

AN ENTERPRISE ARCHITECTURE MANAGEMENT (EAM) MATURITY ASSESSMENT FRAMEWORK FOR FINANCIAL INSTITUTIONS

by

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ABSTRACT

Over the past few decades, the financial industry in South Africa has seen a significant increase in the adoption of Information Technology (IT). With the increase in the adoption of the latest trends and technologies, similar to any other industry, organisations have to deal with the increase in complexity of the management in their technology landscapes. To address the need to reduce complexity and simplify the technology landscape, financial services industries are investing in a capability widely recognised as Enterprise Architecture (EA). Many organisations turn to EA to assist with the alignment of business and IT as well as to reduce the technical debt that increases as organisations grow. While some of these organisations succeed in the development and implementation of EA, many of them fail to manage EA after implementation. The enterprise architecture management (EAM) field developed because of the specific focus on the management of EA after the initial implementation. EAM is characterised by many dimensions or elements, as a result, it becomes a challenge to select the dimensions that should be managed and that are vital for a successful EAM practice. There is a limited amount of material guiding which EAM dimensions increase the success of the EAM practice once implemented. Therefore, this study presents the findings of research conducted to develop an EAM maturity assessment framework that can be used to measure the maturity of an organisations EAM practice.

This study used a mixed-method approach which led the data collection process to include both survey questionnaires and interviews and followed a design science research methodology. The focus of the research was a selected case study in a financial services organisation in South Africa and the key findings from the development of the framework were evaluated against that organisation. The main contribution of this work is an EAM maturity assessment framework that can be administered in organisations that want to increase their EAM maturity. Secondary to this, yet seen as vital in the EAM practice from literature and EAM practitioners is the identification of a list of dimensions as well as the identification of components and their qualities that are instrumental for assessing maturity levels.

Keywords: Enterprise Architecture, Enterprise Architecture Management, Maturity Assessment, Financial Services, Design Science Research, Enterprise Architecture Dimensions.

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List of Acronyms/abbreviation

DoD TRM	Department of Defence Technical Reference Model
EAP	Enterprise Architecture Planning
E2AF	Extended Enterprise Architecture Framework
FEAF	Federal Enterprise Architecture Framework
IAF	Integrated Architecture Framework
JTA	Joint Technical Architecture
TOGAF	The Open Group Architecture Framework
TEAF	Treasury Enterprise Architecture Framework
AISC	Advances in Intelligent Systems and Computing
ADM	Architecture Development Method
ARB	Architecture Review Board
BSC	Balance Score Card
BSP	Business Systems Planning
CMM	Capability Maturity Model
CIO	Chief Information Officer
COO	Chief Operations Officer
COBIT	Control Objectives for Information Technologies
CRM	Customer Relationship Management
DSR	Design Science Research
eMA	EAM Maturity Assessment
EA	Enterprise Architecture
EAC	Enterprise Architecture Council
EAM	Enterprise Architecture Management
EAP	Enterprise Architecture Planning
EASC	Enterprise Architecture Steering Committee
ERP	Enterprise Resource Planning
FI	Financial Institution
FEDS	Framework for Evaluation of the Design science research
ICT	Information and Communication Technology
IS	Information System
IT	Information Technology
LESAT	Lean Enterprise Self-Assessment Tool
MRQ	Main Research Question
NASCIO	National Association of State Chief Information Officers
SEI	Software Engineering Institute
SRQ	Sub Research Questions
SLR	systematic literature review
TOGAF	The Open Group Architecture Forum
WIP	Work In Progress
ZIFA	Zachman Enterprise Architecture Framework

1 INTRODUCTION

1.1 BACKGROUND INFORMATION

“Organizations assume that an EA will automatically add business and technical value. They see the effort as a onetime activity—we make a big push up the hill, then we can relax and coast down” (Boster et al., 2000).

Boster, Simon and Thomas (2000) argue that having Enterprise Architecture (EA) in place is only the start of the journey and does not guarantee any value. If organisations do not continue the momentum put in place during the inception of the EA practice, the success of Enterprise Architecture Management (EAM) will decrease due to the lack of continued momentum. Organisations only set themselves up for failure if they do not recognise the importance of continuously monitoring their EAM objectives. Much effort is provided to the development and implementation of the EA practice, with little effort given to EAM once implemented (Boster et al., 2000). Reaching a high maturity in any practice requires continuous improvement in how an organisation manage the practice. To improve any area, an organisation must identify the areas that are not running efficiently or effectively.

The term architecture is a common notion in the building/construction industry. Even in this industry, the term is not unambiguous. The term could mean the art or science of design or the style of design (Jonkers, Lankhorst, ter Doest, Arbab, Bosma, & J. Wieringa, 2006). *Jonkers et al.* (2006) explain that architecture at an organisational level is known as EA and can be described using the four main domains of architecture, namely, Business Architecture, Application Architecture Data/Information Architecture and Technology Architecture. Looking at the organisation holistically, this approach focuses on both the business and technical aspects (Lindström et al., 2006) and assist organisations to structure how it meets the strategic objectives (White, 2018). This approach is commonly referred to as Enterprise Architecture Planning (EAP) and the goal of EAP is to “improve the efficiency, timeliness and reliability of business information” (White, 2018), while the goal of EAM is to maintain and manage EA after implementation (Ahlemann, 2012).

In this research, the focus is on suggesting ways in which the maturity of EAM can be increased to support the success of managing EA after implementation. In Section 1, a short overview is provided on the role of Information Technology (IT), Enterprise Architecture and the role of EA in Financial Institutions. Section 2 of this chapter discusses the research problem while Section 3 described the goals and subgoals of the research. Section 4 positions the main research question, and the subquestions that is answered through this study. The chapter continues with Section 5, that discusses some of the assumptions made, followed by Section 6, that discusses the study limitations. Section 7 then describes the purpose of the study before concluding the chapter in Section 8 with an overview and the chapter summary in Section 9.

1.1.1 The role of IT

The adoption of technology in organisations started the information technology era and has weaved its way into all facets of life over the past decades (Kourtit et al., 2017). Early learners use IT in smart devices like tablets to stimulate their minds. School children and university students use IT as their tool to learn and as a medium to collaborate and share information with the help of apps like *Twitter* and *Facebook*. Adults use IT to manage their day-to-day activities and be more productive (Xing & Marwala, 2018).

It is hard to imagine doing anything without the assistance of technology. The same can be said about the workplace. Information technology assists with communication, managing and sharing data, optimising business processes through automation and much more (Dewett & Jones, 2001; Powell & Dent-Micallef, 1997). These technologies enable us to work where we want, whenever we want (Hirschi, 2018). Similarly, the same advantages exist for the customers of organisations. They can transact from anywhere without having to go to a particular retailer or banking facility. All of this is possible by adopting technology to store, capture, create and distribute data through systems that integrate and interact with each other. While sitting in the comfort of their homes, an individual can access an organisation's Customer Relationship Management (CRM) solution and have a look at products and services on their Enterprise Resource Planning (ERP) solution, purchase anything of interest and pay for them using the billing solution and a banking profile. This can be further extended by using the backend data analytics solution, by individuals being notified of sales or new items based on preferences and items bought previously.

Information technology has weaved its way entirely into the lives of everyone (Hirschi, 2018). To benefit from this capability, a lot is required in the management and design of the systems and how they are integrated (Höpfner & Roscher, 2021). This is where EA plays a pertinent role in how the systems are architected or designed and in deciding what systems are to be implemented next, based on the organisation's strategy.

1.1.2 History of Enterprise Architecture

“A well-defined architecture is an important asset in positioning new developments within the context of the existing processes, IT systems, and other assets of an organisation, and it helps in identifying necessary changes” (Jonkers, Lankhorst, ter Doest, Arbab, Bosma, & J. Wieringa, 2006). Jonkers et al. (2006) argue that having an integrated practice of business and IT is necessary to understand the impact of introducing a new product into the organisation. It may require new people, processes and technology to support the change and it may even require a change in the organisational structure and culture.

EA first started in 1975 and was known as Business Systems Planning (BSP), developed by IBM. BSP activities, similar to the modern-day EA team, was a dedicated group responsible for collecting data and developing an Information System (IS) plan using a top-down approach to address the concerns of all areas of business such as the relationship between the organisation's processes, data and systems (Kotusev, 2016). Zachman's framework (1999) was the first evolution of EA to be introduced to IS professionals, that conceptualises architecture from multiple perspectives (Ahlemann, 2012; Kotusev, 2016). The framework provided a matrix that describes the document specification for the intersected area of the framework. With continuous use of the framework, however, IS professionals recognised that modelling was not enough.

During the 1990s, EA went through its second evolution as a result of technological advancements and an increase in organisations wanting to digitise their business processes. It introduced a new era of complexities expanding to the different stakeholders of the organisation. The business managers normally made the decisions in an organisation. Since most of these projects were funded by them, they had little interest in waiting for or to slow down implementations, mainly due to poor insight into what was going on in the organisation. This necessitated the extension of the framework to include governance which

included defining roles, planning processes, and rights and accountabilities. These were recognised through the introduction of The Open Group Architecture Forum (TOGAF) and the Architecture Development Method (ADM), amongst others. Today, we see the next evolution of how EAs have evolved with the relevance of EAM.

1.1.3 Significance of ICT in Financial institutes

Over the past two decades, the financial sector has seen significant advances in technology and innovation transformations (Gupta & Yadav, 2017; Mocetti et al., 2016). These advances were mainly due to the competitive marketplace that required financial institutes to build a closer relationship with their customers by providing more value (Lang & Colgate, 2003). Lang and Colgate (2003) explained that building relationships with customers were traditionally done through face-to-face interaction.

The adoption of newer technologies and systems has increased customer satisfaction levels and greatly assisted in collecting, analysing, storing and transmitting information—enabling the financial sector to increase its efficiency (Mocetti et al., 2016). In an endless attempt at becoming more efficient and effective, organisations continued with their investments and adoption of new trends, technologies and innovations. This led to an increase in the size of the technical landscape in organisations, increasing the complexity of management (Gampfer, 2018).

Over the past few decades, Information and Communication Technology (ICT) has become a widely accepted tool in strategies for the planning of organisational efficiency and effectiveness by both the public and private sectors (Kourtit et al., 2017). ICT has given rise to many strategic opportunities through the design and implementation of digital solutions. Many organisations become intrigued when they learn about technological innovations and invest in the technologies to reap the potential benefits (Kendall, 1997). There is not always a rush to adopting new technologies and Kendall (1997) argues that there is often a gap in the time between discovering the invention and the practical adoption of the technology. The ICT revolution that all organisations see themselves as a part of, affects them whether they like it or not. Many see it as adapting to the new way of staying relevant or slowly die away because their customers expect the same offerings that exists elsewhere and will eventually move to get the service from organisations that can provide it.

The customers of the financial institutes are no different; they want to be able to manage their profile or financial duties using technology in the comfort of wherever they are. If organisations do not enable these services or capabilities, the customer will move to wherever they do have the conveniences. As a result, organisations are under constant pressure to match what their competitors are offering as well as to provide that little extra value to attract new customers. This places the organisations in a vicious loop of acquiring new technological solutions to increase customer satisfaction.

1.2 PROBLEM STATEMENT

As the world heads into the new era of the 4th industrial revolution (Davis, 2016; Hirschi, 2018; Xing & Marwala, 2018), ICT has become crucial (Mocetti et al., 2016). Many organisations have joined the 4th industrial revolution by adopting new trends and technologies to keep themselves current. It is essential to have an integrated approach for managing business and IT (Jonkers, Lankhorst, ter Doest, Arbab, Bosma, & Wieringa, 2006; Parks et al., 2017). Jonkers et al. (2006) explain that to manage complex systems in large organisations, understanding its architecture is critical in positioning new developments within the context of people, processes and technology.

Huge investments are continually made to increase an organisation's effectiveness and efficiency, yet many organisations constantly find it challenging to bring strategy to execution (Simon et al., 2014). EA is generally believed to be the solution that aligns ICT strategy and business strategy. Many organisations make substantial efforts to implement EA but lack the efforts required to follow through with aspects related to Enterprise Architecture Management (EAM) (Aier & Schelp, 2010; Parks et al., 2017). EAM is recognised by organisations as the accepted solution to assist with strategic transformation in a rapidly changing economic, technical and regulatory environment (Buckl et al., 2010), yet there is not a commonly accepted understanding of the maturity of EAM (Buckl et al., 2010; Simon et al., 2013). As a result, it is difficult for organisations to identify and agree on the critical components of EAM and the level of maturity that is required to be successful in managing the EA practice.

In theory, it is easy for organisations to conclude the benefits and identify with the value that can be received within EA (D. H. Olsen & Trelsgard, 2016). Olsen and Trelsgard (2016) argued that many organisations choose to implement an EA strategy, but most fail as a result of the same EA challenges. Once these organisations implemented EAM, many of these challenges surfaced as indicated during the interview process in this study (D. H. Olsen & Trelsgard, 2016). Some of these challenges are organisation-specific while others are industry-specific. Amongst some of these challenges are the blurred roles within EA. The skills required for each of the subdomains are not clear and do not exist in one person but instead could be spread over many individuals (Aier & Schelp, 2010). Determining the optimal operating model is becoming key to sizing the team correctly (Ross et al., 2006). Educating the rest of the organisation about the changes can be seen as the crucial next step to the adoption of the new way for operating by the IT and business areas. Often failure is due to a lack of understanding and an unclear vision of how the different components of EAM fit together. Therefore, understanding the different dimensions and the levels at which they need to operate is imperative for success.

Once implemented, most industries find it challenging to manage EA in their organisations (Simon et al., 2013). Every organisation experiences a set of unique challenges together with some of the common challenges (Buckl et al., 2010; D. H. Olsen & Trelsgard, 2016) of which some were identified in the previous section. (Buckl et al., 2010; D. H. Olsen & Trelsgard, 2016), the common challenges that impede the process of moving towards a common EAM understanding include:

- Executive management's EA understanding.
- Unclear enterprise architecture management roles.
- Ineffective communication and adoption.
- Low EA maturity and governance.

Apart from the common challenges are some unique ones that include sociotechnological literacy and no/low level(s) of process integration within the organisation. To obtain a better understanding, these challenges need to be examined further to determine what makes them critical components of EAM. The literature provides enough information on frameworks and methodologies for EA but little/no information on what to assess and improve in EAM to increase the maturity to support the success.

Many dimensions must be assessed and addressed accordingly. The maturity model assessment is a good instrument for measuring and supporting improvements within the functional areas (van Steenberg et al., 2010). Understanding the maturity levels of the different components of EAM will assist in identifying areas for consideration which should be addressed to maintain a successful EAM practice.

The scope and area of consideration for this study reside within a financial institute with the primary goal to address the lack of literature on maturity models for EAM. The goal was, therefore, to be involved in the development of an EAM maturity assessment framework.

1.3 RESEARCH OBJECTIVES

This study aims to develop a framework that can be used within financial organisations to identify areas that support the success of EAM. The aim is to fill the gaps raised in the problem statement. Hence, the primary purpose of this study is:

- To develop a framework that can be used to assess the maturity of EAM within a Financial Institution.

In developing this framework, multiple viewpoints must be considered. This leads to the following objectives:

- To examine the existing EAM framework and identify the appropriate components to be reused.
- To identify critical components of EAM through EAM practitioners in financial institutions.
- To examine existing maturity frameworks and identify the most appropriate components to be reused.
- To validate the newly constructed maturity framework with the selected case study.

1.4 RESEARCH QUESTIONS

EA has different meanings to different people based on experience, exposure and education. This difference in understanding across all elements of EAM leads to shortfalls in the EAM practice.

Research has provided many different frameworks, methodologies and models but all have a generalised view and often need to be customised or require the organisation to select what is appropriate for their objectives to receive the intended value (Bandar M., 2017; Buckl, Ernst, Matthes, Ramacher, et al., 2009).

The research reported in this thesis aims to develop a framework that can be used to assess the maturity of the organisation's EAM practice in a Financial Institution (FI). The research focused on the components of EAM in relation to existing frameworks and explored the unique elements identified through the research.

The main research question (MRQ) for this study is:

“What are the critical components in EAM that can be used to measure its maturity in a Financial Institute in support of an EAM practice?”

In order to answer MRQ1, a set of Subresearch Questions (SRQ) were formulated to support the development and assist with the conclusion. These include:

- **SRQ1:** What are the most critical components within the existing EAM framework that can be used in a maturity framework?
- **SRQ2:** What are the most critical components of EAM as seen by EAM practitioners in financial institutions?
- **SRQ3:** What are the components with the associated qualities that are vital to test the maturity of people, process and technology in existing maturity models?
- **SRQ4:** How can the newly constructed maturity framework be validated within the selected case study?

1.5 UNDERLYING ASSUMPTIONS

- It was not always possible to verify or validate all of the information collected during the process of this study; as such, the following assumptions were made:
- EA exists within the chosen organisation and it is used in practice in some form.
- EA is seen as a critical element within the organisation and is actively looking at increasing the maturity of the practice.
- Key elements required through the development and implementation of an EA strategy are in place, such as the relevant buy-in, governance committees and EA department.

1.6 LIMITATIONS

This study examined and identified elements of EAM through information gathered using surveys administered to participants from different financial institutions as well as analysis through a systematic review of the literature. The framework was validated against a case study restricted to one organisation in the financial services industry. The restriction is due to the in-depth qualitative analysis required and the potential time limitation to conclude this study. The data collection process using interviews was restricted to only employees of the selected organisation as part of the case study analysis. Additional data collection was administered via questionnaires that were restricted to EAM practitioners in the financial services industries. The assessment administration tool used was not custom-developed; a commercial off-the-shelf, free solution was utilised. The use and the extent to which the assessment could be administered were limited by the features of the free version.

1.7 CHAPTER DESIGN OVERVIEW

This study is divided into nine chapters, as depicted in Figure 1: Chapter 1 Thesis Map. **Chapter 1** provides an introduction to the study, setting the context of all elements and providing awareness of the problem. In **Chapter 2**, the literature of the components of EAM, including frameworks and maturity model, is touched upon to provide context for the systematic literature review that was addressed in **Chapter 4** and **Chapter 6**. **Chapter 3** describes how this study was conducted and describes the philosophical assumptions and paradigms used to complete it. **Chapters 4, 5** and **6** form part of the artefact development

phase and summarise the key findings from each of them. In **Chapter 7**, the data is analysed to create a framework that was tested in **Chapter 8**. **Chapter 9** addresses the conclusions of the study's findings and possible future research.

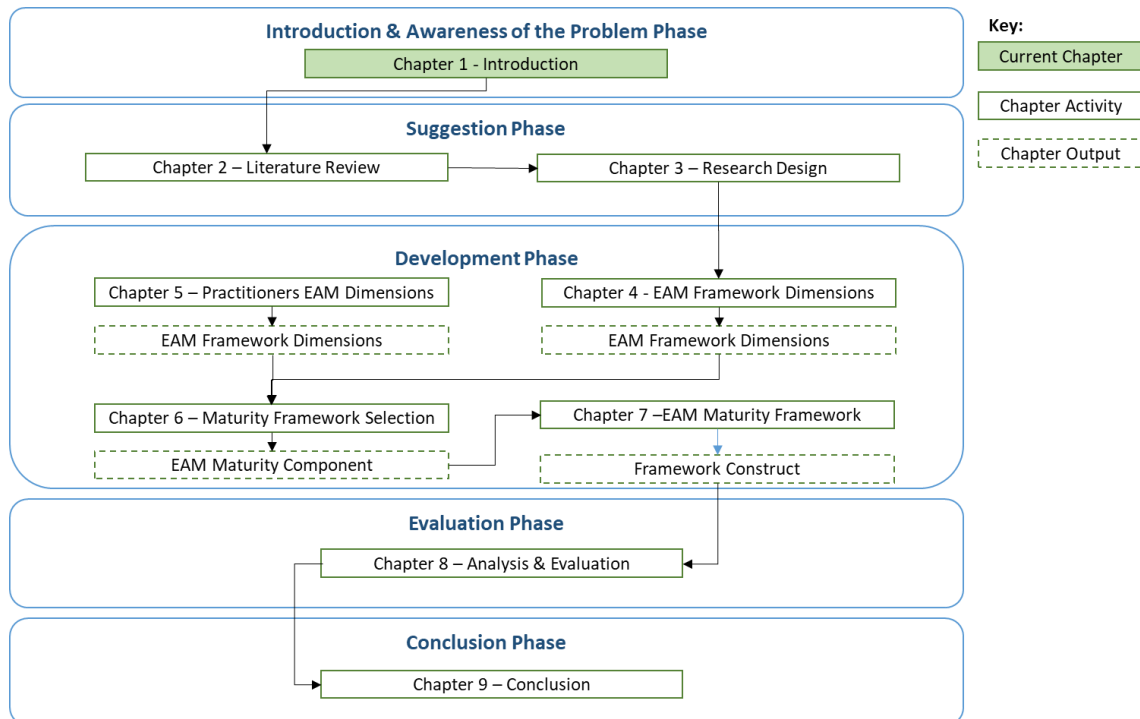


Figure 1: Chapter 1 Thesis Map

1.8 RESEARCH PUBLICATION

As part of the research, an article was submitted and accepted for publication. The article reported on the first research question that included the systematic literature review on the EA management dimensions. The publication detail is the following:

- *Marimuthu Trishan; Van der Merwe, Alta, Gerber, Aurna (2021) A systematic literature review of essential enterprise architecture management dimensions, To appear in a volume of Advances in Intelligent Systems and Computing (AISC), Springer (Scopus: Impact Factor 0.57).*

1.9 CHAPTER SUMMARY

This chapter started by providing context and background information on information technology, EA and IT relation to financial institutions. It discussed the growing need for ICT and the need for its management to be more efficient and effective. The following sections described the problem statement with this study's intended research objectives, which are linked to the research questions in Section 4. Sections 4 and 5 spoke to some of the assumptions and limitations before discussing the need for the study in Section 7. Section 8 provides the information around the publications submitted as part of this study. In **Chapter 2**, the literature is examined to guide and provide further context on the relevant information around EAM frameworks and methodologies. It also provided the foundation required for understanding maturity and how it can be adapted to satisfy the goals and objectives of this study.

2 LITERATURE REVIEW

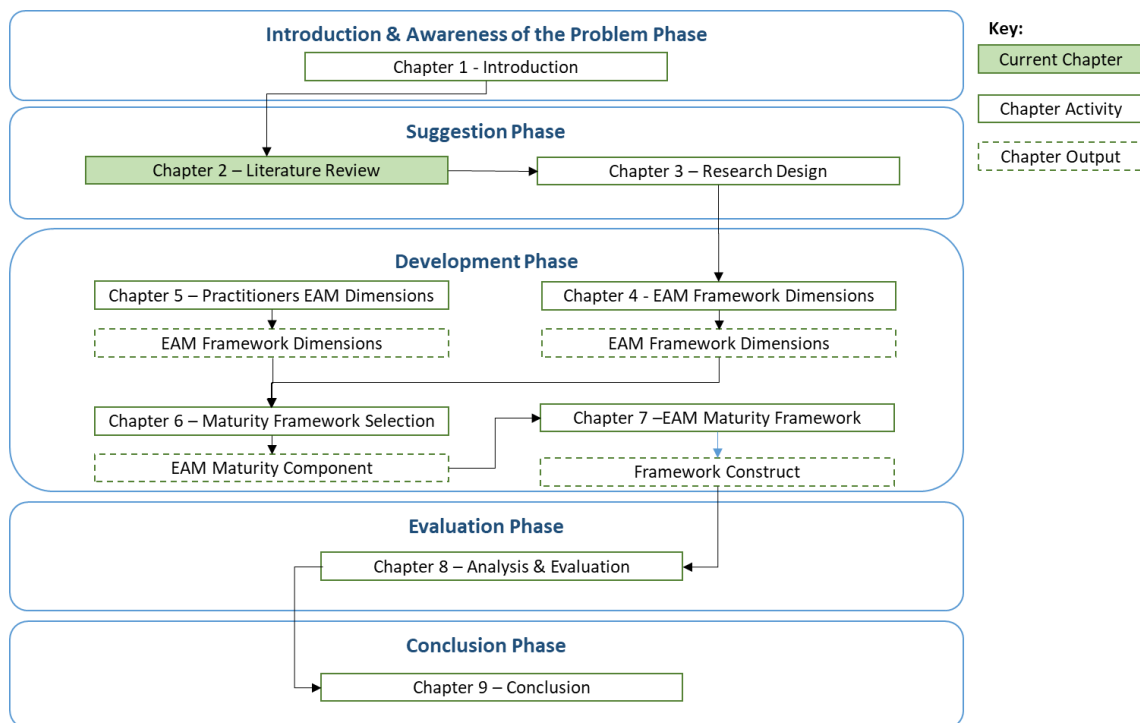


Figure 2: Chapter 2 Thesis Map

2.1 INTRODUCTION

Chapter 1 provided the introduction, including the context and background to this study. It also provided a view of the research goals and objectives and set the expectations of this study. **Chapter 2** provided the context and background of EA and provided a view into Enterprise Architecture Management (EAM) regarding the frameworks, methodologies and maturity frameworks to identify key components that could be reused in this study.

