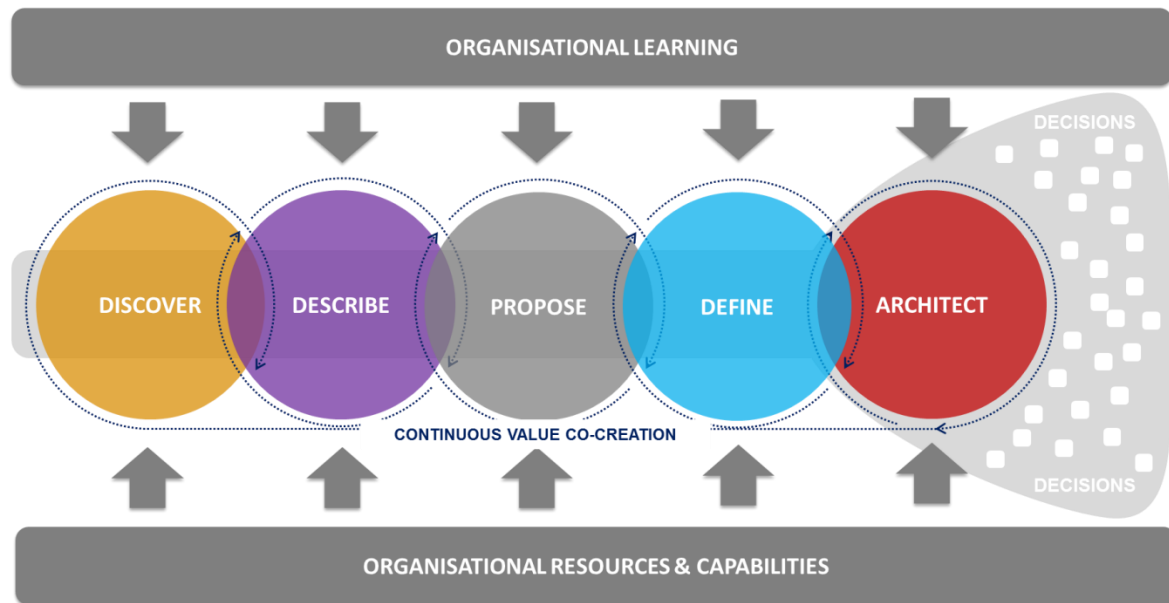


can assist the key EA decision-makers to co-create value with the business executives and other key stakeholders.

### **6.3 Towards a conceptual framework**

Reflecting on S-D logic and the adapted premises for co-creating value in EA, the earlier section builds the theoretical foundation for applying S-D logic to EA at a conceptual level. Based on the understanding of the current business-EA relationship in the findings and the adapted premise for co-creating value in EA, a conceptual framework can be developed to assist EA decision-makers to address the prevailing business-EA disconnect problem. The goal of this section is to present a conceptual framework that can be used as a basis for future EA decision-making research to confirm the feasibility of adopting S-D logic in EA, as well as the practical application of overcoming key EA challenges.

At this point, it is evident that S-D logic can be adopted to address certain key challenges in EA. However, for EA to successfully adapt S-D logic and improve on the business-EA relationship, it is expected that S-D logic and the adapted premises can be applied practically. For example, just telling EA decision-makers and business executives that value-in-context is more appropriate than value-in-exchange, and that the EA artefacts are just means for service provision, will hardly improve the disconnect between business and EA. There is certainly a need to take a more pragmatic stance to incorporating S-D logic into EA and applying key insights into co-creating practical, strategic values in EA. A conceptual framework is therefore needed. Incorporating guiding principles along with the pragmatic approach is exactly how such a conceptual framework may assist key EA decision-makers to focus on co-creating values with the business executives and other key stakeholders.