2.2 ENTERPRISE ARCHITECTURE

Architecture is a crucial part of information systems (Tang et al., 2004). To develop and maintain an information system, architecture is required and is seen as the systematic approach to analyse and design information resulting in a model for guiding the actual development (Tang et al., 2004). The word “enterprise” in enterprise architecture extends the definition to more than just information systems by covering all elements within an enterprise/organisation (Ross et al., 2006; Spewak et al., 1993; J. Zachman, 1987).

The need for EA has always been required. Even though it was not always called EA, the notion of EA still existed (Kotusev, 2016). As long as organisations have adopted technology and continued to adopt it, to the point of managing multiple small and large systems, the need for managing these systems has existed (Kotusev, 2016). The endless cycle of customers wanting more and organisations trying to satisfy the customer's needs, forced organisations striving for a competitive edge and advantage to look at better ways to manage ICT more efficiently. However, similar to the vicious cycle between the customer and the organisation described in **Chapter 1**, the same applies to most trends and technologies. If an organisation does not evolve or adapt the use of invested technologies to the new needs of their customers, they will find their product close to extinction (Powell & Dent-Micallef, 1997).

2.2.1 EA in Context

EA first started in 1975, developed by IBM and was known as Business Systems Planning (BSP). BSP activities, similar to the modern-day EA team, was a dedicated group responsible for collecting data and developing information system plans by using a top-down approach, addressing all areas of business, such as the relationships between the organisation, processes, data and systems (Kotusev, 2016). The Zachman framework was the first evolution of EA and introduced a framework that conceptualises architecture from multiple perspectives to information system professionals (J. Zachman, 1987). The framework provided a matrix that describes the document specification for the intersected areas of the framework. However, with the continuous use of the framework, information system professionals recognised that the modelling was not enough (Kotusev, 2016).

Over the 1990s we saw EA go through its second evolution. As a result of technological advancements and an increase in organisations wanting to digitise their business process, it introduced a new era of complexities expanding to the organisation's different stakeholders. The business managers normally made the organisation's decision since most of these projects were funded by them, and they had little interest in waiting for or slowing down implementations, mainly through poor visibility of what is going on in the organisation. This brought the need to extend the framework to include governance that addressed defining roles, planning processes, rights and accountabilities. These were recognised

through the introduction of The Open Group Architecture Forum (TOGAF) and Architecture development Method (ADM), amongst others (R. Harrison & Josey, 2018).

The third evolution of EA started to look at EA as a strategic business management tool (Ahlemann, 2012; Rahimi et al., 2017; Zimmermann et al., 2018). In the sections to follow, the researcher examined each evolution of EA to help identify critical components and provided the context to EAM with regards to the needs, challenges and maturity assessment.

2.2.2 Enterprise Architecture Planning

*“Enterprise Architecture Planning is the process of **defining architectures** for the use of information in support of the business and the **plan** for implementing those **architectures**.”* (Spewak et al., 1993). Spewak et al. (1993) argue that there are three essential words in this definition. The first word is “architectures” with the emphasis on being plural because it consists of the different domains within EA. In the early era of EA, this included application architecture, data architecture and technology architecture, including business architecture (Pulkkinen, 2006). The second important word is “defining”; Enterprise Architecture Planning (EAP) is about defining and not designing architecture. Architecture design is usually required before implementation whereas architecture definition is used for describing architecture (Nowakowski et al., 2017). The last word, “plan”, talks about the execution of how the different architecture definitions are implemented. Without a plan or strategy of how to adopt these architecture definitions EA cannot succeed.

Information systems are described by Spewak et al. (1993) as a way of organising and managing information using technology to create, store, retrieve and modify that information. Spewak et al. (1993) argue that most organisations experienced challenges in the early days of information systems and these challenges can be summarised into five areas:

1. Having access to data in a helpful format when required;
2. Being agile to adapt to business needs;
3. Having access to accurate and consistent data;
4. Ability to share and reuse data across the organisation, and
5. Achieve all of the above while maintaining a low cost.

As defined by Spewak, Zachman and Hill, (1993) and later updated by Spewak and Tiemann (2006) for its third evolution, the Enterprise Architecture Planning (EAP) model depicted in Figure 3: Components of EAP has 11 components. These 11 components here make up the enterprise architecture planning methodology. This methodology can be seen as the foundation of EA methodology in all future methodologies that make use of the same components but may be named differently or have been expanded in more detail, like in the case of the TOGAF and the Gartner methodology.

The first component is seen as the planning or preparation for the architecture process and does not form part of the implementing steps. This component is also evident in the TOGAF framework as the preliminary phase (R. Harrison, 2005). The next step, which addresses the values and principles of EA, is seen as the most crucial step since it forms the basis for future decisions. This is also evident in the TOGAF Architecture Delivery Method (ADM) and is referenced as the methodology's envision phase. The business knowledge component, also referred to as the business model in the Gartner methodology, (Arriola & Markham, 2018; Bittler & Kreizman, 2005) or business architecture component in TOGAF (R. Harrison, 2005), addresses the related business strategic elements of managing business and future requirements.

The current systems and technology components address the needs for understanding and documenting the baseline state of the organisation with the following three components addressing the needs of the future or target state architecture, also identified in other frameworks (Bittler & Kreizman, 2005; Buckl, Ernst, Matthes, Ramacher, et al., 2009). The implementation and migration plan component, also referred to as the transition plan, covers the gaps analysis, that are seen in other frameworks (Bittler & Kreizman, 2005) and a plan for implementing the required changes. Throughout this process, all documentation is captured and managed through the repository and managed through project management.

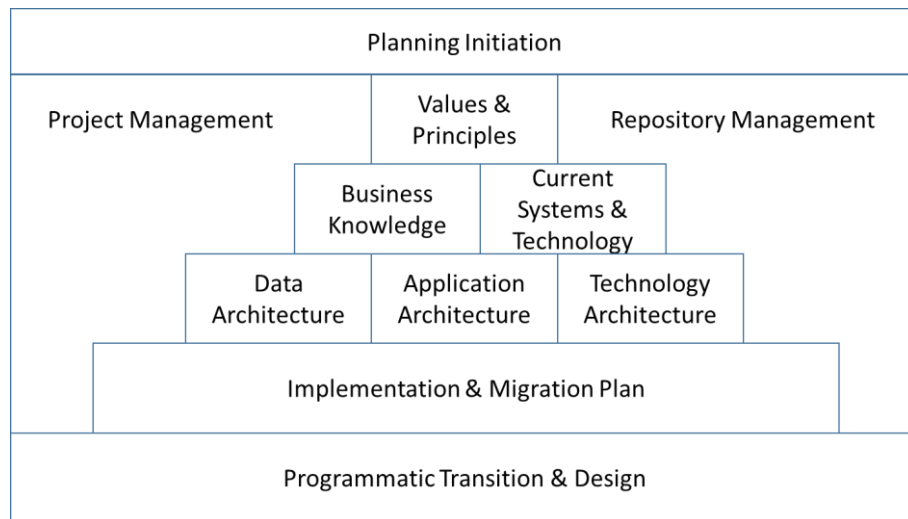


Figure 3: Components of EAP - Adapted from (Spewak & Tiemann, 2006)

This layered approach, sometimes referred to as a hierarchal approach for aligning business and information technology further enhances any organisation's IT systems to provide a better overall experience to the customer (Bakar et al., 2016; Saat et al., 2009; Spewak et al., 1993). This is achieved by providing robust architectures that facilitate better communication between systems and processes (Bakar et al., 2016). EA provides the blueprints required for structure and operations through the different domains within EA. While this provided one of the first views of the building blocks required to manage EA, soon other frameworks were developed using the EAP model as a foundation, such as TOGAF, Gartner and the Federal Enterprise Architecture Framework (Leist & Zellner, 2006; Rouhani et al., 2013).

2.2.3 EA Mandate (What is EA?)

EA is described by Ross, Weill and Robertson(2006) as the organising of logic to understand a company's processes and infrastructure and extents the description further, to be the mechanism that transitions a strategy into execution. Since 2001, there has been a growing interest in EA and its implementation (Plessius et al., 2018). The primary purpose of EA is to create IT and business maps/views that are governed by principles to drive an organisation into expressing its strategy through the use of information technology. One of the goals that support this is to create a unified IT and business environment across an organisation that assists with aligning these areas through standardisation and reuse (Minoli, 2008).

Many frameworks and methodologies can assist in creating these maps/views, some of which were discussed further in the subsequent sections (Leist & Zellner, 2006; Rouhani et al., 2013; Schekkerman, 2004). However, as the name implies, EA refers to all elements of the enterprise. This makes EA too broad to manage at a lower level of detail. As a result, EA was classified into four high-level layers: Business Architecture, Application Architecture, Information/Data Architecture and Technology Architecture (Pulkkinen, 2006):

- **Business Architecture** focuses on all business-related aspects such as services, vision, mission, policies, strategies and processes. Understanding the business aspects gives us a view of what information is contained in each aspect.
- **Information Architecture** identifies all of the information needs and the flow of information within the organisation based on the business architecture. The information architecture provides the first view of what data is essential for business and must be kept.
- **Data Architecture** identifies where the data can be found and what data needs to be kept. This data is linked to an application that enables the organisation to view it easily and readably.
- **Application Architecture** identifies the application landscape within an organisation. The application architecture provides the organisation with a view of how the different applications are connected.
- **Technology Architecture** identifies the infrastructure standards that should be used across the other domains.

Artefacts and processes created through the use of EA can deliver many benefits to the organisation (Aziz et al., 2005). Some of these benefits include the agility of the enterprise, speed to market, reduction in risks, reuse and lower cost of ownership. However, to gain these benefits requires significant investment in an EA programme which requires a lot of time and money to succeed. According to Aziz et al. (2005), the two most significant components of an EA programme is the EA content and the EA governance framework. While the EA contents refer to the artefacts developed within the EA domain areas, the governance aspect refers to how all of these elements of EA are controlled and the policies that govern them.

2.2.4 EA Frameworks and Methodologies

One of the biggest hurdles for any organisation is the challenge of aligning business strategy with IT (Ahlemann, 2012; D. H. Olsen & Trelsgard, 2016; Szabo & Ori, 2017). Business and IT departments can be viewed as two different worlds with equally different languages between them. This makes communications between them extremely challenging and often ends with miscommunication. EA framework and methodologies were created to assist with the language barrier between the two areas (Tang et al., 2004). EA as a concept provides organisations with the blueprints required to bring these two worlds together, while EA frameworks provide the structure of how to achieve this (Urbaczewski & Mrdalj, 2006). However, having the plans does not necessarily mean one knows how to bring the components together, which is why we require a methodology. The methodology is the practice of how to link the components of the framework together. Since the birth of EA there has been no universally agreed upon representation of EA by researchers and practitioners alike (Tang et al., 2004).

Since the beginning of EA in 1987, research has provided many EA frameworks and methodologies, as seen below. These frameworks have many overlapping areas but they all address specific needs or concerns in an organisation. Selecting and adopting the appropriate framework and methodology is challenging without understanding those concerns or needs (Tang et al., 2004). It is important to note that adopting a framework and methodology provides the necessary building blocks to achieve a successful EA implementation (Urbaczewski & Mrdalj, 2006). Below are some of the EA frameworks that exist (Abdallah & Galal-Edeen, 2006; Ansyori et al., 2018; Lim et al., 2009; Urbaczewski & Mrdalj, 2006):

1. Zachman Enterprise Architecture Framework (ZIFA)
2. The Open Group Architecture Framework (TOGAF)
3. Extended Enterprise Architecture Framework (E2AF)
4. Enterprise Architecture Planning (EAP)
5. Federal Enterprise Architecture Framework (FEAF)
6. Treasury Enterprise Architecture Framework (TEAF)
7. Integrated Architecture Framework (IAF)
8. Joint Technical Architecture (JTA)

9. Department of Defence Technical Reference Model (DoD TRM)
10. European Union-IDABC and European Interoperability Framework)
11. ISO/IEC 14252 (IEEE Std 1003.0)
12. IEEE Std 1471-2000 IEEE Recommended Practice for Architectural Description.

For this study, the researcher has selected four of the industry's most popular frameworks to provide a high-level context of these EA frameworks and methodologies (Rouhani et al., 2013). These four EA frameworks and methodologies are:

- The Zachman Framework
- The Open Group Architecture Forum (TOGAF)
- Gartner EA Framework
- Federal Enterprise Architecture Framework (FEAF).

Zachman Framework

The Zachman Framework was created by John Zachman in 1987 and was based on information systems architecture (J. Zachman, 1987). Since then, it has been widely adopted by many in the architecture community and other frameworks (Tang et al., 2004). Urbaczewski and Mrdalj (2006) argue that to describe complex systems, a common vocabulary together with a set of views are required. The Zachman Framework provides a set of views and vocabulary using principles that are based on classic architecture. While it is said in literature that the Zachman Framework is more a taxonomy than a framework, it provides a mechanism that organises artefacts by intersecting two dimensions, which can be seen as the business perspective and the expected outcomes as in Figure 4: The Zachman Framework (Tang et al., 2004).

	Data (what)	Function (how)	Network (where)	People (who)	Time (when)	Motivation (why)
Scope (Planner)	List of things important to business	List of processes the business performs	List of locations which the business operates	List of organisations / agents that are important	List of significant events	List of business goals / strategies
Enterprise Model (Owner)	Semantic Model	Business Process Model	Business Logistic System	Work Flow Model	Master Schedule	Business Plan
System Model (Designer)	Logical Data Model	Application Architecture	Distributed System Architecture	Human Interface Architecture	Processing Structure	Business Rules
Technology Model (Builder)	Physical Data Model	Systems Design	Technology Architecture	Presentation Architecture	Control Structure	Rule Design
Components (Subcontractor)	Data Definition	Program	Network Architecture	Security Architecture	Timing Definition	Rule Specification

Figure 4: The Zachman Framework adapted from (J. Zachman, 1987)

The intersections in this framework provide us with a systematic process of decomposing complex systems into manageable classification/categories (J. Zachman, 1987; J. A. Zachman, 1997, 1999). The Zachman Framework does not address the need for guidance regarding the sequence of artefact creation or implementation (Rouhani et al., 2013).

The Open Group Architecture Forum (TOGAF)

The Open Group Architecture Forum (TOGAF) was introduced in 1995 and was created out of an earlier EA framework known as the Department of Defence's Technical Architecture Information Management (R. Harrison, 2005; Urbaczewski & Mrdalj, 2006). The goal of TOGAF is to create a framework that can be used for the design, evaluation and building of architecture (Tang et al., 2004). A valuable part of this EA framework included a methodology called the TOGAF Architecture Development Method (ADM) that specified how architecture should be created. TOGAF provided guidelines for developing an EA rather than providing a rigid process of defining the EA.

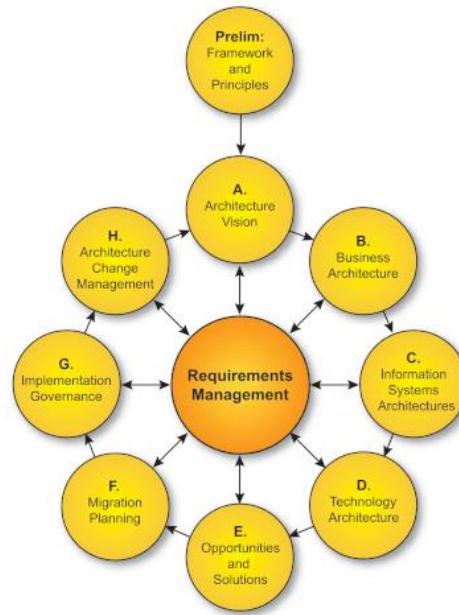


Figure 5: TOGAF ADM reproduced from website (TOGAF, 2021)

Tang, Jun Han & Pin Chen (2004) argue that the TOGAF ADM was an iterative method as depicted in Figure 5: TOGAF ADM that is generic enough to be applied to either the entire enterprise or at a system level. It also provided guidelines to implement EA and was not prescriptive in how aspects of the implementation should be achieved. The ADM can be described as step-by-step guidelines to develop architecture and the processes required, which are used iteratively (Rouhani et al., 2013; K. Winter et al., 2010). These guidelines are described in different phases (Buckl, Ernst, Matthes, Ramacher, et al., 2009), starting with Phase 1, known as the preliminary phase. During this phase, the decisions around the scope and architectural principles are made. The next phase goes a little deeper to identify the stakeholders, define the scope of the architectural requirements and describes a high-level view of the target state. In the subsequent three phases, known as business architecture, information architecture and technology architecture, the current state of the respective areas are completed together with a more detailed target state. A gap analysis is conducted between the two states to identify the effort of the change. The opportunities and solutions phase addresses the implementation planning and transitions of the architecture. The three phases that follow are responsible for implementing the architecture through the migration planning, implementation governance and change management phases (Buckl, Ernst, Matthes, Ramacher, et al., 2009; K. Winter et al., 2010).

Gartner

The Gartner framework addresses the needs of EA by bringing together three perspectives: the business owners, information specialists and technology implementers (Bittler & Kreizman, 2005; Rouhani et al., 2013). Each of these elements is what Gartner refers to as "points of view". The intersection of these viewpoints becomes what is known as the solution architecture. When adopting the Gartner methodology, the approach starts with the target state definition rather than the current state, as depicted in Figure 6: Gartner Methodology.

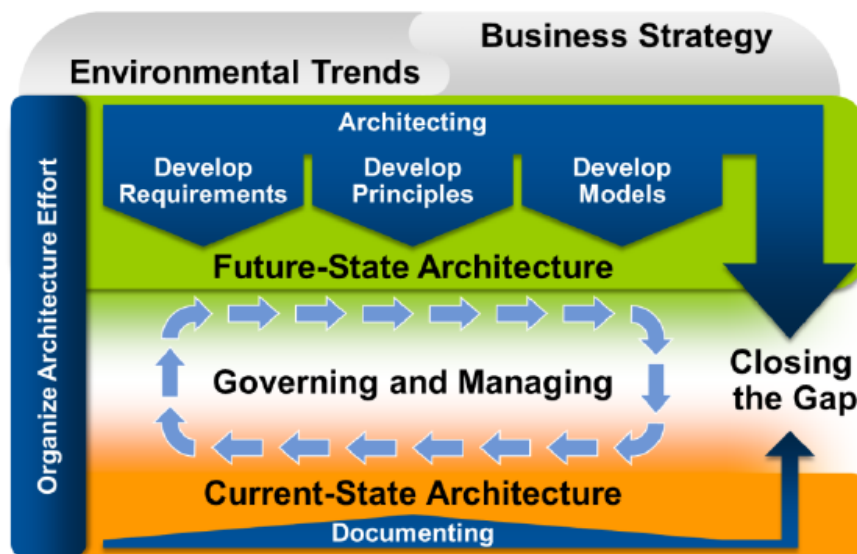


Figure 6: Gartner Methodology reproduced from (Bittler & Kreizman, 2005, p. 4)

The methodology has many components; however, the four most important components are the future state architecture, current state architecture, governing and managing, and the gap analysis (Bittler & Kreizman, 2005).

- **Future state architecture** is the representation of the desired state or outcome and supports the business strategy and environmental factors. By using the three viewpoints the solution architecture qualities can be derived. Most of the focus and effort is required in this phase as indicated by the thick blue arrow in Figure 6: Gartner Methodology.
- **Current state architecture** is represented by the term "documenting", which indicates that little or just enough effort must be made to move forward or complete the analysis.

- **Gap analysis** is the bridge between the future state architecture and the current state architecture and represents the amount of effort required to move from the current state to the future state.
- **Govern and manage** refers to the transition or roadmap of activities that moved from current to future state.

Federal Enterprise Architecture Framework (FEAF)

The Federal Enterprise architecture Framework was created by the US CIO Council with the goal of promoting shared development across other federal agencies (Rouhani et al., 2013; Tang et al., 2004). This framework was created using four levels to describe its process as depicted in Figure 7: FEA Framework. Level 1 facilitates the transformation from the current state to the target state by applying architecture standards and architecture processes. Level 2 goes into a deeper level of detail by analysing both the business driver and the design through which the target business architecture and design architecture are created. As the model takes us to Level 3, even more details are provided by creating views of the target state that consists of business, data, application and technology views. The last level is a combination of the Zachman framework and Spewak's Enterprise Architecture Planning (EAP). This looks at all perspectives from the Zachman Framework and merges it with the processes defined in EAP.

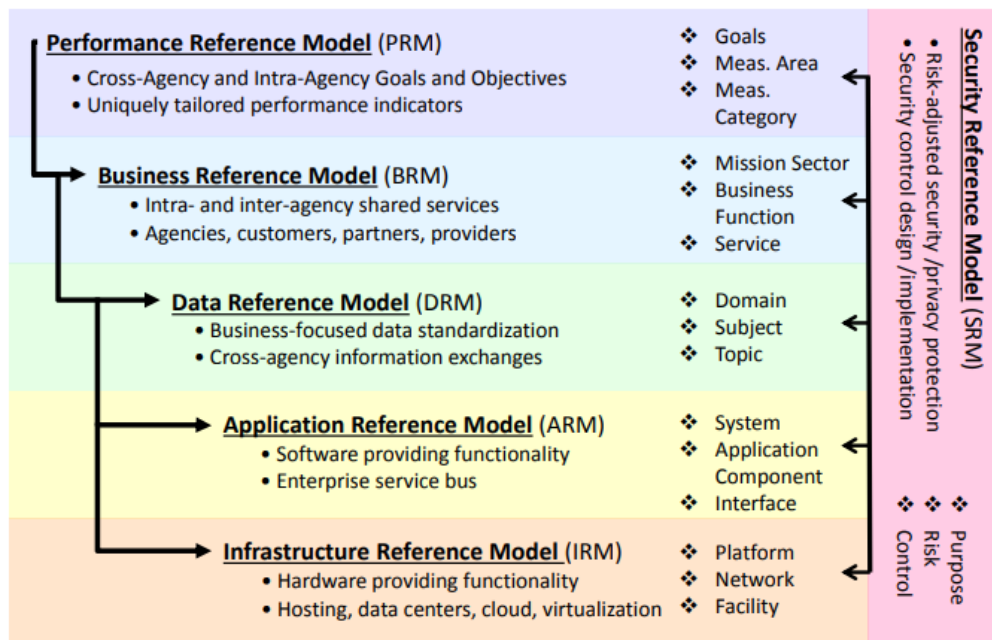


Figure 7: FEA Framework (reproduced from the (Federal CIO's Policy Guidelines, 2013, p. 20)

Even though the FEAF can be seen as an advancement in EA, the framework has its shortfalls, as concluded by Tang et al. (2004) that the FEAF focused on enterprise architecture planning and does not support other areas such as nonfunctional requirements, design rationale and the management of EA after implementation. The FEAF methodology can be seen in Figure 8: FEAF Methodology.

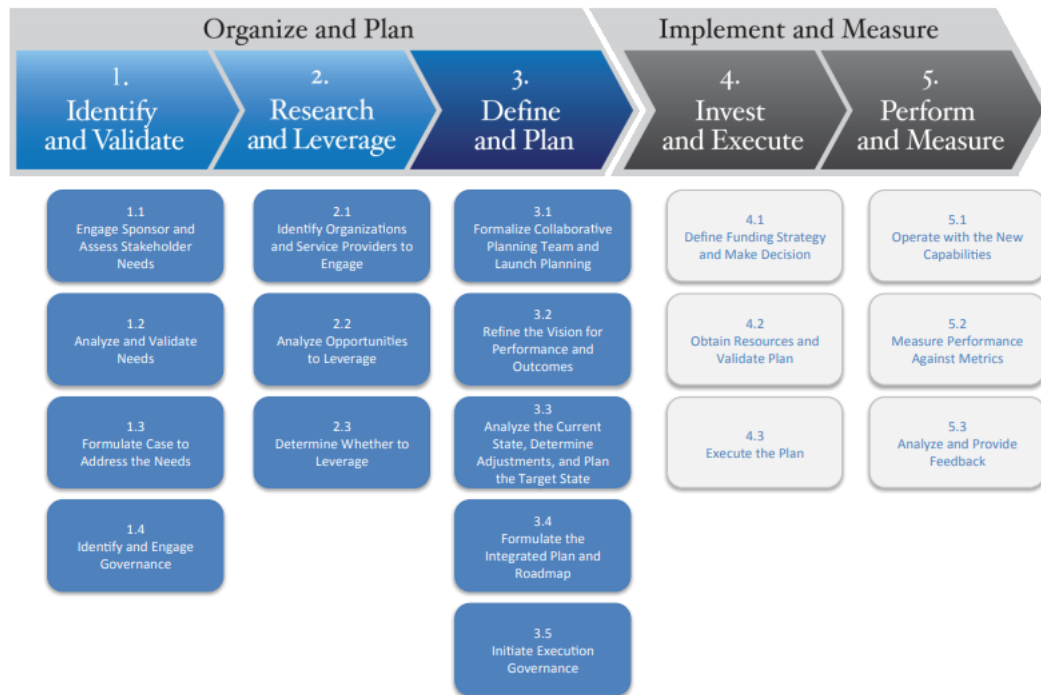


Figure 8: FEAF Methodology - reproduced from (Federal CIO's Policy Guidelines, 2013, p. 14)

Section Summary

The frameworks with their respective methodologies described above are critical components of EAM. It is vital to select a framework that meets the organisation's objectives, however, without understanding each framework's strengths and weaknesses selecting the right one becomes extremely difficult. Table 1: EA framework summary provides a view at a high level of its areas of effectiveness. While the Zachman framework provides an excellent framework that provides a taxonomy for architectural ontology, it lacks a methodology of how its fits together and is regarded as complex to understand and implement (Rouhani et al., 2013). The Gartner framework satisfies the needs for a framework and methodology and addresses the needs from an EA planning perspective, but it provides little/no value in the EA management dimensions. The Gartner framework does not provide any guidance with reference models or standards and tries to achieve its

objectives through simplicity which can be tricky for first-time implementers of EA and does not provide a level of consistent expectations in its deliverables. The FEAF framework provides good guidelines and reference models, but is seen as highly complex and obscure and has a deep concentration on EAP and little regarding EAM, similar to the Gartner framework. The framework that has the closest match to most dimensions is TOGAF. TOGAF provides great detail in terms of guidelines but also caters for every scenario, making it difficult to select artefacts or ideas that could translate into selecting the ones with the least value to the organisation (Rouhani et al., 2013).

EA Focus	Dimensions	Zachman Framework	TOGAF	Gartner	FEAF
EAP	Frameworks	X	X	X	X
	Methodology		X	X	X
	Governance		X	X	X
	Skills/Operating Model	X	X	X	X
	Reference Models		X	X	X
EAM	Maturity Management		X		
	Process Integration				
	Culture				
	Roles and Responsibilities	X	X		
	Repository Management		X		
	Measurement Criteria		X		
	Modelling Standards		X		

Table 1: EA framework summary

2.2.5 Benefits of Enterprise Architecture

EA impacts all areas of the enterprise and includes EA models/views from all areas to manage and develop (Niemi, 2006). While there have been many claims that EA provides the means to integrate strategy, people, business and technology, it does come at a considerable cost to any organisation by means of technology, people and a culture change. Like with any investment, we must be able to qualify and quantify the benefit that the investment will provide. This is seen as a difficult process for any organisation wanting to make the EA investments. Niemi (2006) identifies, describes and classifies some of the

benefits received from implementing an EA strategy. To effectively classify the benefits, Niemi identified four main categories of benefits: Hard Benefits, Intangible Benefits, Indirect Benefits and Strategic Benefits:

- **Hard benefits** are described as benefits that can be objectively quantified, i.e., the benefit can be shown in monetary terms and is attributed to EA directly.
- **Intangible benefits** can be identified but not easily quantified. These can be seen in examples where benefits are received through informed decision-making such as using the EA models to provide insights.
- **Indirect Benefits** refers to benefits that can be measured but cannot be attributed to EA. These include benefits such as increased efficiency, improved management or a better position in the market.
- **Strategic Benefits** are positive effects that are realised over a long period that cannot be quantified or attributed to EA.

The summary of the benefits identified and classified into these categories can be seen in Figure 9: EA Benefit Categories(Niemi, 2006). EA benefits can be seen in all four categories.

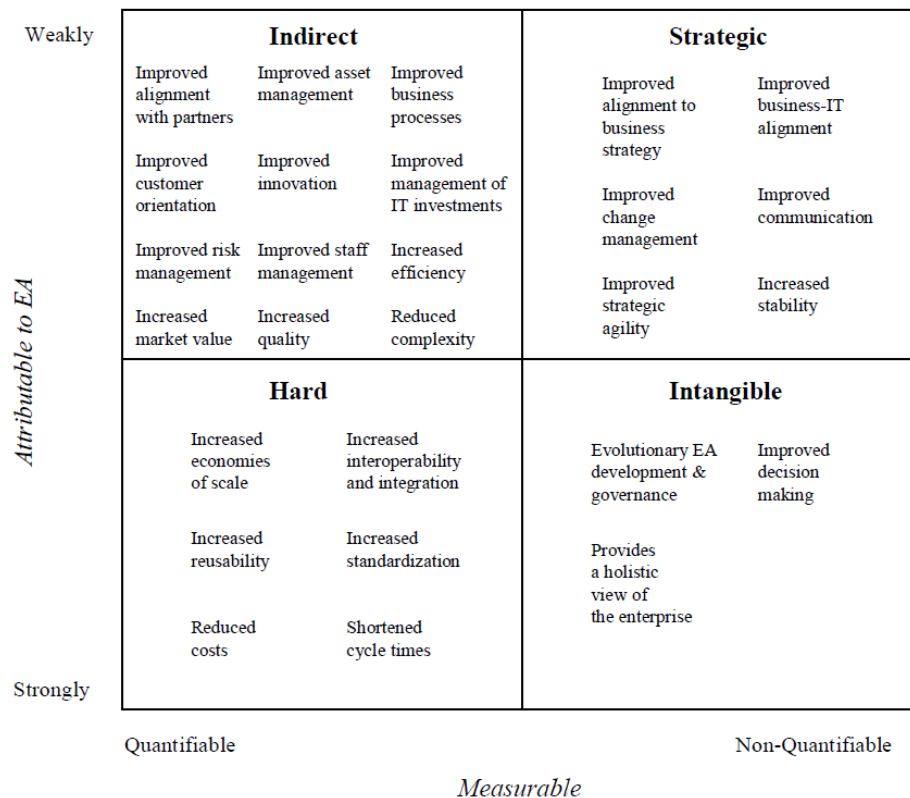


Figure 9: EA Benefit Categories - reproduced from (Niemi, 2006, p. 4)

EA brings synergy between business processes and IT systems by providing clear direction (Spewak & Tiemann, 2006) and is described by Aziz et al. (2005) as the glue that allows business and IT strategy to enable each other and is one of the key ways to achieve competitive advantage using IT. There are many benefits to EA through the adoption and proper execution of EA (Niemi & Pekkola, 2020). Aziz et al. (2005) and Spewak, Zachman and Hill (1993) further outline and agree with some of the benefits that can be yielded from EA and list what they believe are the key benefits:

- Increased focus on the strategic use of technology;
- Standardisation of vocabulary improves better communication;
- Increased documentation betters the understanding of the business;
- Better decision-making through readily available information;
- More cost-effective, longer-term solutions;
- Increased agility of the enterprise;
- Speed to market on products and services;

- Improved and consistent information exchange;
- Risk reduction;
- Alignment of IT business cases to the value of strategic initiatives;
- Increased reuse of products and services;
- Lower cost of support.

These are observed by many architecture stakeholders and was proven by market research by Knox (2004). Obtaining these benefits requires the successful development and implementation of an EA programme (Aziz et al., 2005).

2.2.6 Challenges of Enterprise Architecture

Even though EA started decades ago, many organisations still battle issues surrounding the successful implementation of EA (Banaeianjahromi & Smolander, 2016). Bakar, Harihodin and Kama (2016) argue that even with all the frameworks and methodologies that exist, the implementation of EA is not an easy task. The theoretical concepts of EA are well developed but in practice organisations are faced with many challenges when implementing and managing EA (Banaeianjahromi & Smolander, 2016). Banaeianjahromi and Smolander (2016) go on to explain that not all organisations will reap the benefits that EA implementation can provide. To succeed with an EA implementation strategy, it is essential to understand the obstacles that are preventing the EA implementation strategy from developing.

The Cambridge dictionary defines obstacles as *“Something that blocks you so that movement, going forward, or action is prevented or made more difficult.”* (Cambridge dictionary, 2021). Banaeianjahromi and Smolander (2016) describe obstacles as *“the factors that confronts the project with difficulties and loss of resources and cannot be solved easily, and the risk of project termination exists”*. While both these definitions are similar, for the purpose of this study, the definition of obstacles as presented by Banaeianjahromi and Smolander (2016) are adopted.

In the previous sections, the need for EA frameworks and methodologies and how it aids by providing guidelines to develop an EA implementation strategy are discussed. These frameworks and methodologies are sometimes the reason for the obstacle, so it becomes

crucial that when taking on a project such as an EA implementation strategy to understand these potential obstacles that the organisation needs to overcome. This section explores some of these hurdles and what an organisation should avoid or overcome them. In a study by Roth et al. (2013), Spewak, Zachman, and Hill (1993) and Tang, Jun Han, and Pin Chen (2004), they concluded with similar findings and stated that even though architecture frameworks were meant to assist with the alignment of business strategy and IT, much ambiguity still exists. Aziz et al. (2005) and Lucke et al. (2010) suggest that organisations find it challenging to implement an EA strategy because the knowledge and skills required to understand and interpret the existing framework and methodologies requires a significant amount of experience. While there are many challenges that can impede the success of EA, Table 2: EA challenges Findings summarises a few of the common ones.

Challenges	Findings
Top Management	• (Spewak et al., 1993) • (Lucke et al., 2010)
EA Operating Model	• (Spewak et al., 1993) • (Lucke et al., 2010) • (Tang et al., 2004)
Organisation Culture	• (Spewak et al., 1993) • (Lucke et al., 2010)
The scope of architecture	• (Spewak et al., 1993) • (Tang et al., 2004)
Strong EA Leader	• (Spewak et al., 1993) • (Tang et al., 2004)
Training	• (Spewak et al., 1993)
Architecture activities	• (Spewak et al., 1993) • (Tang et al., 2004)
Methodology Selection	• (Spewak et al., 1993)
EA Planning Communication	• (Spewak et al., 1993) • (Tang et al., 2004)
The expected outcomes	• (Spewak et al., 1993)

Challenges	Findings
	• (Lucke et al., 2010) • (Tang et al., 2004)
Adoption of a Tool	• (Spewak et al., 1993)
ROI Expectations	• (Spewak et al., 1993)
Cost	• (Spewak et al., 1993)
Level of architecture	• (Lucke et al., 2010) • (Tang et al., 2004)

Table 2: EA challenges Findings

Aziz et al. (2005) argue that one of the most difficult challenges to overcome is that there are so many frameworks and methodologies and significant expertise is required to understand and implement based on the organisation's intended objectives. Further to this, (Isomäki & Liimatainen, 2008) identified implementation ability and governance as another significant obstacle.

2.2.7 EA Execution

EA services should be available when requested, having the information available at the right time and the right level of detail is critical for organisations (Niemi & Pekkola, 2013). It is crucial for support for EA to be managed centrally to assist with the management of delivery and to be involved early on in the delivery cycle. The delivery cycle is realised through two levels: (1) at the project level where EA provides contributes through scaled and leveraged work and (2) at an enterprise-wide level where EA contributes through cost-reduction and reduced risks amongst others (Brosius et al., 2017). Ross, Weill and Robertson (2006) state that developing and implementing an EA strategy should consider three critical elements: the operating model, EA and IT engagement model. This approach shares similar characteristics with that of Haki, Legner and Ahlemann (2012), who argue that the EA execution is completed using the three areas of focus, EA governance, EA delivery and repository management. These focus areas are agreed on in many studies (Buckl et al., 2011a; Haki et al., 2012; Nikpay et al., 2013). The main focus areas for execution further discussed in the next sections.

EA Operating Model

All organisations have processes and systems regardless of whether or not an EA practice exists. However, not all bring these elements together in the form of EA planning (Tamm et al., 2011) to increase the level of integration and standardisation (Ahlemann, 2012; Ross et al., 2006; Spewak et al., 1993). Choosing the correct operating model is critical for an organisation's foundation to enable rapid execution of strategic initiatives (Ross et al., 2006). Incorrectly choosing will result in failure to support the organisation's business processes and ICT infrastructure (Ross et al., 2006). Ross et al. furthermore believe that adopting the operating model is key to the success of EA. There are two essential dimensions of an operating model, the business process integration and the business process standardisation.

- Standardisation refers to the business processes and related systems and how they are executed, irrespective of where or who is performing it.
- Integration refers to the linking of efforts of the organisation through the use of shared data.

Four common operating models exist based on the combination of ratings for the two dimensions described above, as depicted in Figure 10: Operating models:

1. Diversification (low standardisation, low integration);
2. Coordination (low standardisation, high integration);
3. Replication (high standardisation, low integration);
4. Unification (high standardisation, high integration).

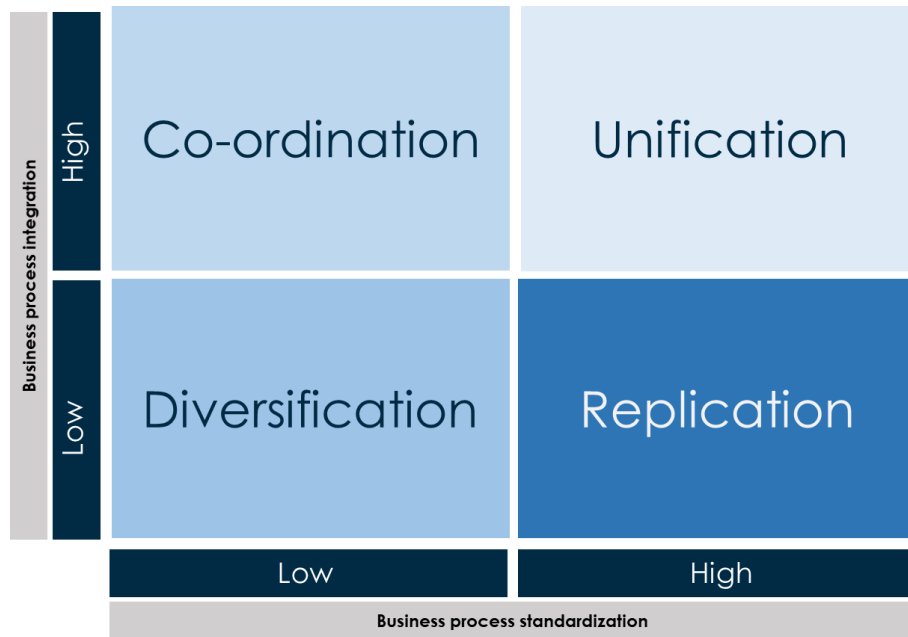


Figure 10: Operating models characteristics - reproduced from Ross et al. (2006)

IT Engagement Model / Governance

The IT engagement model is referred to as the governance mechanism that needs to be in place to ensure that business and IT projects meet the objectives set out by the organisation (Lange & Mendling, 2011; Ross et al., 2006; Wan et al., 2014; Weiss et al., 2013). EA takes into consideration the long-term, not just the immediate, view of the organisation's needs.

Some journals have identified IT strategy as one of the most important on executive managements' agendas (Brown, 2004; Mocker, 2005). Bartenschlager and Goeken (2010) state that many approaches consider IT strategic plans and the use Cobit and ITIL best practices as examples of these approaches. These best practices are often used to define policies that need to be integrated to allow for better controls and compliance. Similarly, EA requires the same to effectively and efficiently deliver on its mandate. EA governance can be described as a set of integrated elements through which EA is executed (Aziz et al., 2005). These elements together provide a system for defining, implementing and measuring the effectiveness of the EA discipline. The EA governance model must coherently fit the organisation's corporate governance model through the business and technology processes and provide alignment with expectations via control and direction (Aziz et al., 2005; Seppänen, 2014).

Governance models contain processes, structures and organisational culture attributes that determine how decisions are made and how power is executed (Seppänen, 2014). Therefore, if the correct structures and people together with the policies are not in place, poorly adopted or developed, an organisation will experience problems and therefore it is critical that the following considerations are taken into account:

- Appointment of an accountable leadership with decision rights.
- Difficulties in the delegation of decision-making rights and responsibilities due to conflicts of interest.
- Due to an unclear mandate, EA governance cannot truly influence organisation development.
- Poor process integration of the EA governance practices into the existing governance of the organisation.

Implementing Enterprise architecture

To effectively align business and IT in EA, several elements must be put in place (Luftman, 2004). The first step is to have a strategy and a plan for the implementation of EA. This is strongly linked to the buy-in from executive management and the expected objectives and outcomes from EA. Some of the early work done in implementing EA is the EAP methodology from Spewak, Zachman and Hill (1993) which was later updated by Spewak and Tiemann (2006). This approach consisted of a four-step process that included the documentation of the "as-is" state or baseline, the documentation of the "to-be" state or the target state, the gap analysis and the transition plan. This approach is seen as the foundation since many of the approaches developed thereafter adopted and further built on it. This is evident in both TOGAF (TOGAF, 2021) and the FEAF (Federal CIO's Policy Guidelines, 2013). It was further extended by Luftman (2004) in describing twelve components that are categorised in four functional areas as depicted in Figure 11: Components of implementing EA, where the four-step process can be overlaid to assist with the implementation of EA.

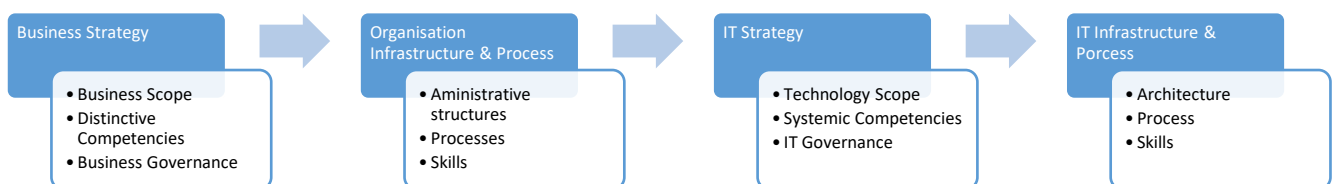


Figure 11: Components of implementing EA - adapted from (Luftman, 2004)



Business Strategy

1. Business Scope – refers to the components of business such as products and services.
2. Distinctive Competencies – refers to the elements that give an organisation its competitive edge.
3. Business Governance – refers to the policies, governance and relationships between management, stakeholders and the board of directors.

Organisation Infrastructure and Processes

4. Administrative Structure – refers to the organisation's organogram.
5. Processes – describes the business activities that make up the flow of information and operational requirements.
6. Skills – refers to the definition of the roles and responsibilities that are linked to the organogram in business.

IT Strategy

7. Technology Scope – refers to the ICT boundaries that are critical to the business.
8. Systemic Competencies – refers to the capabilities that distinguish IT, such as access to information services.
9. IT Governance – the security and authority for resources, risk, conflict resolution, responsibility, project selection and prioritisation.

Infrastructure and Processes

10. Architecture – looks at the integration of process, application software, hardware and information.
11. Processes – describes the IT activities that make up the flow of information and operational requirements.
12. Skills – refers to the definition of the roles and responsibilities that are linked to the organogram in IT.

2.2.8 EA Implementation Critical Success Factors (CSFs)

To increase opportunities to reap the benefits discussed in the previous section, it is necessary to have an understanding of critical success factors when implementing an EA strategy. The EA implementation strategy must maintain the right balance of the business and IT vision as well as other characteristics (Nikpay et al., 2013; Schekkerman, 2004).

Finding the balance has been a massive challenge for most organisations, Nikpay et al. (2013) conducted a review of the critical success factors based on the previous studies of:

- Kamogawa and Okada's CFSs model (Kamogawa & Okada, 2005)
- Schmit and Buxmann's CSFs model (Schmidt & Buxmann, 2011)
- Aier and Schelp's CSFs model (Aier & Schelp, 2010)
- Van der Raadt's CSFs model (van der Raadt et al., 2007)
- Tanja Ylimäki's CSFs model (Ylimäki, 2008).

The study involved a comparative analysis of the coverage for the CSFs and concluded with the findings that Tanja Ylimäki CSFs model had the most coverage in terms of EA success qualities. Ylimäki (2008) concludes that the characteristics of CSFs for EA are scoping and purpose, communication and culture, amongst others, as depicted in Figure 12: Ylimäki's Critical Success Factors and described further below.

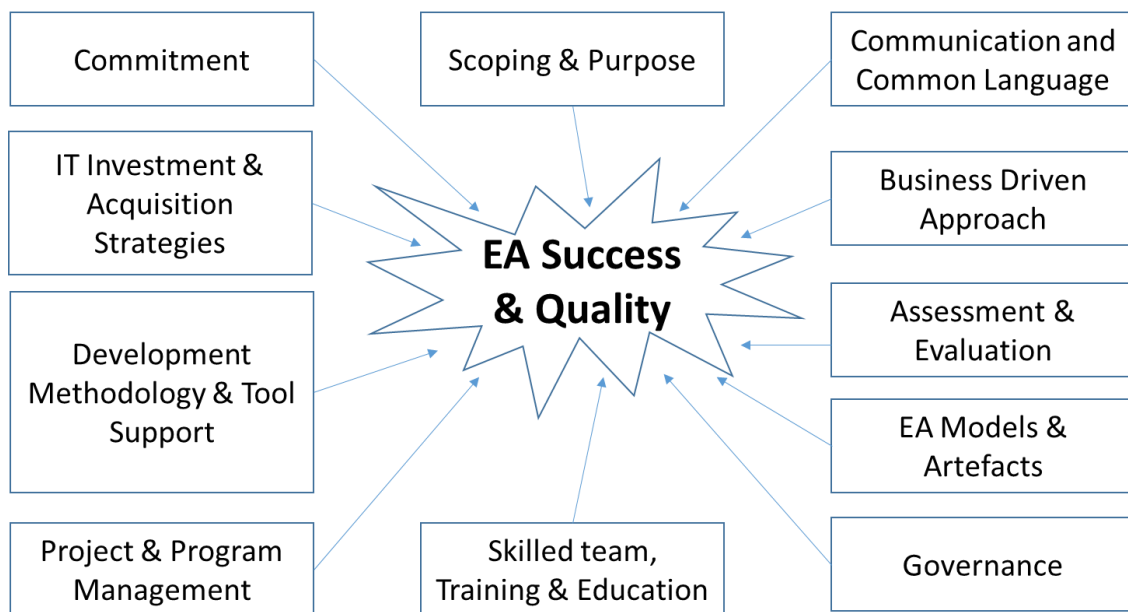


Figure 12: Ylimäki's Critical Success Factors - adapted from (Ylimäki, 2008)

- **Scoping and purpose** relate to how an organisation addresses the objectives or the expectation of EA. This extends to defining who the stakeholders are and understanding their needs. Through the understanding of this, a clearly defined vision, mission and goals can be created. Once these are defined, only then can an organisation track the value that is gained from EA (Lankhorst, 2013).
- **Communication and common language** are vital in sharing knowledge and having a common understanding that makes transitioning into the desired state obstacle-

free. Ways to achieve this is through the development of a data dictionary or listing commonly used terms and their meanings. It is also critically important to have a communication strategy that will outline what and how information and knowledge sharing will take place (Lankhorst, 2013).

- **The business-driven approach** speaks of ensuring alignment with and traceability of business and IT objectives (Schekkerman, 2004).
- **Commitment** relates to both the executive commitment and the organisational buy-in regarding the adoption in the EA process. Understanding that an EA implementation is a long-term strategy and will need commitment for an extended period, is fundamental. The organisation should also have a willingness to adopt and make the necessary changes which can be some of the most challenging factors in success (Ansyori et al., 2018; Nikpay et al., 2013).
- **Development methodologies and tools support** refer to having a structured approach to managing EA. Following the guidelines of established frameworks and methodologies is a good starting point. Linking this to already existing governance forums or groups is also necessary for integrating EA into the organisation's standard operations. By using EA standards and principles, the governance elements become a little more manageable while making the process more repeatable, which adds to integrity. With all of this information, it would make sense that a tool was needed for assistance in the visualisation and management of insights analysis (Ernst et al., 2006; Jonkers, Lankhorst, ter Doest, Arbab, Bosma, & Wieringa, 2006).
- **EA Governance** refers to the manner in which decisions are made concerning the architectural changes that need to occur. Establishing the proper governance structure that integrates into the existing structure becomes vital (Ansyori et al., 2018; Nikpay et al., 2013).
- As **EA model and artefact** become valuable in assisting with how we communicate and visualise architecture, effectively documenting and modelling the different architecture states and their management is vital for success (Lankhorst, 2013; Niemi & Pekkola, 2017).
- **Project and programme management** is essential to track the progress being made by the EA strategy. Defining milestones and having the required checkpoints at agreed intervals become necessary to ensure that there are lessons learnt and that continuous improvements are constantly made.