**Figure 12: Towards a conceptual framework for addressing the business-EA disconnect in EA decision-making**

Moving the locus of value creation in EA decision-making from exchange to context requires a fundamental shift in terms of the role of EA decision-makers and business executives. EA decision-makers and business executives, including other key stakeholders, such as domain architects, need to acknowledge that service is the fundamental interaction between business and EA. Value should not be ‘manufactured and then delivered’ to the customers. Instead, the value gets created by providing the customers with a value proposition. If accepted by the customers, it can act as an input for value co-creation. Figure 12 illustrates a high-level conceptual framework that incorporates the adapted S-D logic premises for EA decision-making. Targeted at addressing the business-EA disconnect, the notion of co-creating value refers to collaborating with business executives in co-creating and engaging in superior values and experiences. Each value partner, including EA decision-makers, business executives and other key stakeholders, brings its own unique experiences and resources into this exchange.

When business executives and key stakeholders are viewed as an integral part of value co-creation in EA decision-making, the role of EA decision-makers focuses on that of a facilitator, supporter and co-creator of value rather than a mere supplier of value (Vargo & Lusch 2008a; Normann & Ramirez 1994; Grönroos 2008). In turn, the strategic focus of EA decision-making shifts towards incorporating the broader business objectives and helping business executives to realise their mandate (given by chief executives). This would allow it

to get more out of its EA decisions so that business executives' routines, processes, performance and experiences are improved in a meaningful way.

For this framework to become actionable, the interaction between business and EA is the defining aspect of resource integration efforts and the subsequent decision-making activities. The importance of the interaction therefore requires that “all co-creative management processes be enabled and supported by interaction-centric capabilities” (Ramaswamy & Gouillart 2010). Outlined below, this thesis introduces the various components of the conceptual framework that describes an S-D business-EA relationship in EA decision-making.

### 6.3.1 *Discover the context*

An S-D business-EA relationship changes the way organisations think about strategy and EA decision-making, whereas, in a G-D business-EA relationship, efficient architectural activities and processes form the core of EA planning and design. Each link in the value chain is judged on its architectural and economic merits, which leads EA decision-making to be highly product-oriented. The experiences of business and the level of enablement that leads the organisation to achieve competitive advantages are largely neglected.

By discovering the context, the focus is predominantly on identifying and appreciating the broader contextual factors, such as the needs, expectations, pain points and the social structure of the business. It focuses on the interest of business executives, other key stakeholders and the way the ecosystem can maximise the strategic value of EA via architectural services. As suggested in prior research and earlier sections (Chapter 3), in order to assist customers with fulfilling the intended value (or goals and targets), it is essential to understand what customers want to get out of EA (Grönroos 2008). A thorough understanding of the customers' context and their everyday practices is the starting point for shaping a customer-centric proposition. The more EA decision-makers are aware of their customers, including their resources, capabilities, goals, preferences, experiences and environment, the better value propositions can be co-created.

The adapted FPs that are aligned to the ‘discover’ component are the following:

- Adapted FP1: Service is the fundamental interaction between business and EA.
- Adapted FP5: All organisations are service economies.
- Adapted FP8: A service-centred view in EA is inherently customer-focused within a relationship setting.

### 6.3.2 *Describe value creation opportunities*

In an S-D business-EA relationship, opportunities are co-creative. Business executives and key stakeholders will not wholeheartedly participate in value creation opportunities unless these opportunities also produce value for them (Ramaswamy & Gouillart 2010). These value creation opportunities can be identified at multiple levels, for example, economic (higher earnings, acquisition and retention of customers, increased market share, as well as cost reduction), psychological (feelings of appreciation, higher self-esteem) or experiences (rewarding, pleasant and consistent). As opposed to a G-D business-EA relationship that strives to meet a defined set of business requirements, describing value creation opportunities in an S-D business-EA relationship aims to serve the interest of business executives and describes key value creation opportunities that improve their experiences, as well as economic and psychological outcomes.

The adapted FP that is aligned to the ‘describe’ component:

- Adapted FP3: EA artefacts are a distribution mechanism for service provision.

### 6.3.3 *Propose potential value propositions*

An S-D business-EA relationship shifts the focus from value-in-exchange to value-in-context (Vargo & Lusch 2008a), that is, from embedded and distributable value to potential value that can be actualised in collaborative efforts between EA decision-makers, business executives and other key stakeholders in the value network (Karpen, Bove & Lukas 2011). As such, an S-D business-EA relationship is highly relational. The quality and intensity of the relationship mainly depends on the dialogue and the interaction between EA decision-makers and business executives. Hence, proposing potential value propositions essentially focuses on

the organisational and social links between the interacting parties, as these incrementally shape the co-creation experiences. In particular, quality two-way communications and strategic dialogues are key manifestations of the ‘propose’ component.