- **Assessment and evaluation** of EA becomes another challenge for organisations. Nevertheless, evaluations must be conducted to test the maturity of the practice while trying to determine if the value is being gained (Dani, 2015; Luftman, 2004).
- **IT investments and acquisition strategies** refer to the manner that EA influences IT to spend. Tight integration into the organisation procurement and corporate governance process is required. IT-spend as a result of IT-related strategies can often be very costly (Jung, 2019; Remenyi & Sherwood-Smith, 2012).
- **Skilled teams, training and education** refer to the building of capabilities required to deliver the intended outputs. Since every organisation is different, training is required to maintain a standard and similar experience by stakeholders. This relates very closely to the roles and responsibilities that are linked to individuals in an EA team (Tambouris et al., 2012).
- **Organisational culture** is one of the essential elements in succeeding with EA. This must be taken into consideration because cultural changes are unavoidable. Often organisations are not ready or have not adequately equipped themselves to handle the change that is required (Aier, 2013).

2.2.9 Enterprise Architecture Summary

Since the introduction of EA nearly five decades ago, there has been three evolutions. The last evolution addresses the need to use EA as a strategic business management tool which focuses on using EA for strategic management. Before reaping benefits that assist with strategic management, the foundation elements/framework of EA must be in place. This framework provides the building blocks required to maintain the 11 components of EA as described by Spewak & Tiemann (2006) in the EAP model. Within each of the components the management of IT and business maps/views that are governed by principles is created. The components are all linked to existing framework such as TOGAF and Gartner and while it may be named something different they share the same characteristics. Each framework also has an associated methodology which provides guidelines of using the frameworks. The framework and the methodologies on its own does not guarantee EA success. If any organisation wants to succeed the benefits or expectation from EA must be clearly understood and more importantly they should intentionally focus on the key challenges that impede success. Once these components are in place, the next important element is the execution and the implementation of EA. This addresses team requirements for the practice

and processes of how to engage with your relevant shareholders. It is only when you have successfully implemented EA in your organisation can you start addressing the needs of Enterprise Architecture Management (EAM). In the next section, EAM is explored further providing insights into key components.

2.3 ENTERPRISE ARCHITECTURE MANAGEMENT

The management of EA has seen an increase in focus over recent years for both business and IT yet a common understanding and consistency is far from reality (Simon et al., 2013). Even though EA has been around for the last few decades, there is no common understanding of EA (Höpfner & Roscher, 2021; Lapalme et al., 2016; White, 2018). At the very least, the understanding is that EA is a structured and aligned collection of plans that integrate business and IT (Ahlemann et al., 2020; Rouhani et al., 2015; Simon et al., 2013). “EAM seeks to maintain the flexibility, cost-efficiency and transparency in the EA.” (Ahlemann, 2012, p. 8). A few different approaches to enterprise architecture management (EAM) have risen from both practitioners and academics, ranging from frameworks to methodologies (Ahlemann et al., 2020; Proenca & Borbinha, 2017). EAM may not have a standard definition but there is some synergy in terms of what is expected based on empirical studies by different authors (Ahlemann et al., 2020; Aier et al., 2011; Simon et al., 2013; Weiss et al., 2013).

Since there is no standard definition of EAM, for this study, the definition by Ernst et al. (2006) is adopted: *“EA management is a continuous and iterative process controlling and improving the existing and planned IT support for an organization. The process considers the information technology (IT) of the enterprise and business processes, business goals, and strategies to build a holistic and integrated view of the enterprise. The goal is a common vision regarding the status quo of business and IT as well as of opportunities and problems arising from these fields, used as a basis for a continually aligned steering of IT and business”*.

The concept of EAM is far more than just modelling (Daoudi et al., 2020; Lange et al., 2016). A big part of it is the management of tasks relating to planning and executing business changes from an architectural point of view (Daoudi et al., 2020). There are many

dimensions to EAM, and not all may be relevant to all organisations. Understanding which dimension is pertinent to meeting the organisation's objectives is key to EAM success. Even though we see the adoption of EAM growing in several organisations, there is no transparency on the conditions that positively influence their EAM strategies (Seppänen et al., 2018). Even if there were transparency, EAM is not a one-size-fits-all and requires the organisation to search and define what works for them (R. Harrison & Josey, 2018). Although there are a few dimensions that complement EAM strategy such as architecture design, modelling and change management, this is not enough to ensure success (Kurnia et al., 2020).

2.3.1 EAM Mandate

Since the adoption of information technology (IT), the complexity of an organisation's IT environment has been increasing exponentially. In today's IT environment, it is not uncommon for organisations to have hundreds of applications, some even in the thousands (Schmidt & Buxmann, 2011). The complexity of the management of these applications gives rise to many problems such as IT management and increased maintenance and operational costs which could result in operational risks and the loss of flexibility when it comes to adapting to changes in business strategy (Jusuf & Kurnia, 2017; Reichstein et al., 2019). Although EA is meant to be the solution to these problems, it is still a developing discipline (Gellweiler, 2020). While the contributions received from both research and practitioners assist the maturity of EA, there is still a gap that exists between the varying terminologies in the field.

In the previous section of this literature review, the need for an EA strategy and its development and implementation was described. While EA strategy often looks at the planning and implementation aspects of EA, little attention is given to the management aspects after implementation. Thus, it seems relevant that a distinction between EA planning and implementation and EA management is required (R. Winter et al., 2014). Many researchers describe EA planning as the fundamental concept of the enterprise's environment and its elements and relationships (Buckl et al., 2010; R. Harrison, 2005; Ross et al., 2006; J. A. Zachman, 1999). EA Management can be described as the management discipline that is required to address all areas within EA and its indirect relation to the success of EA (Castro & Jung, 2021). Ahlemann (2012) describes EA Management as the

3rd evolution of EA, which is the alignment of EA Management as a strategy. As this is a new discipline within EA, there has been much interest from practitioners and researchers for guidance on how to successfully achieve EA Management (Buckl et al., 2010). While Seppänen (2014) and Ahlemann (2012) both describe the building blocks needed for EAM, the latter is more comprehensive in terms of catering for the sociotechnology elements and integration elements to other areas of the organisation as depicted in Figure 13: EAM Framework.

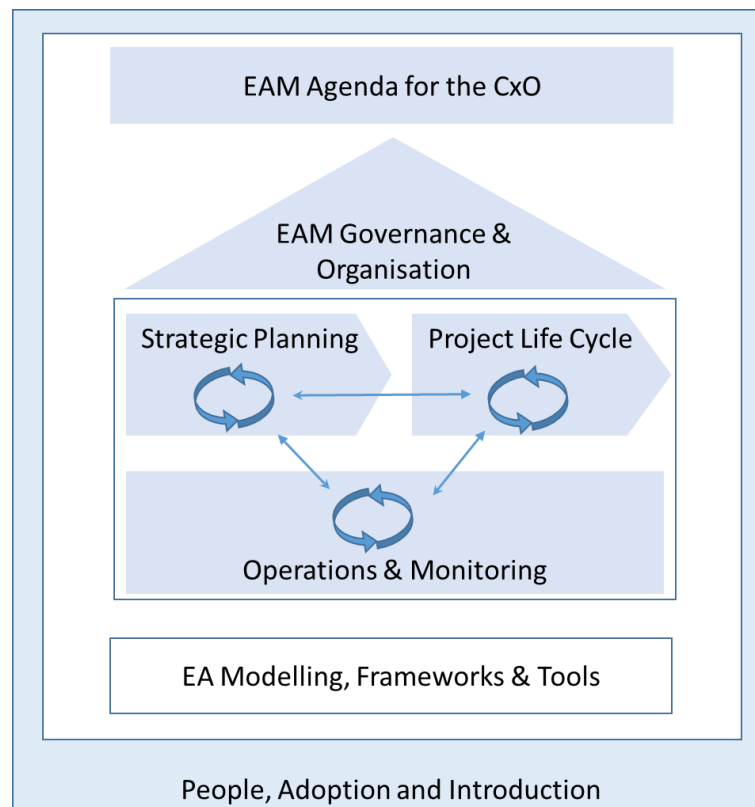


Figure 13: EAM Framework - reproduced from (Ahlemann, 2012, p. 42)

2.3.2 Components of Enterprise Architecture Management

Top executives and enterprise architects have repeatedly raised certain risks/concerns regarding the success of EAM (Hope et al., 2017; Samoilenko, 2008; Sternad & Bobek, 2006). These risks/concerns decrease the success rate for EAM if they are left unaddressed. They become the building blocks required for a successful EAM reference model or the "navigator", a term coined by Ahlemann (2012). The navigator consists of seven components that have a powerful influence on the success of EAM. As depicted in Figure

13: EAM Framework - reproduced from (Ahlemann, 2012, p. 42) each of these components is further described to understand their implications for EAM.

EAM Alignment

This component makes up the top level of the navigator since it is seen as the most critical component of the reference model. It refers to the buy-in or the belief that EAM can provide the expected benefits because if this is not the case, no investment in time and money will be made. Through the identification of a project sponsor, more importantly, someone on an executive level, a business case with clearly defined objectives can be executed (Ahlemann et al., 2020; Ansyori et al., 2018). These objectives become the agenda for which EAM is driven and measured. This is often a substantial financial investment and is normally managed by a Chief Operations Officer (COO) or Chief Information Officer (CIO). Clear objectives assist in tracking progress as a result of EAM being so broad and generally reap arbitrary progress or results depending on the areas of focus (Szabo & Ori, 2017). Ahlemann (2012) and Hope, Chew & Sharma (2017) argue that another reason for needing executive-level support is to overcome obstacles by making strategic decisions.

EAM Governance

EAM governance refers to the way EAM is established and speaks to the terms of reference that are implacable to the EAM practice and the roles and responsibilities as set out in their mandate (Niemi & Pekkola, 2020). This must be per the organisation's operating model since establishing a centralised EAM practice in a federated operating model (and vice versa) will lead to failure as a result of blurred roles and responsibilities (Ross et al., 2006). EAM governance is about having the proper processes and people at the right levels to make decisions in the organisation's interest (Ansyori et al., 2018; Hacks et al., 2017; Hope et al., 2017). A clear, well-documented process with transparent escalation procedures is vital to the EAM's effectiveness (Khateeb, 2016).

Strategic Planning

The management of EA is a long-term journey and it is essential that strategic planning becomes embedded into EAM (Ahlemann, 2012; Assar & Hafsi, 2019; Riku & Setyohadi, 2017). Most of the time, IT projects require investments that change the technical landscape

of the organisation through the life cycle depicted in Figure 14: Strategic Planning Activities (Ahlemann, 2012).

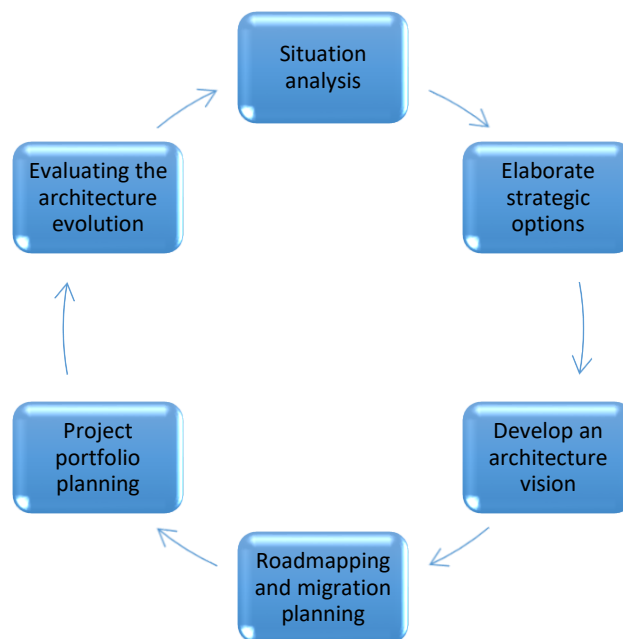


Figure 14: Strategic Planning Activities reproduced from (Ahlemann, 2012, p. 119)

Strategic planning has multiple benefits by being linked to EAM. The first is that the implementation of one project could be to the benefit of another project (Brosius et al., 2017; D. H. Olsen & Trelsgard, 2016). Secondly, it may also give rise to opportunities where multiple current projects could be strategically combined to provide a fuller, more robust solution (Ahlemann et al., 2020; Szabo & Ori, 2017). It also creates opportunities for communication and collaboration across different departments within the organisation, yielding benefits through informed and managed decision-making (Hacks et al., 2017; Proenca & Borbinha, 2017). Consequently, if strategic planning is not linked to EAM, the two areas of the organisation work towards two different visions that put the longterm objectives at risk.

Project Life Cycle

Strategic objectives are usually implemented through projects or programmes. These are done within the short to medium term and are recognised as tactical projects (Khateeb, 2016; Proenca & Borbinha, 2017). They are temporary with predefined targets and objectives and are delivered through architectural components such as infrastructure,

application and business processes. Usually, the project life cycle is made up of subcycles, as depicted in Figure 15: Project Life Cycle (Ahlemann, 2012).

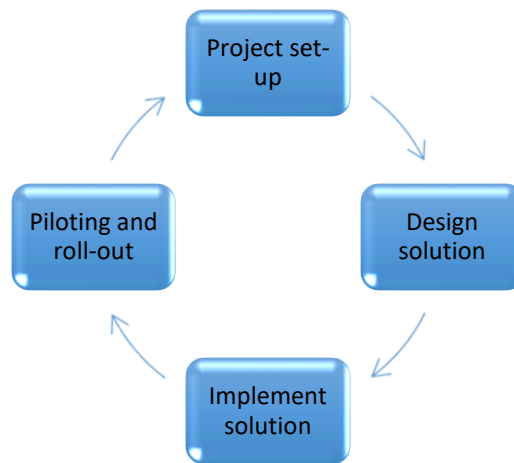


Figure 15: Project Life Cycle - reproduced from (Ahlemann, 2012, p. 119)

Projects often do not go as planned and as such, EAM initiatives change accordingly. EAM needs to be aware of these changes or the respective remediation.

Operation and Monitoring

It is not always possible or feasible to manage every change as a large project. There are times that requirements are too small due to the impact these changes may have on the large IT landscape (Aier et al., 2011). These changes occur more frequently and are often grouped as a bunch of small changes that satisfy an immediate need based on an incident or problem. These changes are implemented without any challenges but over time can build up to make significant changes to the documented systems running in the IT landscape, which EAM uses when making strategic decisions (Ahlemann, 2012). If the information is not updated accordingly, there is a potential risk with making these strategic decisions (Buckl et al., 2011a; Kotusev et al., 2015; Lim et al., 2009). The operation and motoring team needs a way to manage these changes and the documentation of such effects. The way to address the life cycle for operations and monitoring is depicted in Figure 16: Operations and Monitoring Life Cycle (Ahlemann, 2012).

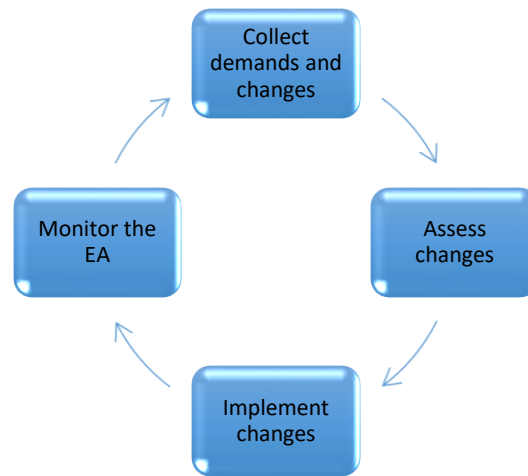


Figure 16: Operations and Monitoring Life Cycle reproduced from (Ahlemann, 2012, p. 119)

Without the link between EAM and operations, the organisation will lose control over its required information and EAM practice. Hence, the requirement for up-to-date information is imperative for EAM.

EA Modelling, Frameworks and tools

There are many different EA frameworks, methodologies and modelling tools that are available for organisations (de Vries, 2010; Rouhani et al., 2013; Urbaczewski & Mrdalj, 2006). The framework and methodologies become the required foundation upon which EAM is built (Brosius et al., 2017; Niemi & Pekkola, 2013; D. H. Olsen & Trelsgard, 2016). Selecting the right one to satisfy EAM objectives and reduce risk is key (Khateeb, 2016). These frameworks and methodologies have advantages and disadvantages; many offer guidelines and prescriptions for how things should be done and what needs to be in place (Rouhani et al., 2013). The same applies to the modelling tools and techniques (Lange et al., 2016) and it is important to identify one that meets the needs of the EAM practice.

People and Adoption

While EA frameworks and methodologies form the foundation which is considered one of the essential elements, some studies argue that the sociotechnological elements are equally important (Hacks et al., 2017; Seppänen, 2014). Subscribing to the proper framework, methodologies and modelling techniques may set the organisation up for success but if there is insufficient buy-in from the organisation or poor adoption of the service, the EAM practice

is destined for failure (Hacks et al., 2017). It becomes vital to take all the stakeholders on the journey so that they can experience some of the benefits or be aware of its potential. To successfully influence adoption in EAM requires changes to operating models, project management policies and IT management practices (Seppänen et al., 2018).

2.3.3 EAM Method/Approach

Enterprise architecture management (EAM) defined by Buckl et al. (2009) is “a *continuous, iterative (and self-maintaining) process seeking to improve the alignment of business and IT in an (virtual) enterprise.*” Organisations make a significant investment in the development and implementation of EA strategy in the hope of seeing immediate benefits (Szabo & Ori, 2017). The reality is that reaping the benefits of EAM can only be seen after long-term adoption (Kreuter et al., 2021). As a result, organisations tend to lose focus and drive to continue with the investment after implementation (Ojo, 2019). This leads to the overall demise of the EA strategy. One of the reasons is due to organisations not knowing where or what to focus on once implemented. Although the frameworks and methodologies assist when developing and implementing EA, the same is required when the organisation needs to manage EA (Ehrensperger et al., 2020). Similar to EA frameworks and methodologies, many EA management frameworks and methodologies exist. Some are extensions of the EA frameworks and methodologies with slightly different characteristics as identified by academia and practitioners (Rouhani et al., 2015; K. Winter et al., 2010).

Following an EAM methodology provides a structured approach for planning projects, managing artefacts, supporting governance and managing the EA implementation (Ehrensperger et al., 2020; Rouhani et al., 2015). While many different methodologies exist and share the common goal of managing EAM activities, they also share the same challenges in governance, evaluations and continuous improvements (Höpfner & Roscher, 2021; Rouhani et al., 2015). These methodologies also do not define or consider the lifecycle building blocks (Cuenca et al., 2010). This was corroborated by Leist and Zellner (2006) and extended by arguing that the lack of structure results in complexities and difficulties in adoption. Rouhani et al. (2015) explain that there are three main types of practices, (1) modelling, which refers to the visualisation of the architectural artefacts, (2) management which refers to the management and (3) deployment of EA and maintenance, which refers to the operations and continuous improvement.

While it makes sense to manage the implementation of EA as a project, you cannot manage EAM in the same manner (Seppänen, 2014). A project by definition, is temporary in nature, which means it comes to an end when the objectives are met (Seppänen, 2014). With EAM, there is no end and requires continuous improvement to reap the desired benefit. Managing EA while following a methodology often results in one of two things (1) the methodologies are simple and easy to adopt but this often means that there are gaps that can lead to uncertainty and (2) the methodologies provide great guidance detail but this can make the methodology complex, resulting in poor adoption (Kreuter et al., 2021; Seppänen, 2014). As a result, this leads to a few problems associated with methodology adoption:

- EA develops an image problem based on gaps in the process.
- EA develops an image problem based on a highly complex process that no one understands or adopts.
- EA methodology used is inflexible and isn't suitable for the organisation's needs.
- No way of evaluating value through the use of the methodology as a result of poor measuring criteria.

Adopting an EAM methodology requires the consideration of four key factors (Lam, 2005; Lam & Shankararaman, 2004; Rouhani et al., 2015). The first factor is *adaptability*, which refers to the effective management of the EA delivery cycle. The second factor is *innovation*, which refers to the continuous innovation in the manner in which business processes and activities are enhanced. The third factor, *uniformity*, refers to standardisation and rationalisation of EAM technology adoption and lastly, *alignment*, which refers to the processes that need to be implemented to enable alignment between business and IT processes.

2.3.4 EAM Process Integration

One of the most common reasons for the failure of EAM is a poor or no integration with the organisation's existing processes (Hacks et al., 2017; Kaidalova et al., 2018). Ahlemann (2012) describes a framework that could be used to manage the integration of processes between three areas of the organisation, depicted in Figure 17: Process Integration. These are strategic planning, project delivery and operations management. The reason for their importance is covered in the Components of Enterprise Architecture Management section.

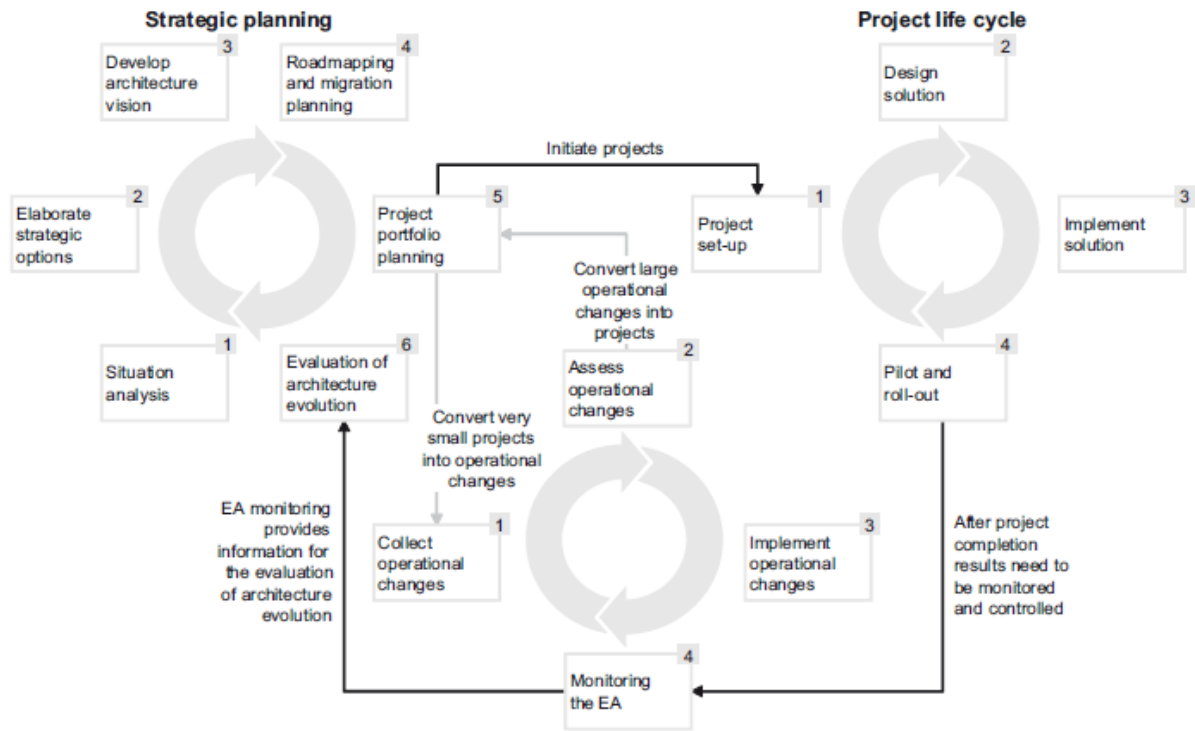


Figure 17: Process Integration – reproduced from (Ahlemann, 2012, p. 119)

Buckl et al. (2009) and Thönssen and von Dewitz (2018) argue that the absence of a step-by-step guideline required for EAM is because there is no EA management process model. The EAM management process is not a one-size-fits-all but should instead be specific to the organisation and aligned with existing processes (Höpfner & Roscher, 2021). EAM must be designed to integrate with existing processes and act as the "glue" that binds them (Buckl, Matthes, & Schweda, 2009). Figure 18: EAM Process Integration illustrates the principle behind this concept as it also guides the lower level management practices (Buckl, Matthes, & Schweda, 2009). Demand management addresses the need to manage the pipeline of new requests. The demand could be part of the organisation's strategic goals or a result of a problem that has occurred and needs to be rectified. Once the problem has been confirmed, the solution is implemented through the project or portfolio management life cycle described in Figure 17: Process Integration – reproduced from (Ahlemann, 2012, p. 119).

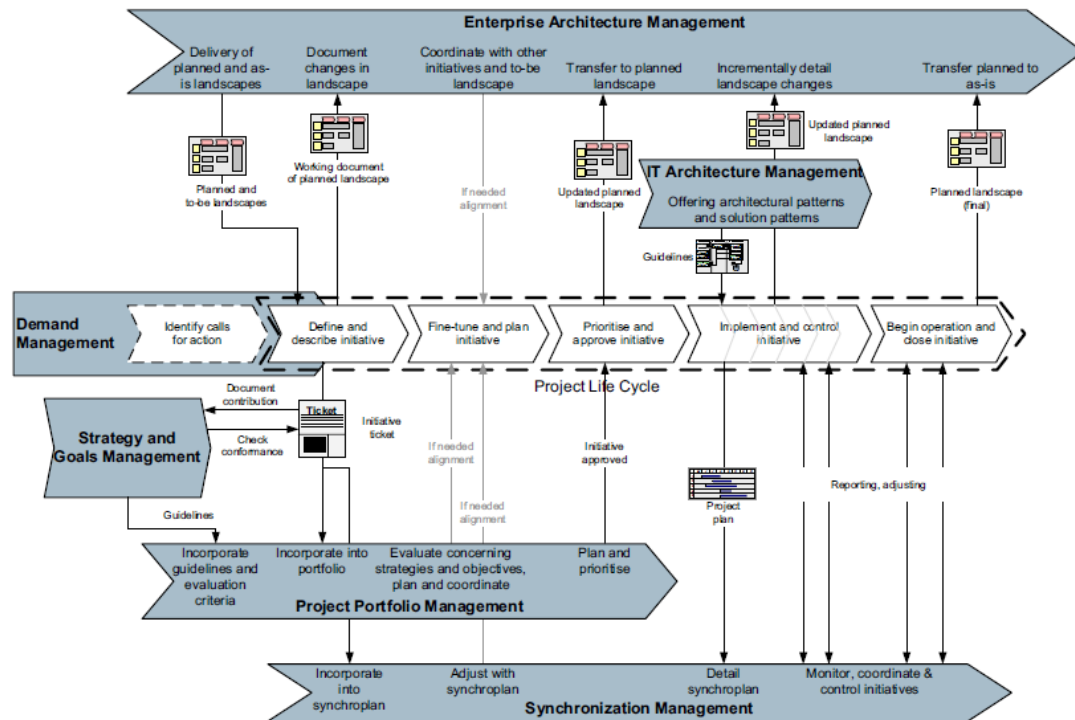


Figure 18: EAM Process Integration (Buckl, Matthes, & Schweda, 2009)

As described in the Components of Enterprise Architecture Management section, there are many areas that EAM needs to integrate with either to keep the information up to date or to use the information to make informed decisions (Kurnia et al., 2020). These areas can be extended to include existing processes such as demand management, portfolio management, project delivery and strategic management (Hacks et al., 2017).

2.3.5 EAM Alignment with Corporate Governance

To ensure that an organisation gets the best value out of the EAM practice, it is essential that it has the proper governance in place to assist with the management of EA (Ahlemann et al., 2020; Jung, 2019; Kaidalova et al., 2018). It is easy to have too little or too much governance in place, which will affect EAM negatively (Ahlemann, 2012). Ahlemann (2012) argues that if you have too little, you run the risk of establishing governance without any real commitment and at best, you will receive disparate and inconsistent results. On the other hand, if the organisation focuses too much on governance, they risk creating a highly complex process that will become self-serving and unused due to this and ultimately become

ivory towers that do not add any value (D. H. Olsen & Trelsgard, 2016; Szabo & Ori, 2017). The right level of governance will ensure that good decisions are being made timeously and are sustained over a long period. This is also very closely linked to having the right skills and correct roles and responsibilities definition.

When addressing the needs of EAM governance, it is not from a clean slate. It often requires that the organisation understands what is in place currently and adapt what they have to satisfy in their EAM objectives (Seppänen, 2014). Some of the activities required for this as described in Ahlemann (2012) and Hacks, Brosius, and Aier (2017) can be summarised thus:

- Identify existing stakeholders.
- Identify current architecture activities.
- Assess the EAM maturity.
- Identify current structures.
- Understand existing corporate governance models.

EAM governance provides tactical and strategic projects with a framework for decision-making on technologies and investment opportunities. By effectively managing the EAM governance, an organisation ensures involvement across the organisation, which strengthen the opportunity to use the technology investment in other areas of the organisation (D. H. Olsen & Trelsgard, 2016; Weiss et al., 2013). At the same time, it fosters collaboration and business and IT alignment while maintaining a set of standards. An example of governance used for EAM is depicted in Figure 19: EAM Governance Model (Ahlemann, 2012).

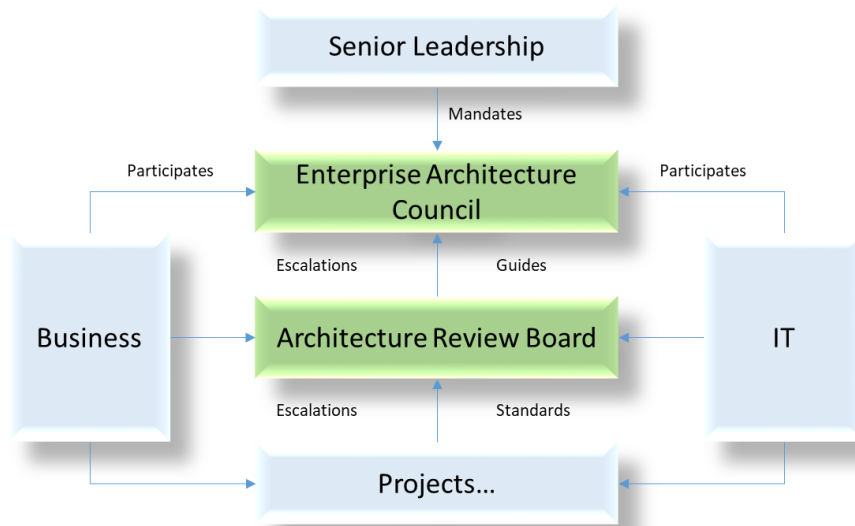


Figure 19: EAM Governance Model reproduced from (Ahlemann, 2012, p. 92)

Enterprise Architecture Council (EAC) or Enterprise Architecture Steering Committee (EASC) is responsible for the principal oversight of EA and represents the highest committee (Proenca & Borbinha, 2017). Usually, the EAC sets and manages expectations regarding business and IT value for the organisation. They are also responsible for the alignment between business and IT with regard to future planning and technology investments and report back to the senior executive management of the organisation or the board members. They are also responsible for guiding the design which is developed through the architecture review board and as well as manages any escalation from them (Panetto et al., 2016). The Architecture Review Board (ARB) ensures that information technology's value to the business complies with EAC's standards, principles and policies (Niemi & Pekkola, 2013). The ARB's responsibilities include the enforcement of standards and principles as well as providing guidance to the project teams in delivering solutions within the technical boundaries set out (Desfray & Raymond, 2014; Wettinger et al., 2017).

2.3.6 EAM Challenges

Even though EAM is seen as a discipline that drives organisational change and improves IT and business efficiency (Löhe & Legner, 2014; Orlovskiy & Kopp, 2020), many EAM initiatives and organisations still face many challenges that lead to the demise of EA (Höpfner & Roscher, 2021). While EA initially started with the “what” of EA in terms of frameworks, methodologies and Artefacts (Kotusev, 2020), with EAM, the emphasis is more on “how” these concepts should be implemented and managed (Ahlemann et al., 2020).

Most authors agree that EAM is a strategic management and design function that looks at the entire organisation but none of them have a common understanding of what EAM is and how it is implemented (Aier et al., 2011; Buckl, 2011; K. Winter et al., 2010). Not being able to agree on a common understanding can be highlighted as the first challenge of EAM (van Bommel, 2019). This challenge can be further extended to represent three more as identified by Lohe and Legner (2014). The first relates to the effort in documenting the “as-is” state of the enterprise, including creating the standards and principles. The second, which is closely linked to the first, is the lack of reuse of these artefacts after completion. Finally, the third was the lack of acceptance within the IT organisation. These challenges were also corroborated by Hacks, Brosius, and Aier (2017) and Szabo and Ori (2017).

Together with the abovementioned challenges, Buckl et al. (2008) further argue other challenges as being:

- Implementing EA management from scratch without taking into consideration what is already in place;
- Implementing a framework too rigidly becoming inflexible to deviation;
- No/little documentation for the reason that specific discussions or policies were made or adopted and
- The implementation of EA Management in a once-off big bang approach instead of an incremental implementation approach.

2.3.7 EAM as a Strategy

The benefits of adopting EA to reduce costs, improve execution and drive alignment between business and IT are only a few (Ansyori et al., 2018; Kurnia et al., 2020). EA is seen as a structured approach to enterprise information and its relationships (Ahlemann et al., 2020; Jung, 2019; Simon et al., 2014). There are many architectural layers to EA such as business architecture, application architecture and technology architecture. At its highest level, EA can be separated into two main areas, namely business architecture and IT architecture (Ahlemann et al., 2020; Spewak & Tiemann, 2006). While EA is most often linked with IT and business alignment (K. Winter et al., 2010), EA is also used for IT consolidation, and IT cost reduction, portfolio management and IT infrastructure management (Ansyori et al., 2018; Jusuf & Kurnia, 2017). Unfortunately, using EA for

strategic management is not given enough consideration even though much literature indicates otherwise (Ahlemann et al., 2020; Buckl, Ernst, Matthes, Ramacher, et al., 2009; Höpfner & Roscher, 2021; Schekkerman, 2004).

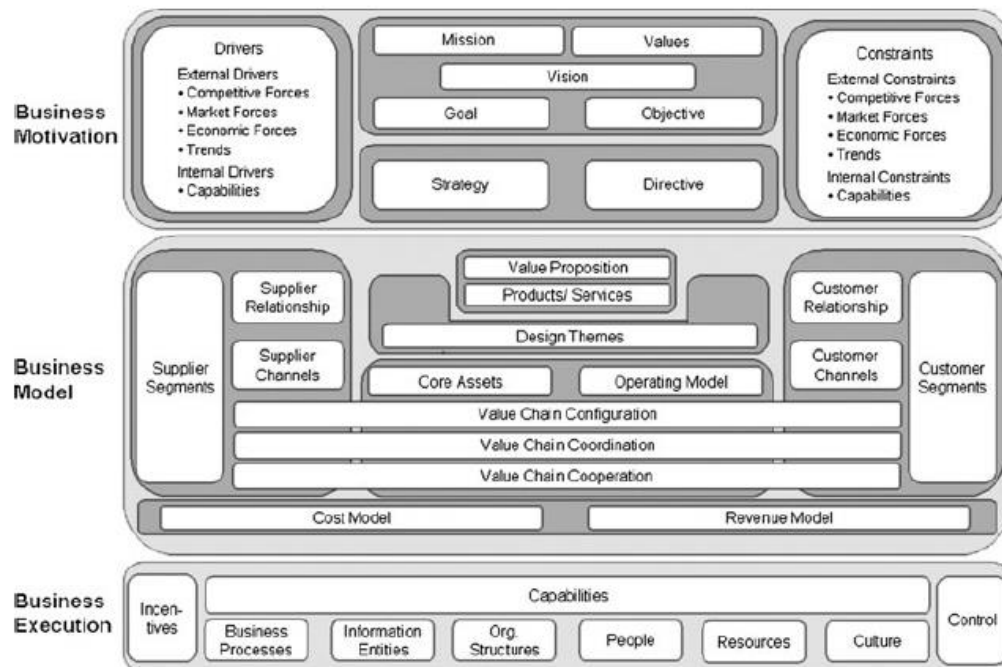


Figure 20: Business Architecture Framework

To better understand how EAM can be utilised for strategic management, we need to go a level deeper into the understanding of one of the EA layers known as the business architecture layer. To do this, Simon et al. (2014) suggest that you examine the business architecture using a three-layered framework approach with a comprehensive taxonomy depicted in Figure 20: Business Architecture Framework. The layers in this model are also evident in TOGAF and many of the other EAM frameworks (Rouhani et al., 2013). By not having these elements addressed, the organisation could experience these problems (D. H. Olsen & Treilsgard, 2016; Seppänen, 2014):

- A lack of adequate presentation of all areas of the organisation. Often EAM satisfies the IT needs but lack in addressing the business and strategy team needs;
- The rationales for goals are poorly defined.
- The EAM goals do not satisfy real problems and therefore does not acquire any real value.
- The defined EAM goals are not practical to achieve.

2.3.8 Sociotechnological Implication of EA

The sociotechnological approach provides a multi-level perspective using the view from the sociological and technological worlds (Liu et al., 2020). These two worlds can be described as the theory of social construction of technology and the theory of technological paradigms (Buckl et al., 2011b). Often these two worlds can be seen as incompatible with each other but can be used to complement one another (O. E. Olsen & Engen, 2007). Focusing on just the technological aspects of adoption is insufficient (Van Mele, 2008). The term “technology” is similar to EA and can be ambiguous, with the common perception of being a machine, device or a tool that serves a purpose. However, it can be extended to include the process or the system's elements that form part of the knowledge of the technology (D. H. Olsen & Trelsgard, 2016). Bijker et al. (2012) describe technology using three layers: 1.) The physical object or artefact, 2.) The activities and processes and 3.) People and their knowledge.

Social relations and networks are instrumental in determining the nature of the resulting technology through prioritised processes that are tightly coupled in sociotechnological systems (O. E. Olsen & Engen, 2007; Van Mele, 2008). The adoption or rejection of technology over the past 30 years has been increasingly seen as an evolutionary process that is influenced by the actors/systems that use them (Khosroshahi et al., 2016). Some of the sociotechnological challenges are capacity constraints, competency and complexity in the adoption of solutions. Seppänen (2014) describes four problems that impact sociotechnology elements.

- EAM resources cannot contribute to EAM improvements due to capacity constraints.
- EAM goals are too ambiguous, making them difficult to achieve or does not satisfy a specific outcome.
- As the organisation requires more time from the EAM team the cost justification for more resources become difficult to motivate.
- The separation of EAM resources to work on short-term and long-term projects instead of the same resources working on both and ends up spending more time on short-term projects due to prioritisation.

2.3.9 EAM Tools for enablement

As a result of adopting technologies over decades, even small organisations find themselves in a situation where their portfolio of applications and systems expands to hundreds, with medium-size organisations going into the thousands. These applications are linked directly or indirectly to business processes that enable the business to conduct its functions. At its core, EAM is about managing this information and producing insights that can be used to make strategic decisions. This means that managing the tremendous amount of information becomes very important and will be impossible to manage to get the desired insights without the use of a tool (Ernst et al., 2006; Lethbridge & Alghamdi, 2019).

Due to the complexity of managing the information, it is essential that when selecting a tool it satisfies the needs of the EAM objective but equally important, has some of the standard features and functions that are required (Ansyori et al., 2018). In a study that addressed the needs of EAM tool support, Ernst (2006) identified the common requirements of an EAM tool:

- *Met model adaptability* – the tool should be configurable to adapt and match the organisation's developed EAM meta-model;
- *Defined meta-models* – together with adaptability, the tool must support multiple meta-models and frameworks, which provide the organisation flexibility to change their use of any particular model if required;
- *Impact analysis and Calculation* – the tool must have many impact analysis and assessment techniques built into the solution to create customer calculation and analysis;
- *Visualisation techniques* – with a strong relation with analysis, the tool must have many visualisation techniques also built into the solution. Often data is too complex to view in its raw form and must be transformed into a visual representation;
- *Flexibility visualisation techniques* – refers to the flexibility of creating custom templates for the EAM requirement;
- *Reporting* – refers to capabilities required for reporting which may be linked to the analysis capability;
- *Collaboration support* – this capability refers to the solution being able to share and make reports and visualisation available to anyone who requires them;

- *Data import/export* – although this capability refers to exporting and importing data so that data can be used within different applications, equal to this capability could be the extension to integrate into other applications for increased support and value;
- *Usability* – refers to the ease of use in the tool because complex tools lead to poor adoption and ultimately lack of use.

The use of tools for the management of the EAM is critical and becomes almost impossible to manage. The selected tool must use modelling techniques and complement the EAM methodology used (Seppänen, 2014). Selecting tools for enablement can result in the following problems if they are not selected correctly or don't cover all elements identified in the previous section:

- Selecting a tool or technology that satisfies modelling techniques with a specific focus on information systems or technologies and does not cover other functional areas;
- Models created from the tool do not provide the organisation with real value;
- Poor evaluation criteria for measuring benefits and improvement areas.

2.3.10 EAM Continuous Improvement

While many different methodologies exist and share a common goal of managing the EAM activities, they also share the same challenges in governance, evaluations and continuous improvements (Ehrensperger et al., 2020; Jung, 2019; Rouhani et al., 2015). One of the types of practices within EAM is maintenance which refers to operations and continuous improvement. To assist with the management of EAM performance and to continuously improve it, a set of measurement criteria are required, known as a Balance Score Card (BSC) (Schelp & Stutz, 2007). The balanced score-card approach links EAM strategic goals to actions and provides a view that shows that resources are used efficiently. Schelp and Stutz (2007) developed a framework based on the existing BSC framework that exists for business. In the business framework for the BSC the following components are addressed: the customer perspective, the business perspective, the innovation and learning perspective, and the finance perspective. Adapted for EAM, the related components become services, processes, assets and finance and is depicted in Figure 21: EAM BSC framework.

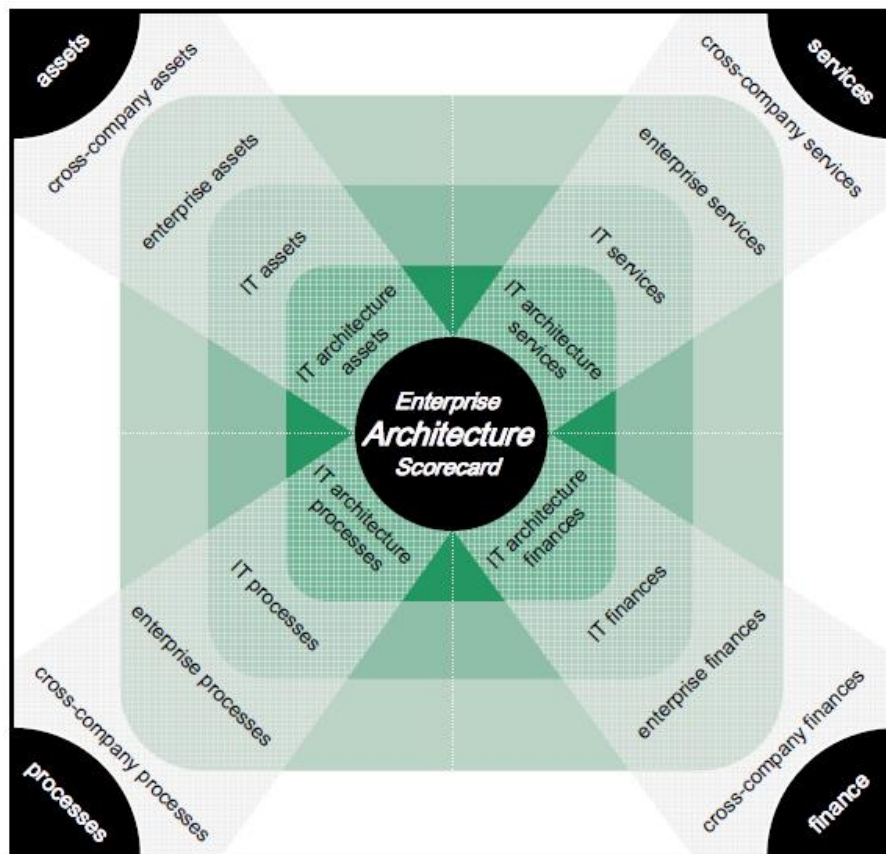


Figure 21: EAM BSC framework taken from (Schelp & Stutz, 2007, p. 9)

2.3.11 Enterprise Architecture Management Summary

While EAM has seen increased interest over past decades which has led to its 3rd evolution of EA. There is an expectation that it will address the needs of strategic management but there is still no common understanding of what dimensions require focus once an organisation has implemented EA. The concept of EAM is far more than just modelling (Daoudi et al., 2020; Lange et al., 2016). A big part of it is the management of tasks relating to planning and executing business changes from an architectural point of view (Daoudi et al., 2020). The mandate of EAM is different from EAP in that the focus is on what we do with the information of the business and IT environment once we have it. The complexity of the management of these applications gives rise to many problems such as IT management and increased maintenance and operational costs which could result in operational risks and the loss of flexibility when it comes to adapting to changes in business strategy (Jusuf & Kurnia, 2017; Reichstein et al., 2019). This introduces new components that need to be added to the current building blocks to ensure that the insights that are required for strategic

decisions can be obtained. Some of the most important new components that is required is process integration, enterprise level governance committees implications, tools/technology adoption and sociotechnological elements. Most of the challenges related to EAM can be associated with these areas as described in this section. While it is critical that the concerns around these elements are addressed or managed, it is still seen has not enough. It becomes extremely important that there is continuous improvement and the ability to assess the level of maturity at which each element is operating. This allows the organisation to identify low performing areas so that remediation plans can be put in place. In the subsequent section maturity models and their associated qualities are explored to provide further insights of maturity models frameworks and the relationships that exist with EAM.

2.4 MATURITY MODEL FRAMEWORKS

Over the past years, many maturity models have been developed both by active practitioners and academics (Aguiar et al., 2019; Becker et al., 2010; Pöppelbuß & Röglinger, 2011). Both business and IT are in a constant state of change (Santana et al., 2016); this is due to technological advances and disruptive innovation (Panetto et al., 2016). EA has been recognised as the solution to assist with transitioning into the relevant changes. To gain the value of EA requires the practice to run effectively and efficiently (Bachoo, 2018a). The world of maturity models has seen the development of models that assist in improving business process management (Becker et al., 2010), knowledge management (de Bruin & Rosemann, 2005), software development and integration (Becker et al., 2010). Ramos et al. (2020) suggest that organisations will continue to adopt maturity models in the hope of improving their capabilities through assessment.

There are many definitions for the meaning of a maturity model (Aguiar et al., 2019; Dani, 2015; Proença & Borbinha, 2017; Proença & Borbinha, 2016). For this study, the definition of maturity as defined by de Bruin and Rosemann (2005) is adopted, namely that maturity is “a measure to evaluate the capabilities of an organisation with regard to a certain discipline”. Additionally, that these are the conceptual entities that outline the logical and desired path towards maturity (Becker et al., 2009) and are used to assess the as-is situation of an organisation (Becker et al., 2010; Pierin Ramos et al., 2020). Maturity models have proved to be instrumental in information systems to better position organisations and many

maturity models have been developed over the years (Becker et al., 2010; Proença & Borbinha, 2016). The procedures and methods that led to models have not been documented adequately (Becker et al., 2009).

2.4.1 History of Maturity Models

Maturity models can be described as assumptions of predictable patterns that represent theories of how an organisation's capabilities evolve (Pöppelbuß & Röglinger, 2011). Maturity models are also known as stage models or stage theories (Bachoo, 2018a) and go back many decades with examples of the hierarchy of human needs known as the Maslow model (Maslow & Frager, 1987) and the progressions of IT in the organisation (Nolan, 1973). Maturity models refer to the classes of entities that exist independently from the application area. These classes can represent people, processes or capabilities (Mettler & Rohner, 2009). Although maturity models have been heavily criticised as oversimplifying reality (De Bruin et al., 2005), many still see the value of the maturity model and continue to adopt them (Khoshgoftar & Osman, 2009; Proença & Borbinha, 2016).

During the 1990s, few maturity models were proposed (Proença & Borbinha, 2016). Most of them were based on PMI's guide to the Project Management Body of Knowledge (PMBok) and SEI CMM's maturity model (Khoshgoftar & Osman, 2009). Still, there has been a growing interest in project management and process management capabilities and maturity improvements. We see equal interest in other areas or applications of process and capability improvements like the Control Objectives for Information Technologies (COBIT) model and Six Sigma (Mettler, 2011). Many new maturity models were developed from adaptations of existing maturity models (Bititci et al., 2015). No real rigour was used in developing those maturity models and there is a general absence of global standards (Khoshgoftar & Osman, 2009; Mettler, 2011).

2.4.2 Maturity Models in Information Systems

There is a significant dependency on IT support from businesses; many of these IT innovations provide opportunities that lead organisations toward the required competitive edge (Aguiar et al., 2019; Becker et al., 2009). There is more pressure on IT than ever to provide more value with less expenditure and as a result, there is more responsibility for IT

regarding effective and efficient designs (Proença & Borbinha, 2016). This can be achieved through continuous improvement of managing and maintaining the organisation's current processes and capabilities. To be able to improve the organisation continuously, one must have a good understanding of its current IT capabilities and services. From this understanding, the organisation can define the level of maturity required, identify areas of weakness and take corrective measures to reach those objectives but this is often a difficult task (Becker et al., 2009). To assist in identifying and assessing these objectives, the use of a maturity model is required (de Bruin & Rosemann, 2005).

Maturity models generally consist of a sequence of levels that lead to the desired path (Abu Bakar et al., 2015). As the organisation progresses up these levels, the maturity of the practice in that area increases. An increase to a higher level across all areas of the maturity model will, in turn, increase the overall maturity of the organisation. The maturity model becomes the assessment scale for the appraisal of the evolution to the desired end state (Becker et al., 2009). Research on maturity has seen an increase in interest as determined by Becker et al.(2010), with the start of around 20 articles published in 2004 by senior scholars increasing substantially to around 120 in 2008. In the same journal, Becker, Knackstedt and Pöppelbuß (2010) suggest that most maturity models were developed and applied mainly for organisational improvement requirements with regard to software engineering, project management and IT–business alignment. The development of these models all provided distinct types of contributions to IS research (Becker et al., 2010).