The adapted FPs that are aligned to the ‘propose’ component:

- Adapted FP2: Direct interaction masks the fundamental source of competitive advantage.
- Adapted FP7: EA cannot deliver value, but can only offer value propositions.

#### 6.3.4 *Define value propositions and business cases*

Defining value propositions and business cases in an S-D business-EA relationship predominantly focuses on integrating business executives’ inputs and their active participation in the actual design of value propositions and business cases. Based on S-D logic, it is critical to empower customers to have their say about the content and the nature of exchange (Karpen et al. 2011). In this thesis, this is the value propositions and business cases of the intended EA decisions. Actively engaging business executives ultimately enhances the mutual service provision and, consequently, enables them to better meet the broader business objectives.

The adapted FP that is aligned to the ‘describe’ component:

- Adapted FP6: Business executives and other key stakeholders are always co-creators of value.

#### 6.3.5 *Architect key decisions*

The shift towards a high degree of active customer participation and value network integration in EA decision-making illustrates the evolving focus of value co-creation. Co-creating values in EA decision-making can be considered as a set of exchange activities where business executives and other key stakeholders are invited and are actively involved in defining and architecting EA decisions to strategically align them to the broader business context (Tuli et al. 2007). In light of the value co-creation focus in EA decision-making,

organisations also need to be capable of synchronising and coordinating interactions of organisational resources and capabilities to effectively architect an EA decision.

In architecting key EA decisions, aspects from the various architecture domains need to be carefully synthesised and articulated. This is because no organisation can consistently drive superior value without investing in and managing the alignment of various domain architectures.

The adapted FPs that are aligned to the ‘architect’ component:

- Adapted FP9: All business units and employees are resource integrators.
- Adapted FP10: The value of EA is always uniquely and phenomenologically determined by the beneficiary.

#### 6.3.6 *Organisational resources, capabilities and learning*

In an S-D business-EA relationship, the operant resources within the organisation are the basis for competitive advantage (Vargo & Lusch 2008a). The knowledge and competencies found inside the network, which comprises EA decision-makers, business executives and other stakeholders, enable EA decision-making to capture value propositions that contribute to the realisation of the organisation’s strategic objectives. The knowledge and skills offer the opportunity for an effective resource integration and value realisation. However, it is largely determined by the level of operant resource density and the ability of EA decision-makers and business executives to make use of these resources (Karpen et al. 2011). Furthermore, viewing business executives as operant resources empowers their inputs instead of passively receiving an output. Business executives have, for example, ideas, specialised competencies, workforce and other networks that can provide benefits, and act on these resources to co-define and co-architect the business cases and key EA decisions. From an S-D business-EA relationship perspective, the key is to unlock organisational resources and capabilities by means of organisational learning and continuous value co-creation in light of reciprocal benefits (Normann & Ramirez, 1993).

The adapted FP that is aligned to the ‘organisational’ component:

- Adapted FP4: Operant resources, knowledge and skills of EA are the fundamental source of competitive advantage.

## 6.4 Summary

The notion of service dominance and value co-creation is certainly gaining credence. This thesis began by developing an initial conceptual framework for encouraging value co-creation in EA decision-making. With this in mind, this chapter discussed the theoretical premises of S-D logic and the key constructs of value co-creation. This new perspective allows organisations and EA decision-makers to overcome prevailing challenges in the current business-EA relationship. The objective of the conceptual framework is to adopt a pragmatic view when addressing the business-EA disconnect, underpinned by a predominantly product-focused logic. Table 8 provides a summary of the earlier discussion.