These contribution types were categorised using a framework that had been developed by Hansen, Rose and Tjørnehøj (2004) and distinguished between prescriptive, descriptive and reflective research, which could be applied to software process improvement and any other academic field. This framework was extended to include "descriptive/prescriptive" and "descriptive/reflective" since descriptive research could also include prescriptive and reflective theoretical frameworks. Hansen, Rose and Tjørnehøj (2004) define these five contribution types as:

- *Prescriptive contribution*: specifies how organisational improvements take place and is usually based on normative models, i.e., maturity models.

- *Descriptive contribution*: Reports on experiences of improvement programs and maturity model applications with a focus on success stories / case studies and statistical surveys.
- *Descriptive/prescriptive contribution*: primarily descriptive in nature but has prescriptive parts such as "lessons learnt".
- *Descriptive/reflective contribution*: also primarily descriptive in nature with reflective elements as such theoretical framework derived from case studies.
- *Reflective Contribution*: includes discussions and criticisms of core assumptions of maturity models or focus on building theoretical frameworks.

The research conducted by Becker et al. (2010) on the analysis of articles by senior scholars concludes that no purely descriptive articles were found while only four prescriptive articles were identified. Reflective contribution examined relationships with other maturity models and gap identification in models. Most of the articles were either descriptive/prescriptive or descriptive/reflective in nature.

2.4.3 Social Systems

While maturity can be described as the "state of being" before it is ready or perfect, it also implies an evolutionary state of progress in demonstrating an ability (Bachoo, 2018b; Mettler, 2011). Mettler (2011) explains that maturity assessment usually focuses on instances that reflect in a one-dimensional manner within these three areas:

1. **Process** maturity refers to the extent to which a process is defined and managed.
2. **Technology** maturity refers to the extent that technologies such as software products have predefined levels of capabilities.
3. **People** capability refers to the extent to which the knowledge of the workforce is proficient.

When assessing maturity in social systems, the three identified areas listed above are commonly used as maturity factors, as depicted in Figure 22: Ways of processing maturity (Mettler, 2011).

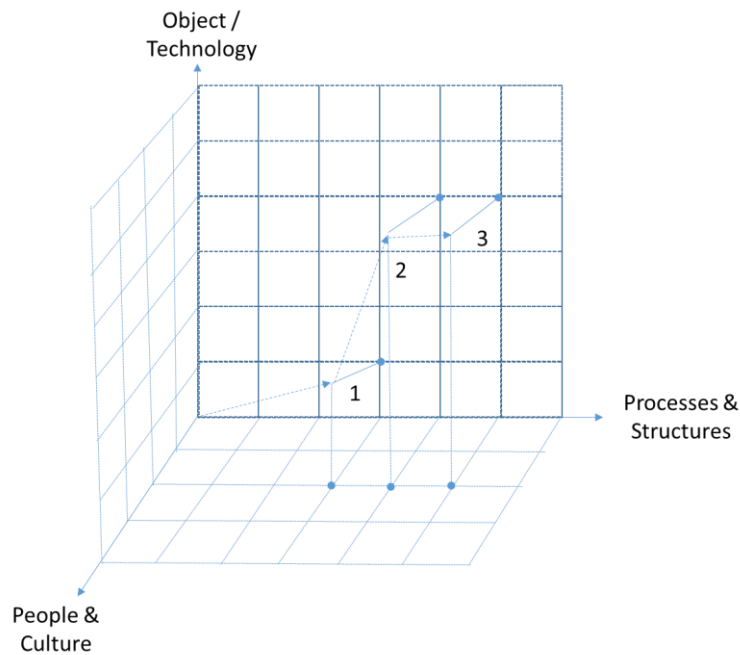


Figure 22: Ways of processing maturity – adapted from (Mettler, 2011)

While it is vital to measure and improve on the processes and technologies used to increase efficiency, the people element is equally important because if these processes and technologies are not adopted, the result will be a failure due to a lack of use (Aier, 2014).

2.4.4 Maturity Dimensions

Organisations everywhere face challenges due to environmental, societal and technological developments (Schumacher et al., 2016). To meet these challenges, organisations need to manage their entire value chain responsively. The management of an organisations EAM practice is no different. Maturing dimensions increase the efficiencies of their capabilities over time until they reach the desired state. To assess maturity through organisations' value-chain Schumacher et al. (2016) identified nine themed dimensions described in Table 3: Nine themed dimensions. Each of the nine themes is aligned to the EAM components described in the previous section.

Dimensions	Maturity Item	EAM Alignment
Strategy	Development and implementation of a strategy and the available resources for the realisation and adaption of business models.	Strategic Planning
Leadership	The willingness of leaders, management and methods.	EAM Alignment
Customers	Addressing customer data, needs and problems.	EAM Alignment
Products	Alignment of products and services to areas of the organisation.	Project Life Cycle management
Operations	Efficiencies in processes in the management of the organisation.	Operations management
Culture	Knowledge sharing and the willingness to adopt new ways of work.	People and Adoption
People	Having competent employees with the right skills and rights definition of roles and responsibilities.	People and Adoption
Governance	Being able to control and regulate the outputs to conform to standards and principles.	EAM Governance
Technology	Existence of tools that enable and simplify the management of all information collected and created.	EAM Modelling

Table 3: Nine themed dimensions (adapted from (Schumacher et al., 2016))

2.4.5 Maturity Model Design, Development and Application

Organisations are constantly trying to identify a way of reducing cost and improving quality as a result of the continuous pressure of gaining and retaining a competitive advantage; maturity models are one of many strategies that have been developed to assist with this endeavour (de Bruin & Rosemann, 2005; Proenca & Borbinha, 2017). Maturity models have been used as an evaluative and comparative basis for improvement across areas within a capability (Aguilar et al., 2019; Hansen et al., 2004; Proença & Borbinha, 2016). Introduced

with CMMI development, many maturity models adopt a five-point scale measurement system, with five being the highest and one being the entry-level.

It is imperative to address all phases of the standard development framework when considering the purpose for which the model was applied and the resulting type of contributions as described in the section above. While these contribution types can be seen as distinct models, de Bruin et al. (2005) and Vallerand et al. (2017) suggest that they represent an evolution throughout the maturity model life-cycle. The model first starts in a descriptive state providing a deeper understanding of the as-is situation within the domain. It then goes into a prescriptive state as it is only with a good understanding of the organisation's current state that repeatable improvements can be made. Lastly, it goes into a reflective state where it is tested or adopted in a wide range of organisations and critiqued. Therefore, the purpose of a development framework is to provide guidance that takes a maturity model from descriptive to prescriptive and then reflective through a natural evolution of the contribution states (de Bruin & Rosemann, 2005). A generic development framework is depicted in Figure 23:



Figure 23: Maturity Model Development Approach - adapted from (de Bruin & Rosemann, 2005)

2.4.6 Maturity Model Gaps

Maturity models are generally seen as normative in nature and as such, research in this field would be expected to be prescriptive (Becker et al., 2010). While there are prescriptive maturity models, many do not disclose details around the research method and the rigour that was used cannot be assessed (Becker et al., 2010). Information systems (IS) have not exploited the extent of maturity models; this can be seen by the tight coupling of CMM and CMMI blueprint inside many of these models, i.e., the levels of the maturity stages. It is believed by Becker et al. (2010) that IS can address the under-exploitation of maturity models through designing maturity models, validating maturity models and critical perspectives on maturation. These topics are discussed below:

- *Designing maturity models*: Adopting the DSR approach by Hevner et al. (2004) in designing artefacts like maturity models require scientific methods that are applied rigorously and imply that maturity models should be designed from both prior case studies and empirical evidence. Adopting the maturity level conceptualisation of CMMI could be the starting point. The levels should change to the relevance of the specific phenomena under investigation (Teo & William, 1997) or include multiple paths based on situational characteristics (Mettler & Rohner, 2009) as a result of organisation-specific circumstances (Iversen et al., 1999).
- *Validating maturity models*: Any maturity model should be considered complete and accurate concerning its scope (de Bruin & Rosemann, 2005). Newly developed maturity models analysed by Becker et al. (2010) led them to conclude that many had not been tested for their validity by not providing sufficient information around the process of validation. To justify the validation of a new maturity model, de Bruin et al. (2005) propose a combination of many methods like semistructured interviews, an application within a case study, pretesting survey instruments; to ensure the relevance of the maturity model, applicability tests must be conducted with practitioners (Rosemann & Vessey, 2008).
- *Critical perspectives on maturation*: While some information systems research has explored critical issues on existing maturity models, there can be a further benefit of exploring why certain failures occur and why organisations fail to reach maximum maturity in certain areas.
- *Theoretical approaches to maturation*: the process of becoming more mature can be understood as the development towards being better. A new fundamental approach could look at other approaches of maturity, such as the sociotechnical change (Lyytinen & Newman, 2008).

Some maturity models, such as the CMM model, have been criticised because of their strong focus on processes, disregarding for the human element (Bach, 1994) as well as focusing too much on formalising the strongly governed improvement activities, discouraging innovation (Herbsleb & Goldenson, 1996). One of the main reasons for ambiguous results identified by de Bruin and Rosemann (2005) was the insufficient testing of the model in terms of reliability and validity.

2.4.7 Existing Maturity Models

According to Becker et al. (2009), a new maturity model should only be developed if there is no existing model that can address the problem. While many maturity models exist in the literature, for the purpose of this study, the focus was on two maturity models, NASCIO and CMMI, as they relate mostly to the elements of people, process and technology described as vital maturity assessment dimensions in Section 2.4.4 above (Maturity Dimensions). These models are further discussed in the following subsections.

NASCIO Maturity Model

This maturity model was developed through the contributions from the National Association of State Chief Information Officers (NASCIO). The NASCIO EA maturity model provides the rules and definition necessary for the integration of information and services at a design level and combines the business and environment processes, as depicted in Figure 24: NASCIO Maturity Framework, to allow for the planning and development of EA blueprints (NASCIO, 2003).

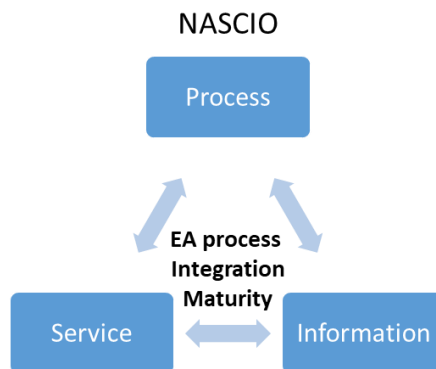


Figure 24: NASCIO Maturity Framework

The maturity model is aligned to an iterative process of continuous monitoring of both business and IT factors, to keep them relevant. These factors include documentation, review, compliance, communication and vitality, as illustrated in Figure 25: NASCIO EA maturity model. The model consists of three components related to architecture governance, business architecture and technology architecture. Within these three components are seven disciplines that are assessed individually and addressed on their merit, which could have different maturity levels.

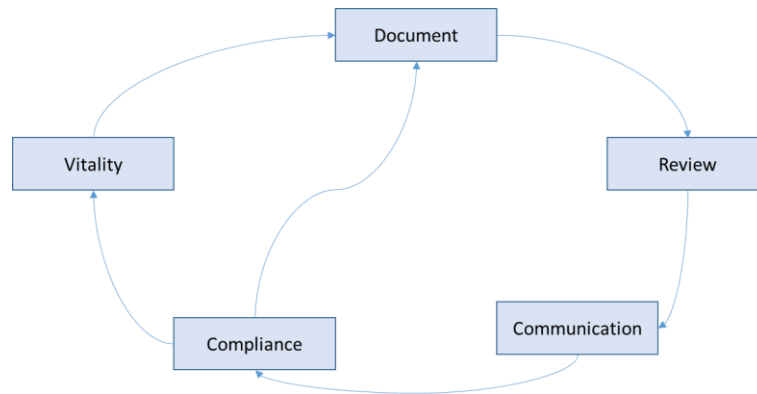


Figure 25: NASCIO EA maturity model - adapted from (NASCIO, 2003, p. 1)

The seven disciplines include:

- *Architecture planning* – ensures the management of goals that are realistic and achievable;
- *Architecture frameworks* – refers to the alignment of processes and templates used to document operations and standards;
- *Architecture blueprints* – refers to the documents created with their relevant details for the management of EA;
- *Communication* – relates to the standards and processes that are available to the team members for reference and is linked to change management evolution;
- *Compliance* – refers to the governance in operating effectively and efficiently;
- *Integration* – refers to how different areas of the organisation coordinate and collaborate to increase the efficiencies of the organisation and
- *Involvement* – refers to the involvement of employees and management in work towards the same goals and adoption of the programme.

The NASCIO EA development toolkit provides a detailed description of how to execute this maturity model (NASCIO, 2003). The maturity levels associated with this model is depicted in Figure 26: NASCIO Maturity Levels.

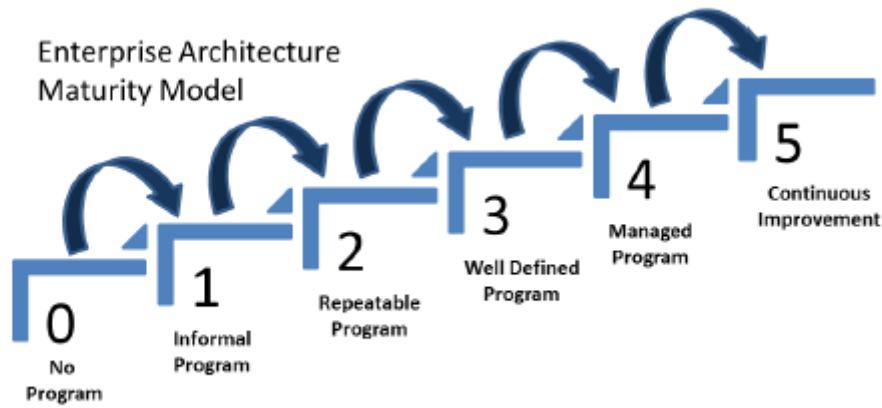


Figure 26: NASCIO Maturity Levels - adopted from (NASCIO, 2003, p. 5)

The NASCIO maturity model starts at level 0, which indicates that there is no architectural standard or best practice in place (NASCIO, 2003). In Level 1, standards or best practices have been defined but are performed informally. Level 2 describes the maturity as defined and repeatable and is measured through agreed metrics. In Level 3 all processes are defined and approved and used with customised versions of templates. Level 4 describes the maturity as managed and uses the measurement from the metric to predict performance and provide a better understanding of the capabilities. Level 5 maturity indicates that EA is in an iterative process refinement. These maturity levels used the seven disciplines described in the previous section as measurement criteria. While this satisfies the need for process, service and information it does not satisfy the need to measure the technology and people dimensions which are seen as a gap in measuring the maturity of an EAM practice.

Capability Maturity Model (CMM)

The Software Engineering Institute (SEI), through its research to assist organisations in developing quality products and services, identified three critical dimensions that can be used to improve the business (Software Engineering Institute, 2010). These dimensions include procedures, people and tools as depicted in Figure 27: CMMI Maturity Framework.

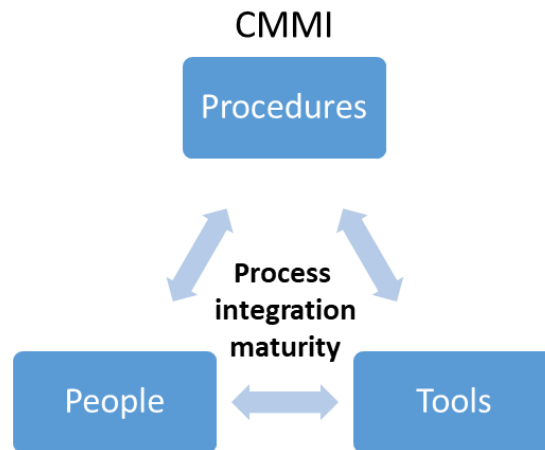


Figure 27: CMMI Maturity Framework

The Capability Maturity Model (CMM) contains the essential elements for effective processes (Paulk et al., 1993). It is not a prescription of how things must be done but rather a model that describes best practices for the management and measuring of processes. This model can be adopted by using one of two appraisal methods, either staged or continuous representation. While the two methods address the needs of 22 processes, they differ by the maturity levels that are associated with them. Using the staged method has five maturity levels: Level 1 – Initial, Level 2 – Managed, Level 3 – Defined, Level 4 – Quantitative Managed and Level 5 – Optimising. With the continuous representation method, the maturity measurement consists of only four levels: Level 0 – Incomplete, Level 1 – performed, Level 2 – Managed and Level 3 – Defined.

2.4.8 Maturity Model Summary

There has been increased interest in EA maturity models over the past decade (Abu Bakar et al., 2015; Aguiar et al., 2019). However, many of the maturity models have a specific focus on EA establishments, EA value and EA products (Becker et al., 2010; NASCIO, 2003; Proenca & Borbinha, 2017). We are seeing very little contribution of maturity models that address the needs of EA planning, management and evaluation mechanisms as determined in SLR conducted by Bakar et al. (2015). This can also be seen with the two maturity models described in the previous section. When examining the NASCIO maturity model, it is evident that deep consideration was given to process integration regarding process, service and information. The same is true for the CMMI where the objective of the maturity model is to

measure process integration between procedures, people and tools. There is currently no maturity model that measures the maturity of the EAM practice from a people, process and technology perspective—addressing the needs of the sociotechnological factors of EAM. Realising this gap can assist the EAM practice with success through the ability to continuously measure and improve its capabilities, and this is the purpose of this study. The next section will provide the context for the execution of this study, namely financial institutions in South Africa.

2.5 FINANCIAL INSTITUTIONS IN SOUTH AFRICA

Measuring the effectiveness and efficiencies of information system activities is a difficult task and is becoming more prevalent in the financial sector (Mocetti et al., 2016). IT's ability to maximise the benefits of the business has been well explored (Gupta & Yadav, 2017; Mocetti et al., 2016; Silva et al., 2017). It is becoming evident that IT on its own cannot provide business advantage and should rather focus on how information and technology are used. Implementing new technologies was not enough to get intended benefits; the organisation had to be proactive in reaping the full benefit (Fletcher & Wright, 1996). To do so, the organisation must not only understand the technology opportunities but the opportunities must also be identified through compatible strategies or requirements (Fletcher & Wright, 1996; Gupta & Yadav, 2017; Lagarde, 2018). Financial organisations that implement new solutions resulting from one success story or the hype of a new trend will result in having their expectations failing (Fletcher & Wright, 1996). On the other hand, a financial organisation that does not invest in technology finds itself at risk of not being relevant in the market or not keeping up with customer expectations (Bachoo, 2018a, 2018b). The industry of an organisation can be defined as a group of organisations providing a similar service to customers. The financial industry has many organisations competing for the same customer, as a result, this industry is being dominated by the customer and their needs (Bachoo, 2018a). Customer loyalty used to be relatively high in the past but now loyalty lies within the financial service organisations that provide the most value and benefit (Fletcher & Wright, 1996).

Over the past decades, the advances in ICT in the banking industry have transformed (Mocetti et al., 2016). Electronic banking fast became the norm over the last couple of

decades (Gupta & Yadav, 2017). More people are accustomed to completing banking transactions from the comfort of their homes and even while on the go (Schumacher et al., 2016). Electronic banking can be in the form of making use of services via an internet browser or through the use of the banking app that is now available from most banking institutions (Gupta & Yadav, 2017). Even the slightly new banking protocols such as debit and credit cards are slowly fading away with the use of an individual cellphone as a mechanism to transact. This was all in a bid to satisfy customers' needs through faster transactional clearing times and faster credit approvals (Gupta & Yadav, 2017). All of these value-adds to the customer come at a cost for the banks, while they all try to out-compete each other by looking for more innovative ways to bank and increase customer satisfaction.

The ecosystem of business and IT is constantly changing (Santana et al., 2016). Organisations need to survive in highly competitive and complex environments that are driven by technology trends and advances, regulatory and customer needs (Panetto et al., 2016). Research indicates that EA plays a valuable role in reducing system complexity, business–IT alignment, enhance strategic competitiveness and IT management (Bachoo, 2018a). To maximise the perceived value received from EA, the organisation's EA practise is required to be at a very high maturity level. Different levels of maturity will provide a different level of value concerning the maturity level (Bachoo, 2018a). While many maturity models measure the level of efficiency with regard to information, services, procedures and processes, there is a gap in current maturity models when it comes to measuring the maturity level of technology and people related dimensions which can be described as the sociotechnological factors in [Section 2.3.8](#).

2.6 CHAPTER SUMMARY

The literature review chapter started with an overview of EA which included the background and context of EA. The relevant sections provide an understanding of the mandate of EA and described some of the commonly adopted EA frameworks and methodologies. It also provided insights into the planning of EA, the benefits that can be realised, and the challenges of implementing EA were explored before ending the section with some of the key considerations when implementing EA. In the next section, EAM was introduced and provided details on the relations to EA and the main elements required for success. Section

4 introduced maturity models with the background, context and history of maturity models before describing the implication of maturity models in information systems. This section provided insights into maturity model dimensions, design and development considerations and potential gaps before concluding the context of two commonly used maturity models for EA. In the last section, the financial services industry within South Africa was introduced, as well as the implications and importance of ICT and its relation to EAM.

3 RESEARCH METHODOLOGY AND DESIGN

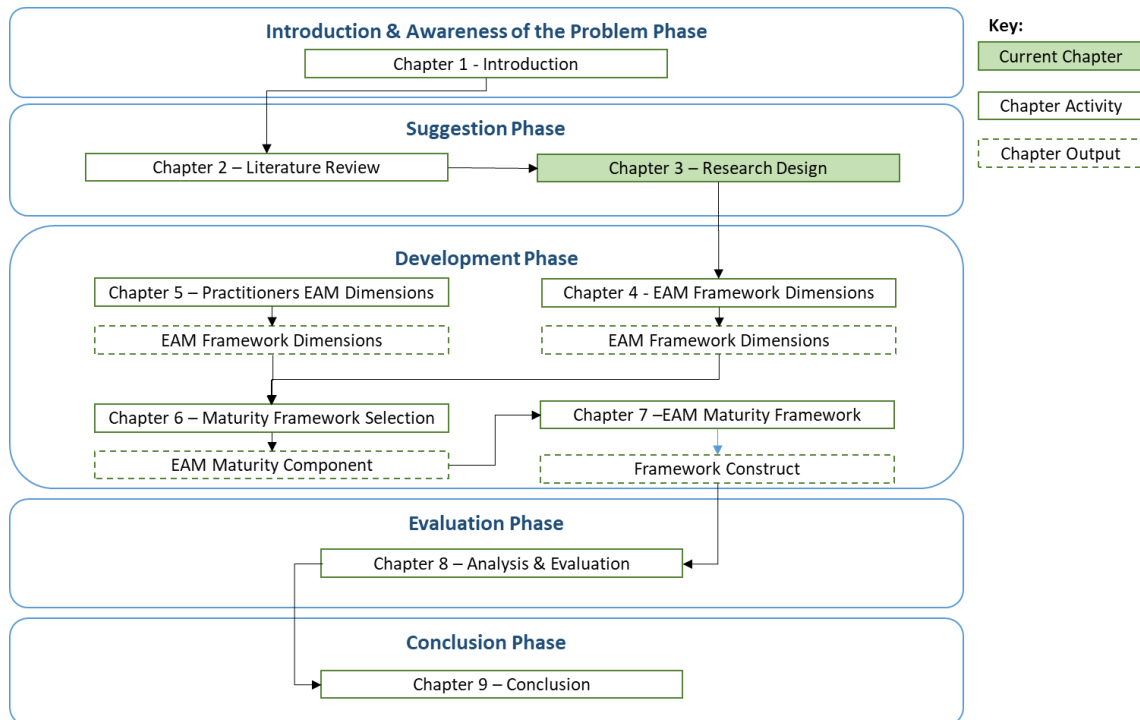


Figure 28: Chapter 3 Thesis Map

3.1 INTRODUCTION

In **Chapter 1**, insight into EA and EAM was provided, showing the relation between the implementation of an EA strategy and the post-implementation support required to see the benefit that EA could provide. **Chapter 2** elaborated on the research literature and examined some of the most commonly used EA methodologies and frameworks to identify relations to what is considered key for the maturity of EAM.

This chapter, **Chapter 3**, describes the research strategy and approach used to complete this study. To answer the research questions and satisfy the research objectives, many research paradigms were investigated. The chapter begins with a brief summary of the problem description. Section 3 describes some of the commonly used research philosophies and methodologies. Section 4 gives an overview of the research design used in this study focusing specifically on the philosophy and methodology followed by Section 5 that describes the sampling method and provides insights into the sample population used. Section 6 and 7 provide an overview of how data was collected and analysed and Section

8 described how ethics were followed during this study. This formed the basis for the research design, provided a fair representation of how the study was conducted and summarise the research design.

This research aimed to identify and validate a framework that can be used to measure the maturity of the EAM capability within an organisation. As a guiding theory, this research used the people, process and technology dimensions described in Section 2.4.3. The understanding of these dimensions in EAM was obtained through the experience of others within the organisation's operating unit as well as through the literature.

3.2 PROBLEM DESCRIPTION

EA publications often refer to John Zachman as the “father” of EA (Lapalme et al., 2016; J. Zachman, 1987). His paper “A framework for Information Systems Architecture” fundamentally shaped what EA is today (J. Zachman, 1987). Most EA frameworks that exist were inspired in some way by the understanding of Zachman's Framework. Like everything in the world, evolution is key to survival. When the Zachman framework was introduced in 1987, there was a fundamental shift in how we managed and structured our information systems and thus, the Zachman Framework became the standard for defining and controlling the integration of all components of the system (J. Zachman, 1987).

The use of technology to solve problems at either an enterprise-level or in isolation is fast becoming the norm (Andrade et al., 2020). Years of adopting new technologies and systems have led to large and complicated IT environments (Kotusev, 2016, 2019). It became evident that there would be chaos without some sort of structure and the need for information system architecture became more of a necessity. Even though there was no common understanding of what an information system was, there was still a need for some kind of framework for rationalising the different architectural concepts to establish credibility and confidence in the investment of systems (Kotusev, 2016).

Huge investments are continually made to increase organisations' effectiveness and efficiency, yet many organisations constantly find it challenging to bring strategy to execution and EA is generally believed to be the solution to align ICT strategy and business strategy

(Simon et al., 2014). Many organisations make substantial efforts to implement EA but lack the effort required to follow through with EAM related aspects (Parks et al., 2017). EAM is recognised as the accepted solution by organisations to assist with strategic transformation in a rapidly changing economic, technical and regulatory environment, yet there is no commonly accepted understanding of EAM (Buckl et al., 2010).

We understand that we can only get the full benefit from EA if it is aligned with the business and closely aligned with the business strategy. EA isn't seen as an information technology department responsibility anymore, rather as a strategic function. While some organisations are adopting this shift, they are still finding ways to mature the EA practice and how they can test for maturity to identify weak areas. This has been a focus with slowing moving progress over the past years. Many dimensions must be assessed and addressed accordingly. Maturity model assessments is a good instrument for measuring and supporting improvements within the functional areas (van Steenberg et al., 2010).

This research aims to develop an EAM maturity assessment framework that can be used to assist with the increase of maturity of the EAM practice within an organisation. Through this study, the dimensions identified needed to be tested for validity and modified for applicability. To adequately satisfy this requirement, a set of subquestions needed to be answered to successfully determine these dimensions. It was necessary to investigate and identify what is considered to be key for the success of EAM by the senior members of an organisation and industry experts based on their experience and knowledge and to understand what are the key components and their qualities for maturity models.

3.3 RESEARCH METHODOLOGY

Most research completed in information systems focuses on finding the truth or understanding why things work the way they do, which is the structure that is commonly followed when conducting natural science research (Geerts, 2011). In this section, the researcher describes and discuss the implication of the different components of the research design that was adopted in this study. These components include Ontology, Epistemology, Axiology, Research Philosophy, Methodology and the Method. In Section 3.4, the researcher selects and provides the rationale for the selection within each component.

3.3.1 Purpose of Research Study

The purpose of a research study can be distinguished by using three scientific research types, namely, Exploratory, Explanatory and Descriptive research (Bhattacharjee, 2012). Exploratory research is very useful in research where the researcher is trying to find out something that is new or in research that is trying to find what is happening in that phenomenon (Saunders et al., 2009). Bhattacharjee (2012) further argues that the goal of exploratory research is to 1) scope the magnitude of a problem or behaviour, 2) generate a few ideas regarding the problem or 3) test the feasibility of an extensive study regarding the problem.

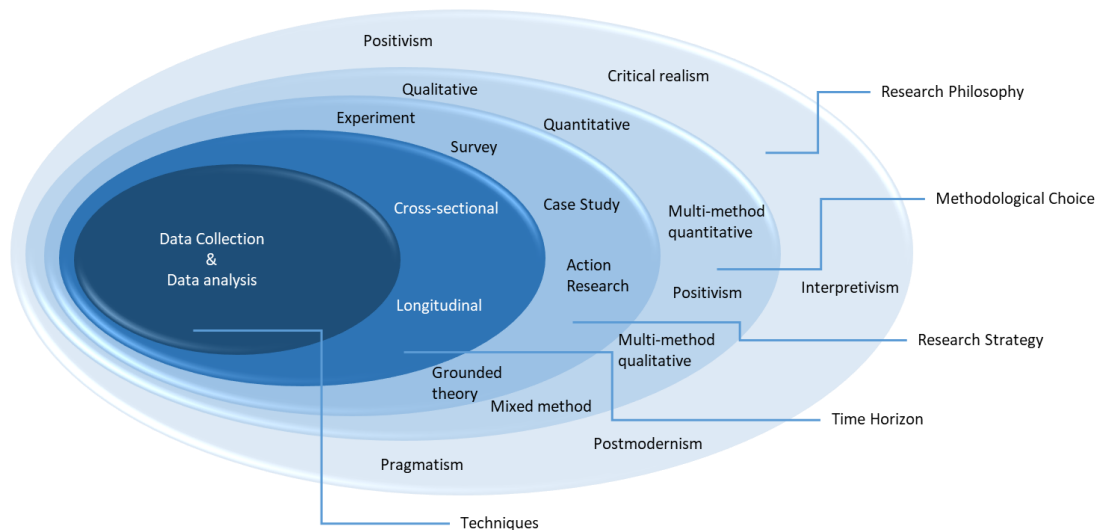


Figure 29: Research Onion - Adapted from (Saunders & Bristow, 2015, p. 124)

Explanatory research is used in studies that require establishing the relationship between variables, emphasising investigating the problem to explain the differences or similarities of the relationship (Saunders & Bristow, 2015) as depicted in Figure 29: Research Onion - Adapted from (Saunders & Bristow, 2015, p. 124). Explanatory research normally tries to find the answers to *why* or *how* types of research questions (Bhattacharjee, 2012).

On the other hand, descriptive research is used when making an observations through detailed documentation of the problem and must be based on using scientific methods that can be replicated with the same precise outcomes (Bhattacharjee, 2012).

3.3.2 Research Philosophies

Understanding and adopting a research paradigm/philosophy to which the researcher can relate is a crucial aspect of completing any research. It allows the researcher to design, collect and analyse their data effectively and appropriately (Saunders & Bristow, 2015). The philosophy/paradigm selected and used is based on the objectives of the research. In the consequent sections, the concepts of ontology, epistemology and axiology are described followed by a summary of the most commonly used philosophies in order to identify the philosophy that would be most appropriate to adopt during this research study.

Ontology is a belief system that is a branch of philosophy and is concerned with describing the nature of the world (Antwi & Hamza, 2015; Wand & Weber, 1993). Ontology refers to the assumption or the belief that the researcher has on the world or reality and normally speaks to the “what” in knowledge it is that we know (Scotland, 2012). There are two broad positions when understanding the nature of reality. The two major stances in ontology are realism and relativism. In the world of a *realist*, the researcher believes that the world exists independently of it being perceived. Through evaluation and testing, we produce true knowledge about the world (Peter, 1992).

With *relativism*, the researcher believes that there are many views of the world. It is the researcher's job to develop true knowledge about the world by interpreting human interaction and feelings (Peter, 1992).

Epistemology relates more to the assumptions and beliefs about knowledge and is more concerned with “how” the knowledge was validated or justified and “how” we can communicate this knowledge to others (Saunders & Bristow, 2015). Within the branch of epistemology there are two standpoints on how a researcher can gain knowledge (Saunders & Bristow, 2015). These philosophies are known as Empiricism and Rationalism. With *empiricism*, the researcher has the view that knowledge is gained through experiences and observations via our senses and is regarded as the most important way to gain knowledge (Hjorland, 2005). On the other hand, rationalism does not hold a place for experiences through senses and can be described as a way of gaining knowledge through rationalisation (Hjorland, 2005).

While Ontology and epistemology show close relation to knowledge, *axiology* looks at the roles of values and ethics the researcher plays within the research (Saunders & Bristow, 2015). In the subsections below, a short overview of the philosophies relevant to this research study are provided.

Positivism

When the research philosophy closely resembles the principles of positivism, the researcher is more likely to adopt the philosophical stance of the natural scientist (Saunders & Bristow, 2015). Positivist research involves working with observable social reality and provides a generalisation. Positivists generally believe that there is only one view of reality and this is an objective view that can be measured and tested independent of the researcher.

Interpretivism

Over the past few years, interpretive research has become an important approach used in information systems (Klein & Myers, 1999). When the research philosophy focuses on the construction of reality made by the human factor, it is more likely that the researcher adopted an interpretivist approach. Using this approach is very subjective as the researcher can never be 100% sure that the world is perceived to be because the world is always seen through the researcher's lens (Kroeze, 2011). While positivism is seen as recognising facts and observable phenomena that can be falsified, interpretivist research is seen as the opposite and does not work with falsifiable statements (Klein & Myers, 1999).

Both positivism and interpretivism are adopted within IS because many believe that IS needs both explanatory and interpretive inputs (Hovorka & Lee, 2010; Kroeze, 2011). Qualitative methods have seen widespread adoption in social sciences (Ritchie et al., 2003).

Pragmatism

The essence of the ontology of pragmatism is action and change (Goldkuhl, 2012). Goldkuhl (2012) explains that the pragmatist believes that the world does not exist on its own and that it changes when we add humans to the dimension. Pragmatism aims to reconcile objectivism and subjectivism. As a result, their research had a fair representation of both objectivism and subjectivism (Saunders & Bristow, 2015). The pragmatist makes no

assumptions to be either objective or subjective in their research but rather use whatever he believes is required to come up with a practical/workable conclusion that can be tested (Humphreys, 2017).

A pragmatist considers valid knowledge to be knowledge that is of practical use (McDermid, 2006). Humphreys (2017) agrees with this definition. He argues that over 100 years ago, William James made the philosophy popular by saying that what is true is what works. They believe that the truth does not just exist but rather is created based on actions on reality (Legg & Hookway, 2019).

3.3.3 Research Methods

In research, there are two broad methods for research, these are qualitative and quantitative research (Marczyk et al., 2005; Myers, 1997). These two methods share the same concerns but use different logic to reach the same goal (Aspers & Corte, 2019; Göran, 2019). In this section, the two methods are described to test the appropriateness for use in this study.

Qualitative Research

Qualitative research can be described as a method often used within the social sciences that gathers and analyses nonnumeric data types. Analysis is done by interpreting and understanding patterns that can be recognised in the data collected through observation, focus groups, in-depth interviews and open-ended surveys. This type of research is usually responsible for understanding human behaviour associated with the researchers' focus areas and is primarily used with an exploratory research method. The key concepts features in qualitative research are different from quantitative research (Flick, 2009). Flick (2009) goes on to summarise these differences in features as:

- An appropriate list of methods and theories;
- The perspective of the participants;
- Reflexivity of the research and their diversity and
- Variety of approaches and methods in qualitative research.

The features of qualitative research are further described below:

- *Appropriateness of Methods and Theories*: Social science discipline uses specific methodological standards to distinguish itself from other disciplines (Flick, 2009).

Examples of this are evident in the use of a case study research strategy where the key method for collecting data is through surveys and interviews. Flick (2009) argues that the method becomes the point of reference for validating an idea or issue in an empirical study.

- *The participants' perspective: Qualitative research is considered* an important part of research and knowledge validation, Flick (2009) expands on this by explaining that qualitative research provides a variety of perspectives. Qualitative researchers study and analyse the knowledge, practices and interrelations between them. With qualitative research, the various viewpoints of the research area are different because of the different perspectives that every human has through their own experiences (Flick, 2009).
- *Reflexivity of the research and their diversity:* Flick (2009) argues that qualitative methods are different from quantitative methods. Qualitative methods make the researcher's knowledge and experience part of the study instead of being a variable to validate to study.
- *Variety of approaches and methods in qualitative research:* There is no one specific theoretical or methodological approach to conduct qualitative research. They are selected by discussion and research practices that starts from a subjective viewpoint (Flick, 2009). It follows on by studying the interactions between the subject areas and then seeks to reconstruct the understanding for a new meaning/perspective.

Quantitative Research

Quantitative research was adopted from the natural sciences and has therefore been the traditional research methodology used in the social sciences for many years (Antwi & Hamza, 2015). Quantitative research can be described as a method of gathering and analysing data in numerical form (Marczyk et al., 2005; Rahi, 2017). The data is then categorised and ranked in order of importance to the study and depicted in a picture format such as a graph or chart. The quantitative research approach generally focuses on testing hypotheses and theories and adopts the confirmatory scientific method (Antwi & Hamza, 2015; Rahimi et al., 2017). Antwi and Hamza (2015) further explain that the primary objective of quantitative research is to state the hypotheses and then validate them with research data to prove or disprove them and is normally used when very little is known on the topic.

Unlike qualitative research, which has a dependency on human behaviour, quantitative research assumes that behaviour is predictable and explainable with the premise that all events can be determined by one or two causes (Antwi & Hamza, 2015; Gerring, 2017). As a result, the objectives of most quantitative research try to identify cause and effect relationships that can be generalised. Quantitative research often focuses on only one or two causes at a time (Antwi & Hamza, 2015) and is often done to keep the variables controlled to replicate the outcome as a means of validation. This is often done under laboratory conditions.

Quantitative researchers conduct their studies under the assumption of objectivity and assume that any observer that looks at the same phenomenon shares the same view of reality (Antwi & Hamza, 2015; Marczyk et al., 2005; Rahi, 2017). To achieve this, the researcher must stay far away from the phenomenon as possible to avoid any bias.

3.3.4 Research Approaches

It can be argued that most studies involve theorising in induction, deduction and abduction to some degree, with the differences in the approach being the sequence in which the reasoning is carried out and the dominance of any of the three approaches (Gregory & Muntermann, 2011). In this section, the three methods are described to test their appropriateness for use in this study.

Deductive Approach

Also known as the “top-down” approach, deductive reasoning can be described as a process of moving from a more general theory to something more specific (Trochim, 2006). Figure 30: Deductive Approach adopted from Trochim (2006) describes how the move from general to specific is conducted.

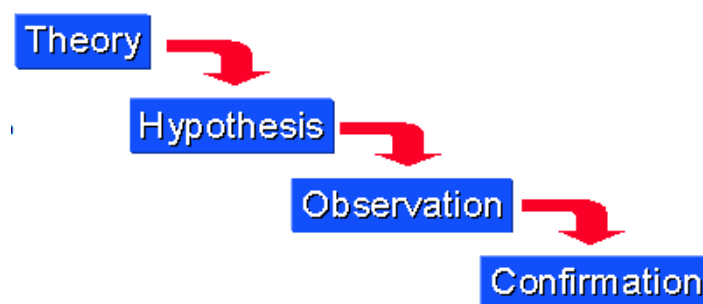


Figure 30: Deductive Approach adopted from Trochim (2006)

Inductive Approach

Inductive reasoning can be seen as the opposite of deductive in that it can be described as a process of moving from a specific observation to a wider generalisation and theories (Trochim, 2006). Figure 31: Inductive Approach adopted from Trochim (2006) below provides a high description of how this process is achieved.

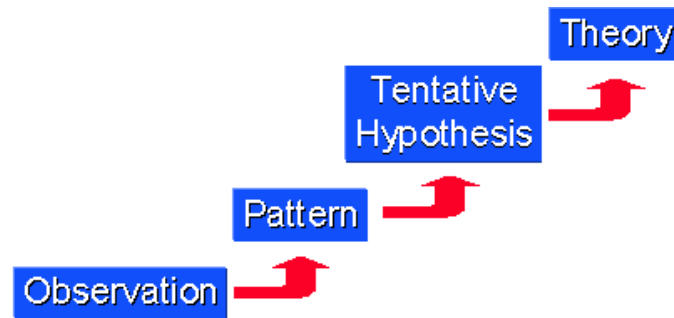


Figure 31: Inductive Approach adopted from Trochim (2006)

Abductive Approach

On the other hand, abductive reasoning is meant to address the gaps that exist within inductive and deductive reasoning. Abductive reasoning can be described as a continuous process of rationalisations about the world that is influenced by the solution and instead of natural instincts, the argument that socially nurtured phenomena are the preconditions for abductive reasoning (Timmermans & Tavory, 2012). Different approaches exist for abductive reasoning in modern science and each of these disciplines have developed the abductive approach further to suit their needs, the social sciences discipline being one of them (Kovács & Spens, 2005). Kovács and Spens (2005) argued that case study research is well suited for abductive reasoning and is commonly used in this scenario. Figure 32: Abductive Approach adopted from (Kovács & Spens, 2005) describes the process of abductive reasoning.

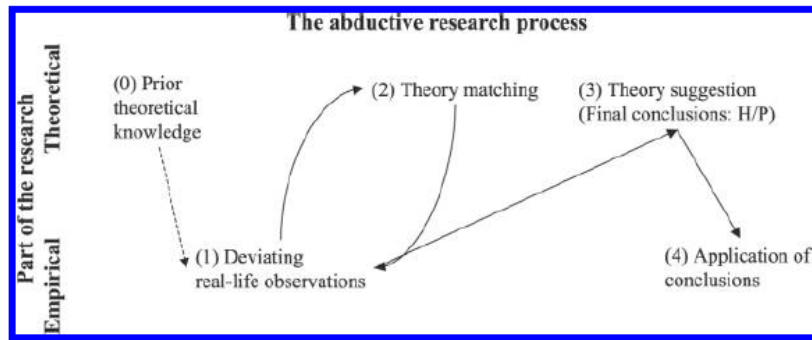


Figure 32: Abductive Approach adopted from (Kovács & Spens, 2005)

3.3.5 Research Strategy

A research strategy is the framework from which a study is executed (Rahimi et al., 2017). There are many types of research strategies namely case studies, qualitative interviews, quantitative surveys and action-oriented research. In this section, an overview is given of case study and Design Science Research (DSR) since they are the pertinent research strategies used in this study.

Case Study

A case study is a research method that focuses on going through the details of understanding the inner workings of a particular setting (Eisenhardt, 1989). The setting within the case study can be of a single case or multiple cases with multiple levels of analysis. In most case studies, data collection methods such as questionnaires, interviews, and observations are combined and are associated with both quantitative and qualitative research philosophies, which makes it a very useful approach to conducting research (Eisenhardt, 1989).

In recent years, the IS community has seen an increase in in-depth case studies focusing on human interaction with computer-based systems (Flyvbjerg, 2006; Walsham, 1995). As a result of the social-related issues with information systems, researchers have adopted interpretive research methods which often included using the case study approach. Walsham (1995) argues that case study research has become the vehicle for interpretive studies. When adopting the case study method approach, Walsham (1995) argues that there

are three main areas that the researcher must concentrate on 1. the role of the researcher, 2. interviewing techniques and 3. the reporting method.

Interpretive research understands people's interpretation of a phenomenon through their own experiences and viewpoints (Walsham, 1995). This denotes that the researcher's experience is key to the interpretation of results and findings. The role of a researcher using the case study approach can be split into two, the involved observer and the outside observer. None of these roles is seen as objective reporting because the analysis of the data is always done subjectively through the knowledge and experience of the researcher. There are many ways to collect data within the case study approach, these include documents, interviews and observations but it can be argued that interviews are one of the best ways to collect data in a case study. Lastly, reporting on data collected in a case study is not viewed as facts but as an interpretation of the participants' views on the phenomenon.

Design science research

The design science paradigm can be traced back to the engineering and sciences of the artificial and is fundamentally used for problem-solving (A. R. Hevner et al., 2004). Design science research (DSR) in information systems is the conceptual framework for building and evaluating artefacts through learning (Peppers et al., 2007) and is described as the "lens" that provides the techniques and perspectives for performing research (Vaishnavi et al., 2017). The main objectives of the DSR paradigm are to address two key issues of the IS discipline, namely the central role of the IS artefact and the importance of professional relevance (A. Hevner & Chatterjee, 2010). Figure 33: DSR Framework - adopted from (A. R. Hevner et al., 2004) represents a conceptual framework that can be used to understand, execute and evaluate DSR. It begins with identifying the problem area in which the gap exists. Since information systems are purposely designed to support the complexity of organisations, they are often made up of people, technologies and structures (A. R. Hevner et al., 2004). This provided the business needs or the relevance for which the research exists and is assessed and evaluated within the context of the organisation strategy and culture and positioned using the existing technology architecture. Rigour is accomplished through applying existing methodologies and frameworks. This stems from the existing knowledge base of literature and raw material and provides the guidance and reference material required to conduct and evaluate the research.

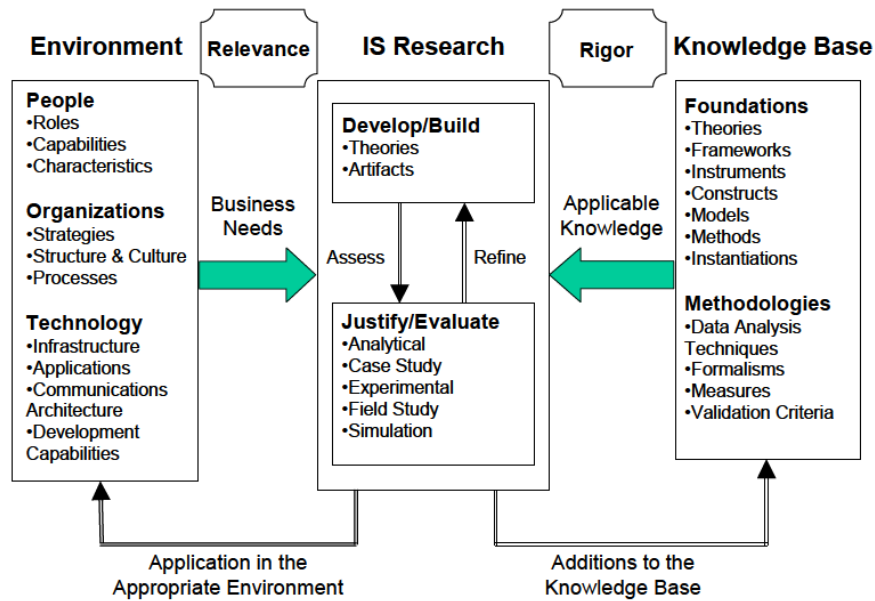


Figure 33: DSR Framework - adopted from (A. R. Hevner et al., 2004)

With DSR, the term *design* can be described both as a verb that describes the process or method of design and a noun that describes the development of an artefact. The DSR model or process is an adaptation of the design process model created by Takeda et al. (1990). The difference between these two models is that DSR has a higher focus on the contribution of new knowledge (Vaishnavi et al., 2017). Figure 34: DSR Model (Vaishnavi et al., 2017) depicts the model at an abstract level.

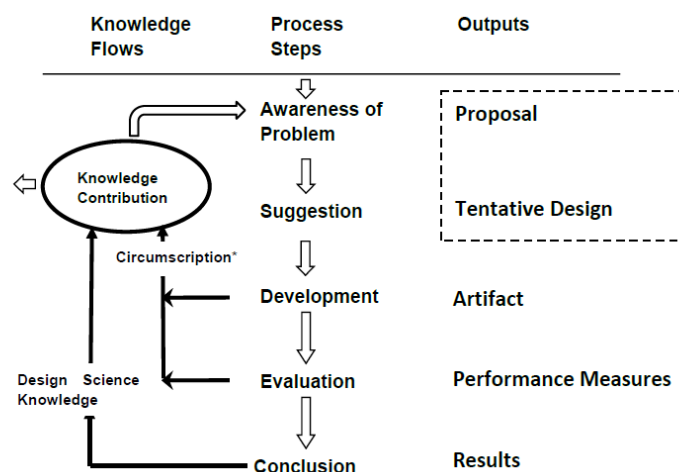


Figure 34: DSR Model (Vaishnavi et al., 2017)

The different process steps of the DSR model depicted in Figure 34: DSR Model (Vaishnavi et al., 2017) are described below:

- **Awareness of the problem:** The awareness of a problem can come through many different sources such as research journals or workplace experiences. The outcome of this phase is a formal proposal that indicates an intent for new research.
- **Suggestion:** Soon after the awareness of the problem phase, the suggestion phase is developed with a close association to the previous phase. Together with the proposal, the suggestion phase includes a tentative design that is an integral part of the two phases. This is the reason that a dotted line exists around these two phases in the figure above. The suggestion phase is also seen as the creative step that new functionality is created based on the foundation of new and existing elements.
- **Development:** The tentative design created in the previous phase is then further developed and implemented during this phase. The techniques used for implementation depend on the type of artefact being developed. In the case of programming, an algorithm may be required to test its correctness.
- **Evaluation:** Once the artefact has been developed, it is evaluated against the criteria that were indicated in the awareness of the problem phase. Any deviation from the initial expectation is carefully examined and explained. This is done through an analytical sub phase that creates assumptions about the outcomes of the artefacts. These assumptions and the information gained from the evaluation are cycled back to the suggestions phase.
- **Conclusion:** This is the final phase of the research, which concludes with the development of a reasonable working artefact or the artefact behaving satisfactorily. The results of the effort are summarised, consolidated, documented and categorised into facts or anomalies respectively. This might be a motivation for further future research.