**Table 8: A summary of the key components and their alignment to the adapted FPs**

Framework	Adapted S-D FP
Discover the context	<ul style="list-style-type: none"> <li>• Adapted FP1: Service is the fundamental interaction between business and EA.</li> <li>• Adapted FP5: All organisations are service economies.</li> <li>• Adapted FP8: A service-centred view in EA is inherently customer-focused within a relationship setting.</li> </ul>
Describe value creation opportunities	<ul style="list-style-type: none"> <li>• Adapted FP3: EA artefacts are a distribution mechanism for service provision.</li> </ul>
Propose potential value propositions	<ul style="list-style-type: none"> <li>• Adapted FP2: Direct interaction masks the fundamental source of competitive advantage.</li> <li>• Adapted FP7: EA cannot deliver value, but can only offer value propositions.</li> </ul>
Define value propositions and business cases	<ul style="list-style-type: none"> <li>• Adapted FP6: Business executives and other key stakeholders are always co-creators of value.</li> </ul>

Framework	Adapted S-D FP
Architect key decisions	<ul style="list-style-type: none"> <li>• Adapted FP9: All business units and employees are resource integrators.</li> <li>• Adapted FP10: The value of EA is always uniquely and phenomenologically determined by the beneficiary.</li> </ul>
Organisational resources, capabilities and learning	<ul style="list-style-type: none"> <li>• Adapted FP4: Operant resources, knowledge and skills of EA are the fundamental source of competitive advantage</li> </ul>

It is however worth to point out that the adapted premises is largely informed by strategic EA decision-making context in retail banks. The implication is therefore that the bank executives and EA decision-makers may take the framework and apply selectively to their context to improve the overall business-EA relationship. This is true because the decisions and the relationship context are largely drawn upon the insights gathered from the typical banking context. The other industries or organisations may experience slightly different maturity or intensity of business-EA relationship given the change in the positioning of EA or the culture of the organisation per se. For this reason, this dissertation noted the efforts to create an initial, but pragmatic framework that may or may not be limited to EA in retail banking context.

While, at first glance, the proposed conceptual framework may have taken the position that EA decision-makers are accustomed to focusing on process efficiency and the relationship with business is littered with challenges, it does not remove the fact that business executives undoubtedly share the responsibility of improving the business-EA disconnect. Conceding that the business-EA disconnect is a two-way challenge of the conventional goods-dominance, value co-creation is about placing the needs and the experiences of both EA decision-makers and business executives at the heart of EA decision-making. At each component of the framework, the organisation will realise new strategic benefits, giving it the motivation to continue the journey of learning about value co-creation, and explore more strategic applications of value co-creation.



## 7. Chapter 7: Conclusion

### 7.1 Introduction

This chapter presents the overall conclusion to the thesis. It reflects the overall insights that were collected, discussed and synthesised. The chapter discusses the key contributions that the thesis makes, following the key contributions presented in Chapter 1. Finally, recommendations for future research are made.

The aim of the thesis was to assess business-EA disconnect through the lens of S-D logic, which uses EA decision-making as case in point. This was done to supply researchers and practitioners with conceptual principles to not only address the business-EA disconnect, but also to effectively institutionalise EA as a strategic enabler. By drawing together the results from the previous chapters, this final chapter reflects on the insight of the previous chapters. The aim is to summarise all facts and arguments presented in this thesis and give responses to the contribution acclaimed.

### 7.2 Key findings

Key findings are discussed within the structure of the sub-research questions. Reference is made to the chapters in this thesis where questions were answered. The core research question is discussed last.

#### 7.2.1 *The strategic role of EA*

In chapters 1 and 2, the complexity and strategic importance of EA were addressed. Key emphasis was placed on EA's role within the organisational context and the way in which EA enables the various organisational benefits. The literature revealed that there is increasing consensus on EA's role and its influence on organisational success. It was determined that key EA decision-making has played an enabling role in assisting business executives to formulate and execute business strategies more effectively. Therefore, organisations can accomplish many strategic benefits, such as portfolio optimisation and organisational alignment.

In Chapter 2, the fundamental concepts and the EA value chain were reviewed to clarify the boundaries of strategic EA decision-making in terms of planning and design decisions. Strategic inputs from business executives are used as a direct input into establishing the overall vision, strategy, objectives and approach of EA. EA design decisions, on the other hand, require a tight alignment between the various architectures (including domain architectures) and the overall operating model of the business. Therefore, Chapter 2 advocated an effective business-EA relationship to successfully materialise the strategic role of EA. Furthermore, Chapter 2 and a part of Chapter 3 reviewed some of the current EA challenges and proposed arguments on how these challenges resonate with G-D logic, which resulted in a disconnect between business and EA.

### *7.2.2 S-D logic and how it relates to EA*

The concept of service dominance was introduced in Chapter 3. It analysed S-D logic in relation to its FPs and explained how it intersects with EA and its broader organisational context. Chapter 3 identified and synthesised the S-D logic literature to establish a new lens for examining EA challenges and the business-EA disconnect in chapters 5 and 6. In Chapter 3, S-D logic was justified as a new conceptual avenue to overcome some of the prevailing EA challenges.

### *7.2.3 Key challenges and implications of current business-EA relationship in strategic EA decision-making*

This research question is addressed in multiple chapters, with Chapter 5 providing the primary empirical outcomes.

Chapter 2 established that, in institutionalising EA, key challenges are often encountered and this led to EA often being ineffective and/or unsuccessful. Chapter 3 further substantiated that the key challenges were grounded in G-D logic. As the business-EA disconnect can be directly or indirectly linked to the characteristics of G-D logic, Chapter 3 established that EA's predominant product focus contributes to the occurrence of its prevailing challenges.

Based on the findings of EA decision-makers and business executives, Chapter 5 established that the business-EA disconnect is inherently the result of adopting G-D logic. The findings were collected, analysed and synthesised following the interpretive approach described in

Chapter 4. Chapter 5 also takes this reasoning further as it examines EA's prevalent challenges using G-D and S-D logic lenses. The analysis revealed that there were common G-D logic characteristics in EA's fundamental approach, which resulted in a poor business-EA relationship. Therefore, a conceptual shift is required to co-create value in EA decision-making.

#### *7.2.4 Insights that can be developed to guide EA decision-makers via the lens of S-D logic*

In Chapter 6, using the interpretive approach and deductive reasoning through the lens of S-D logic, insights on addressing the business-EA disconnect were drawn to the attention of EA decision-makers and business executives. The FPs of S-D logic were adapted to encourage value co-creation in EA decision-making. Justifying the shift in focus from efficiency of the process and architecture product to customers, experiences and co-creation of value, Chapter 6 proposed a new conceptual avenue for overcoming the prevailing challenges in EA decision-making. Furthermore, an initial, conceptual framework was established to provide pragmatic guiding principles to inform future research.

### **7.3 Contributions**

This section reflects on the contributions that were discussed in Chapter 1.

#### *7.3.1 Contributions identified*

Chapter 1 identified this thesis's key contributions to existing EA research. These entail the following: improving the effectiveness of EA by overcoming some of the challenges at the strategic level, adopting a different lens such as S-D logic to examine the business-EA relationship in EA decision-making and proposing an initial conceptual framework that incorporates S-D perspectives to guide key EA decision-makers to improve the quality and relevance of EA decision-making.

Improving the effectiveness of EA was provided in the literature and findings chapters. The introduction of business executives' points of view expands the existing understanding of the current EA challenges and possible means to address them. The contribution to examining business-EA relationships in EA decision-making, as well as the identification of the G-D focus was provided through the comparative analysis of the various points of view and the

insights that emerged through the voices of academics and practitioners (for example, consultation with field experts and some high-level feedback from the research forum). This was provided in the chapter on EA decision-making in South African retail banks in chapters 5 and 6. Finally, a conceptual framework was proposed in Chapter 6 through the explanation of G-D and S-D logic. The FPs were adapted to develop a set of guiding principles.

### 7.3.2 *Key academic contributions*

This thesis contributed to the expanded understanding of EA decision-making at the strategic level. Insights were drawn through applying S-D logic perspectives with the intention to improve the overall business-EA relationship. The primary academic contributions are twofold.

Firstly, although service orientation is not completely novel in the domain of architecture, limited research was conducted (to the researcher's knowledge) on strategic EA decision-making specifically. This thesis provided a novel, conceptual lens from which to view the business-EA relationship. It offers new opportunities for EA discourse to develop into the strategic management and socio-technical domain.

Secondly, even though this thesis relates to the domain of EA research, the use of S-D logic has been extended into EA decision-making, establishing a broader application of S-D logic discourse.

To summarise, this dissertation utilises the evaluation criteria proposed by Introna (1993) where he developed a list of questions to evaluate research contributions.

**Table 9: high-level self evaluation of academic contributions, adapted from Introna (1992) and Goede (2005)**

1. Does the research raise problems previously not perceived, such as problems of an increasing depth, and does it display an ever-increasing fertility in suggesting new problems?	This research highlights the relationship between philosophy, methodology, and practices. It applies knowledge gained by the exploration of these relationships to EA and its strategic decision-making context. The
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	study opens up research into the application of these relationships in other strategic information systems disciplines.
2. Does the research anticipate novel facts and auxiliary theories?	A novel lens of addressing problems in EA decision-making is proposed, namely S-D logic. Problems are to be addressed from paradigm and practice framework perspective. This perspective may lead to an increased awareness in S-D (as opposed to G-D) and how the value co-creation focus may address business-EA disconnect. It invites further opportunities for other researchers to expand the lens of S-D logic in EA research.
3. Is the research more precise in its assertions and in the facts it explains than previous theories?	From an EA perspective, the answer to this question is in the affirmative. The proposed framework expanded the view on how business-EA relationship can be improved through a solid philosophical and methodological foundation. Other existing frameworks relating to EA decision-making (at least to the author's knowledge) are largely conceptual and only categorically improve the understanding on the context of EA decision-making.
4. Has the research unified or connected various hitherto unrelated problems, or concepts?	Although S-D logic and related thinking are not entirely novel, the fundamental concepts, premises and its methodological thinking of S-D logic have not been applied to EA decision-making before (again to the author's knowledge).
5. Has the research produced a new perspective on existing problems and thus created a new understanding of these existing	This dissertation developed an S-D perspective on business-EA relationship. Ineffective EA institutionalisation can be

problems?	understood from the adoption of G-D business-EA relationship in organisational context. This created a novel understanding of the business-EA relationship problem and allows not only the EA decision-makers, but also the business executives to focus on improving the business-EA relationship.
6. Has the research produced unconventional ideas, ideas that radically challenge current preconceptions?	The answer is in the affirmative. EA previously seek for solutions in their tools/methodologies, or in improving the performance of the architects in the broader social context (see Chapter 1 and 2 for context). The initial development of the conceptual framework yields unconventional results and it further provides means for researchers and practitioners to challenge current perceptions of business-EA relationship.

## 7.4 Future research

This thesis established an initial, conceptual examination of the business-EA relationship in South African banks via the lens of S-D logic. Based on this point of departure, the following future research recommendations are identified:

- It is recommended that the analysis is extended beyond banking organisations into other industries. This will improve the overall understanding of the business-EA relationship. Such an extension will also allow further investigation into understanding how S-D logic characteristics emerge in environments or conditions other than those reflected in this thesis. Furthermore, validate whether the adapted fundamental premises and the initial framework may be directly applicable to context outside of retail banking.
- Another suggestion for future research is to delve deep into individual FPs in terms of how they can be specifically applied to EA decision-making. The dynamic value

network and how such a value network correlates with the socio-technical implications of EA decision-making (for example, FPs 4, 8 and 9) is suggested, given the interest of this specific thesis. For example, an interesting opportunity to further uncover the dynamic value network aspect is to take an Actor-Network theory perspective.

- This thesis presented a conceptual analysis that substantiates the use of S-D logic in strategic EA decision-making. Although operational and tactical decision-making does not fall within the scope of this thesis, it is highly recommended that further investigations should be made to analyse the inter-relationship of strategic EA decision-making and other organisational (or operational) decision-making. An end-to-end view of EA decision-making can be holistic when tactical decisions and architecture solution decisions are also investigated. This is especially true when domain architecture decisions also play a critical role in materialising the overall EA success, even though it is more tactical and short term at times, according to the findings of this thesis. An extended investigation into more short-term, tactical decision-making within the domain architectures and the way it interplays with high-level strategic decision-making is therefore recommended.
- Improving or testing the overall pragmatic use of the framework is also recommended. While the conceptual framework is only in its infancy, the framework is intended to narrow the research gap to improve the business-EA disconnect in strategic EA decision-making. More research can still be done to improve the understanding of the framework's use, refine the framework to the next level of detail and develop the process and governance of applying the framework.

## 7.5 Overall conclusion

S-D logic has the key ingredients to address the business-EA disconnect and, so add more value to business strategy formulation through effective EA decision-making.

This thesis has now presented analyses and arguments that answered the primary research question. It is now conceptually possible to conclude that S-D logic has the key ingredients to assist with guiding EA decision-makers to overcome the prevailing EA challenges through addressing the business-EA disconnect. Earlier chapters have shown that current business-EA relationships are grounded in G-D logic, which caused a strong disconnect from the larger

business strategic context. As a result, it is recommended that the focus is shifted from the efficiency of process and product, to customers, experiences and value co-creation.

It is recommended that the key constructs and FPs of S-D logic in Chapter 6 are adapted. Through the lens of S-D logic and the initial conceptual framework, EA decision-making can focus on co-creating values within the broader business strategic context, which contributes to an improved EA planning and design.



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## Appendix

### Guiding interview questions for EA decision-makers

#### Section 1: Background info – 2 ~ 5min

1. How are you involved in EA?

#### Section 2: Understanding the architectural decision-making context – 15 ~ 20min

2. In your organization, who are the main stakeholders for making decisions on EA? (in terms of its planning and design decisions)

**Please briefly describe the following:**

3. What are the typical planning decisions?
4. What are the typical design decisions?

**Based on the above, as one of the decision-makers,**

5. What inputs do you need to make these decisions?
  - a. What outputs/values are expected of these inputs?
  - b. What outputs/values are expected of these decisions?
6. In terms of the process, how are the decisions made? Please describe in brief.

#### Section 3: Challenges in decision-making context – 10 ~ 15min

7. What are the major challenges in making architectural decisions? Why?
  - a. Do you often find it difficult to obtain inputs from the business stakeholders? Why?
  - b. Do you often find it difficult to produce the values/outputs for the stakeholders? Why?

#### Section 4: Possible ways to address the challenges – 10 ~ 15min

8. How do you think you and/or your team should overcome these challenges? Why?

#### Section 5: Values anticipated – 20 ~ 25min

9. Are there any direct/indirect values/benefits that you wish to gain from the decisions as described in above?
10. So do you think the business/organization has gained the anticipated values/benefits? Why or why not?
11. How often do you think the decision-makers have made the right decision? Why or why not?
12. Do you think your inputs (as EA) are important for the decision-making process? Why?
13. How do you think we can ensure/support the decision-makers to deliver the values/benefits as planned?

## Guiding interview questions for business executives

### Section 1: Background info – 2~5min

1. How are you involved in EA?

### Section 2: Understanding the architectural decision-making context – 10~20min

2. In your organization, who are the major stakeholders for EA?
3. How does the business support EA?
  - a. Does business (you or your colleagues) provide inputs for EA planning and design? How?
4. What inputs does business (you or your colleagues) give to EA?
  - a. What outputs/values are expected of these inputs?
  - b. What outputs/values are expected of these decisions?

### Section 3: Challenges in decision-making context – 10~15min

5. What do you consider as major challenges in EA decision-making?
6. Do you (as a business stakeholder) find it difficult to work with EA division/people? Why?

### Section 4: Possible ways to address the challenges - 10~15min

7. How do you think one should overcome these challenges? Why?
  - a. Do you think this is a management issue?
  - b. Do you think the business has given EA the support they need?

### Section 5: Values anticipated – 20 ~ 25min

8. What would you consider as the total value propositions of your organisation/division/business unit (that can be supported by EA)?
  - a. So, do you think the business/division has gained the anticipated values/benefits from EA?
9. Based on your answer, what value propositions do you think EA **should/can** provide to the organisation? In order to consider EA as a successful endeavour.
10. How often do you think the architectural decision-makers have made the right decision? Meaning that it is aligned to business strategy.
11. Do you think your inputs are important for the architectural decision-making? Why?
12. How do you think we can ensure/support the architectural decision-makers to deliver the values/benefits for the organisation?