Design science as a noun speaks to the forms of artefacts that consist of the following elements: constructs, models, frameworks, architectures, design principles, methods, and/or instantiations as listed in Table 4: Outputs of DSR (Vaishnavi et al., 2017). Instantiation is commonly referred to as a material artefact, other types of artefacts are referred to as abstract artefacts.

No.	Output	Description
1.	Constructs	The conceptual vocabulary of a domain.
2.	Models	Sets of propositions or statements expressing relationships between constructs.
3.	Frameworks	Real or conceptual guides to serve as supports or guides
4.	Architectures	High-level structures of systems.
5.	Design Principles	Core principles and concepts of guide design.
6.	Methods	Sets of steps used to perform tasks: how-to knowledge.
7.	Instantiations	Situated Implementations in certain environments that do or do not operationalise constructs, models, methods and other abstract artefacts; in the latter case, such knowledge remains tacit.
8.	Design Theories	A prescriptive set of statements on how to do something to achieve a certain objective. A theory usually includes other abstract artefacts such as constructs, models, frameworks, architectures, design principles and methods.

Table 4: Outputs of DSR - Adapted from Vaishnavi et al., 2017)

The process whereby a DSR strategy can be executed is outlined by the guidelines set out by (Van der Merwe et al., 2020):

1. Contextualise a DSR in the field of Information Systems and be able to distinguish between concepts such as design, design science and DSR.
2. Understand the philosophical underpinning of research and the discourse on the nature of DSR.
3. Obtain a historical perspective of DSR and consult the work of pioneers in the field.
4. Consider the role of the artefact in DSR and the different views on design theory.
5. Select an appropriate DSR method for the execution of the research study.
6. Strategise on how research is done in DSR should be communicated in a report such as a thesis.

Many researchers start thinking about a focus area or developing a passion for an interest before they even understand what their research question will be (Agee, 2009). Agee (2009) goes on to state that it is difficult to separate theory from its link to a research question. Even though the researcher initially starts with an idea for the research question, the research question evolves as we introduce a theoretical framework. The evolution can be in the form of providing the research question with a little "shape" or changing it to accommodate the expected conclusion (Agee, 2009). Theoretical frameworks inform the research question about the selection approach to be used as well as the parameters required to fulfil the research.

Design theory is one of those theoretical frameworks that has great synergy with DSR (Gregor & Hevner, 2013). Even though design theory does not directly impact the formulation of the research questions or its objectives, the result of the synergy with DSR has an indirect implication through DSR. The idea behind DSR in information systems is to create and evaluate artefacts to solve a particular problem (Peppers et al., 2007). In most cases, the contribution from DSR is a design artefact (A. R. Hevner et al., 2004). Hevner et al. (2004) explain that the artefact must provide the solution to an unsolved problem and sometimes may extend to providing new and innovative solutions and in doing so, the artefact satisfies the research question/objective or problem statement. Mandviwalla (2015) argues that generating a design theory often requires an iterative design and test process. As a result, the goal of the study is the development of an artefact, it means that the objectives of the study must indicate this explicitly and the research question should be asked using an explorative approach.

3.3.6 Theoretical Perspective

Research theory assists in many ways, one of which is to narrow the range of facts that need to be studied and suggests ways that are likely to provide the best meaning (Cooper & Schindler, 2013). Adopting a theory in information systems (IS) assists in rationalising the world and building on our knowledge which helps us understand, explain and predict things around us in the real world (Gregor & Jones, 2007). Theory can be described as constructs that share a relative consensus with individuals that are competent to interpret the essence of the construct (Gregor, 2006). Theories in IS have been created by people rather than being discovered and are continually tested and modified in different scenarios. Gregor

(2006) describes five different types of theories that are relevant to IS: 1) theory for analysing and describing, 2) theory for understanding, 3) theory for predicting, 4) theory for explaining and predicting and 5) theory for design and action. While this describes one of the theories for information systems, there are many others, including theories from (Walls, Widmeyer & El Sawy, (1992) and Hevner et al. (2004). The usage of these approaches contributes to new knowledge and fulfils the requirements of the design and test cycles, used for practical purposes (Goldkuhl, 2004) and achieved through the design processes. The design processes provide the knowledge of the prescriptions required for the designing actions and the knowledge for supporting the preparatory stages through to the assessment stages.

3.3.7 Data Collection

In the sections to follow, three areas of data collection, namely methods, instruments and measurements criteria relevant to this research study are introduced. The purpose of adopting data collection techniques is to plan and focus on collecting data from many sources to gather evidence that will be used to justify a particular outcome or result (Marczyk et al., 2005). While this section describes the methods, the researcher describes the rationale and the procedure in using the three data collection areas to answer this study's research questions in the next section.

Data Collection Methods

This study follows a mixed method using both qualitative and quantitative approaches to data collection. Gill, Stewart, Treasure and Chadwick (2008) argue that there are many methods for data collection (Antwi & Hamza, 2015; R. L. Harrison, 2013; Marczyk et al., 2005). These include observation, visual analysis, surveys and interviews but the most commonly used methods are interviews and focus groups. An understanding of the use of each of the data collection methods used in this study is provided in subsequent sections.

Surveys

A survey is a research method for the collection of information from a selected group of individuals through their responses to questions (R. L. Harrison, 2013; Marczyk et al., 2005; Rahi, 2017). Surveys are commonly used in exploratory research (Marczyk et al., 2005). A well-designed survey can be used to collect large amounts of data within the sample

population economically. Data collected using a survey method is conducted through an instrument like a questionnaire and is analysed to determine patterns from the sample of respondents (Göran, 2019). Surveys can be conducted using many different formats. These include but are not limited to:

- Interviews (face-to-face or telephonic),
- Questionnaires (paper or online),
- Combination of both.

When selecting a format to be used in research, the following factors must be taken into consideration including cost, study time limitations and sampling bias.

Systematic Literature Review Data Collection

A systematic literature review (SLR) aims to address key issues by critically evaluating relevant findings based on a researcher's topic of interest. An SLR achieves this with a rigorous method that collects evidence in an unbiased way to assess the quality of the evidence and synthesise it (Mallett et al., 2012). The premise of an SLR is the use of an objective, transparent and rigorous approach to conduct research. This is achieved through a fixed process of review. One of the main advantages of conducting an SLR is that it can improve the quality and strength of the traditional literature review (Mallett et al., 2012). Traditional literature is often restricted to providing a view of what is already known whereas SLR provides a little more insight. The challenge with SLRs is that research and screening for studies require access to a broad range of databases which can come at a high cost for nonacademic researchers. The SLR has become a new tool in development research and has a clear advantage over the traditional literature review.

Okoli and Schabram (2010) describe set guidelines for conducting SLRs tailored to information systems research. These guidelines are depicted in Figure 35: Guidelines for SLR study (Okoli & Schabram, 2010) below and described further in the subsequent section:

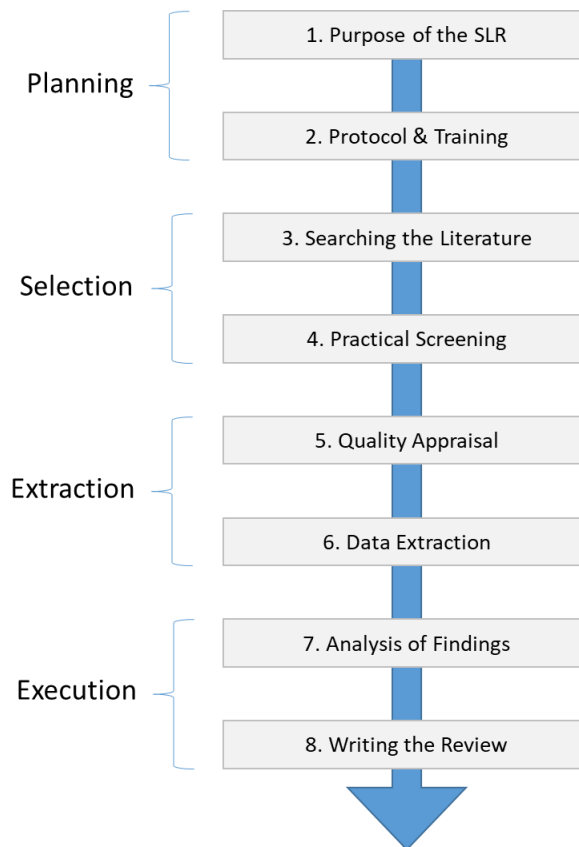


Figure 35: Guidelines for SLR study - adapted from (Okoli & Schabram, 2010)

The following sections follow the steps as depicted in Figure 35: Guidelines for SLR study - adapted from (Okoli & Schabram, 2010) will be described further and provide more context for the methodology used for this SLR.

Planning: The first step in conducting an SLR is to define the intent of the SLR. In doing so, the researcher must be able to answer the research questions by determining his intent. Once the intent of the SLR is defined, the next important step is to develop the protocol that will be used in the SLR. The proposal is the plan by which the SLR will be conducted and must be validated by an external source to verify its rigour. If more than one researcher is conducting the SLR, it is also important that training is provided on the protocol to bring some form of standardisation.

Selection: Step 3 involves searching for literature, selecting studies that might be of significance to the SLR and eliminating the rest. Through this process, the researcher can gain a massive number of studies. Hence, the next step is to conduct a slightly more detailed

screening of each study. At this stage of the process, practical screening intends to further eliminate studies that are of little use to the aim of the SLR.

Extraction: After completing the practical screen step, the researcher moves to the quality appraisal step, which can be seen as the second round of the practical screening as it serves to examine the article in even more detail and test the quality of the article as well as providing a score to rate the quality of the article. Where the results do not meet the minimum quality, the article is not scored but is eliminated from proceeding any further with the SLR process. Having gone through many study elimination criteria processes, the researcher was left with a list of articles that were used in the final systematic review of this stage. The data extraction is a key step in the process at this point, since the information had been systematically extracted from the raw material for the syntheses stage and any type of data that does not meet the protocol requirement (completed in the planning stage) was removed.

Execution: At this stage, the researcher has a list of articles that are screened, selected and scored. Each of these articles needs to be aggregated, discussed, organised and compared (Okoli & Schabram, 2010). This step aims to have a high quality of synthesised information, used to write up the report. The aim of writing the findings report is to document it so that it can be repeated using scientific logic.

Data Collection Instruments

Research has provided many types of data collection instruments that are relevant to the objectives of this research (Göran, 2019; Klein & Myers, 1999; Myers, 1997; Myers & Newman, 2007). In this section, the types of data collection instruments are described to test the appropriateness for use in this study.

Interviews

Using interviews to collect data in a qualitative method is seen by many as one of the most effective methods (Gill et al., 2008). There are three key types of Interviews and they can be organised in a structured, semi structured or unstructured manner and administered accordingly (Gill et al., 2008; Göran, 2019).

Structured Interviews can be viewed as verbally controlled questionnaires that are asked in a way that allows no room for deviation and do not allow for follow-up questions to receive

clarity or for further explanations. The advantage of using such a method is that it allows for quick administration of the interview. However, this can also constitute a disadvantage because the participants are limited with their responses and can lead the researcher to not get the required detailed understanding.

On the other hand, *an unstructured interview* is seen as the complete opposite because it is administered with no/little organisation (Gill et al., 2008). These types of interviews do well in exploratory types of research, where the researcher starts with an open-ended question, and the remainder of the interview process is based on the answer from the participant. The disadvantage of using this interview type is that it has the potential to be lengthy with little/no guarantee of collecting valuable data. Gill et al. (2008) argue that this can be very confusing for the participant. The advantage of this method is that it is a great way of exploring something that is still very new and for which there is very little information available to conduct an interview in a structured manner.

Semi structured interviews are the best of both structured and unstructured interviews (Flick et al., 2004; Myers & Newman, 2007). They provide the interview process with a structured approach but allow the interviewer or participants to deviate a little to get more insight into the area of interest (Myers, 1997). This one of their advantages over the other two types and are commonly used in qualitative research.

Questionnaires:

A questionnaire is an approach that allows the researcher to facilitate the collection of data by allowing a group of respondents to provide feedback to a set of identical questions. Questionnaires can be associated with the case study research approach. This type of collection can be a very efficient way of collecting data (Göran, 2019). Similar to interviews, there are many approaches to conducting questionnaire-based research, namely online, mail or personal delivery. One of the major advantages of a questionnaire is that it can be sent out very quickly to many participants using an online mechanism and making it easy to ensure anonymous participation. It is also a lot cheaper as many free online tools assist with administering the questionnaires. The disadvantage of using questionnaires is that the

researcher does not always get the detail that he/she would get in an interview approach since the researcher is not there to direct the questioning as they desire.

Measurement

A semantic scale is a measurement scale that is used in surveys and questionnaires to derive the participant's response to a particular subject. They start and end with the opposite adjective on either side, moving into a neutral state in the centre. This study used that measurement method because of its versatility, reliability and accuracy with the collected data. Table 5: Semantic Scale illustrates how this method was used in a questionnaire.

How important is EA in your organisation?

Important						Unimportant
Extremely	Quite	Slightly	Neither	Slightly	Quite	Extremely

Table 5: Semantic Scale

The advantage of using this method is that it is fairly easy to interpret and understand how to use the method. Coupled with this, the researcher can append an open-ended test box to a question so that a participant can elaborate if necessary and support his/her answer.

3.3.8 Data Analysis

There is a clear distinction between data collection and data analysis in research; it is argued that most often, a researcher will start with data analysis once data collection is concluded (Bryman, 2016; Göran, 2019). Data analysis requires the interpretation and the synthesis of the raw data collected to identify themes or related information based on the research objectives. In this section, the data analysis methods are described to test their appropriateness for use in this study.

Framework Analysis

Framework analysis is an approach for applied qualitative research to meet the objectives of an investigation within a specified period (Kiernan & Hill, 2018). Framework analysis uses a series of thematic matrices that are created for every participant, with subthemes relationships that allow the researcher to move between different layers of abstraction without losing sight of the raw data hierarchy (Kiernan & Hill, 2018). Qualitative research

has been recognised as a valuable tool in social science over the past decades and as a result, framework/thematic analysis is also being seen as a valuable tool (Srivastava & Thomson, 2009). There are many different ways to analyse data of which framework analysis is one. It is very versatile because it allows a researcher to either collect all the data and then conduct the analysis or conduct the analysis during the collection process. Srivastava and Thomson (2009) argue that in the analysis phase of the study, the collected data is classified and characterised into key issues and themes. This process involves five steps:

1. Familiarisation,
2. Identifying a thematic framework,
3. Indexing,
4. Charting,
5. Mapping and Interpretation.

Familiarisation is the first step in this type of analysis and is the process by which a researcher becomes familiar with the collected data. This requires the researcher to read through and listen to the recordings of all data to gain insight into it. During this time, the researcher makes notes concerning the data, i.e., key concerns, issues or problems that are being repeated.

Identifying a thematic framework is the next step where a researcher recognises themes emerging from the collected data. These themes must be the result of the data and not preconceived themes. This is aided by the notes that were taken during the familiarisation step.

Indexing identifies portions or sections of the data that correspond with a specific theme. This process is repeated for all textual data.

Charting refers to the specific sets of data that were indexed in the previous step to be set up in charts according to the themes. These charts consist of the headings and subheadings that were created during the thematic framework step.

Mapping and interpretation is the final step and involves analysing the key parts of the charts. From this information, the researcher should be able to provide a schematic diagram

to guide the interpretation of the data set, addressing the objectives of the qualitative study. Table 6: Questionnaire Data Analysis Summary relates the instrument used to the questions and objectives that need to be satisfied.

#	Research Question	Research Objective	Instrument
1	What are the most critical components of EAM as seen by EAM practitioners in financial institutions?	To identify critical components of EAM through EAM practitioners in financial institutions.	Survey Questionnaire
2	How can the newly constructed maturity framework be validated within the selected case study?	To validate the newly constructed maturity framework with the selected case study.	Interview Questionnaire

Table 6: Questionnaire Data Analysis Summary

Systematic Literature View Data Analysis

In the analysis phase of an SLR, the researcher has a list of screened, selected and scored articles. Each of these articles needs to be aggregated, discussed, organised and compared (Okoli & Schabram, 2010). This step aims to have a high quality of synthesised information that is used to write up the report. The aim of writing the findings report is that it must be documented to be repeated using scientific logic.

No.	Research Question	Research Objectives	Instrument
1	What are the most critical components within the existing EAM framework that can be used in a maturity framework?	To examine the existing EAM framework and identify the appropriate components to be reused	SLR
2	Which maturity framework would be best suited to be used to assess EAM using the components identified above?	To examine existing maturity frameworks and identify the most appropriate components to be reused	SLR

Table 7: SLR Data Analysis Summary

Table 7: SLR Data Analysis Summary above provides a view of what instrument was used to analyse the data.

3.3.9 Ethics

During a researching process, it is important to build on existing knowledge and create new knowledge. This is important for a big part of the world that always wants to learn and grow in its understanding of the things around us. There are also the negative aspects of scientists

manipulating findings to move research towards a particular viewpoint (Bhattacharjee, 2012). As in any other aspect of life, research requires ethical behaviour. Ethics guide our moral choices about how we conduct ourselves and the decisions we make (Cooper & Schindler, 2013). Researchers must understand that some things that are legal in law are not necessarily ethical and while a researcher may be safe in terms of the law, he/she might not be so in terms of professional reputation, which may result in the loss of jobs due to misconduct (Bhattacharjee, 2012; Rogerson et al., 2019). Nussbaumer et al. (2021) argue that there are three ethical stage-gates: (1) ethics requirement and values, (2) ethical principles and (3) ethical assessment. Some of the key principles of ethics in research, i.e., voluntary participation, confidentiality and anonymity, disclosure and analysis, and reporting are related to specific values and requirements. The next section describes how each principle used in this research complies with its requirement and value.

Voluntary participation / Disclosure

The researcher must make the participation objectives clear and inform the participant of any information that may influence the research; failure to disclose such information results in any consent being null and void (Myers & Newman, 2007; Rogerson et al., 2019). The participant must understand that they have the right to withdraw from the research at any time without any consequence to them (Myers & Newman, 2007). All participants in this study signed a consent letter describing the intent and rights as part of their participation either as part of the survey or agreed verbally in the interview process.

Confidentially and Anonymity

All information obtained during the research is strictly confidential. The researcher takes full responsibility for the misuse of information that was collected (Nussbaumer et al., 2021). In case there is a valid reason that the information collected cannot be maintained confidentiality, the researcher must disclose this information to the participant and he/she may choose to withdraw from participating (Marczyk et al., 2005). All data collected from participants is the responsibility of the researcher and will not expose the participant to any risk or subjection resulting from the research.



Analysis and Reporting

Researchers have an obligation to the research community to analyse and report on their findings, whether the finding is positive or negative (Marczyk et al., 2005; Nussbaumer et al., 2021). Withholding or manipulating information is unacceptable. This research was conducted in full openness and honesty to all entities.

Ethics Summary

In this research, ethical clearance was required by the University of Pretoria before the data collection strategy was initiated. To proceed, the researcher acquired approval from the ethics research committee at the University of Pretoria. The strict adherence to the University of Pretoria guidelines was followed. Similar to this process, the same was required from the selected organisation to acquire approval and permission to conclude the findings.

3.4 RESEARCH DESIGN FOR THIS STUDY

This section describes the research design that was adopted for this research study. Welty (2003) argues that computer science ontology shares the same common definition of ontology origins which is about the meaning and existence of something. Computer science ontology can explain the meaning and existence of systems and their interrelationships (Welty, 2003). This same logic can be applied to Information Systems (IS).

3.4.1 Research Paradigm

Every paradigm is based on assumptions made with each chosen philosophy that supports viewpoints of reality and what constitutes valid knowledge. Due to the nature of this research, providing an artefact that can be practically used, the underlying philosophy that this study followed is *pragmatism*.

In *ontology*, the stance that is followed within pragmatism is objectivism and subjectivism and is based on the rationale that a pragmatist makes no assumptions to be either objective or subjective but rather uses whatever he believes is required, to come up with a practical/workable conclusion that can be tested.

Within *epistemology*, the philosophical stance is subjectivism because the researcher believes that the world is not independent of its knowledge. The information gathered in this study—through the interactions of others within a focus area—can be seen as subjective because the information gathered is based on a particular individual's knowledge and experience in a particular field that could be very different from another individual's view of the same subject.

The *axiology* assumption followed in this study is that the researcher's values regarding the phenomenon are key to the conclusion of the research. Although it is important to understand the context of the environment and the phenomenon, a key part of the analysis was conducted within the subjective stance of the researcher.

3.4.2 Research Philosophy

This study focuses on developing a practical framework and through developing this artefact iteratively, it was evident that a pragmatic philosophy would be best suited for this study. The decision to select the pragmatism philosophy was based on reasons explained below.

The objective of pragmatism is to research reality and the practical effects on ideas and knowledge, the need to know more and is guided by purpose and motivated by the researcher's imagination (Rylander, 2012). The research starts with a problem and ends with a solution that informs future practice. A pragmatist believes that the recognition of actions is fundamental to the social world being meaningful and questions the outcome if no actions by humans were taken (Goldkuhl, 2011). The pragmatic approach aims to make a practical contribution that solves a problem. The aim of positivism could be to quantify the adoption of a framework in an organisation or in the case of interpretivism, the aim could be to understand what makes an existing framework successful. This correlates with the objectives of the research, which is to build a framework that can be used to assess the maturity of EAM in an organisation.

A pragmatist believes that there are many different ways to analyse the world. There is no single view that can provide a picture of the entire world. Hence there are multiple realities of the world (Kroeze, 2018). As such, a pragmatist considers theories, concepts and hypotheses in terms of the roles they play from a practical consequence (Saunders &

Bristow, 2015). The pragmatic approach also provides the opportunity to validate qualitative data in research findings quantitatively.

The values of the author factor into the research; as such, a pragmatist will conduct research based on their value system (Brierley, 2017) and will continually experiment and test ideas in pursuit of the truth (Rylander, 2012). This research is dependent on the researcher's values as well as the values and experience of the individuals who had been interviewed and the observations made.

The pragmatist believes that using either a quantitative or qualitative method is not sufficient to satisfy the research problem or question; hence, a combination of qualitative and quantitative methods is used. They also believe that there is more than one view to any argument, which is best demonstrated using a mixed-method approach (Kroeze, 2018). If the research problem clearly states that only one type of knowledge or method should be used, it confirms that using a mixed-method is good (Saunders & Bristow, 2015). By applying mixed-method research, it is believed to provide a better understanding of the research topic and challenges the distinction of both qualitative and quantitative research (Brierley, 2017).

3.4.3 Research Approach

This study aims to develop meaning from data collected through the identification of patterns and relationships. The study followed a bottom-up approach, starting with the observation of a phenomenon and the collection of data as found in the literature. From observations found in the literature the researcher developed pattern generalisations. Lastly, the generalisations were tested using the selected theory. As such, based on the assumption made in this study, an inductive approach was followed.

3.4.4 Research Method Choice

In selecting the appropriate method chosen for this study, the researcher needed to recognise all research techniques used in collecting and analysing data and the research approach. This study made a multi-method methodological choice. The decision was based on the study selecting an inductive approach that involved collecting and analysing data using a systematic literature review, first to examine and identify components of a maturity

framework and then to examine and identify components of an EAM framework. After analysing the data from the systematic literature reviews, a set of questionnaires was developed. The questionnaires were applied using qualitative analysis to determine the validity of the identified components and develop a framework. The final step is to test the framework in a selected case.

3.4.5 Research Strategy

The type of the research question determined the adoption of the research strategy and the research objectives discussed in **Chapter 1**. The main goal of this study is to develop an artefact that is of practical use within an organisation. The Enterprise architecture management Maturity Assessment (eMA) framework can assist organisations in assessing EA management practices and improve on areas that are of a low maturity, intending to increase the overall maturity and success of EA management in the organisation. In developing this artefact which was used to assess the maturity of EAM in an organisation, DSR was used as the strategy. The framework that was adopted to develop the artefact was that of Hevner et al. (2004) as depicted in Figure 36: DSR Framework - EAM Framework.

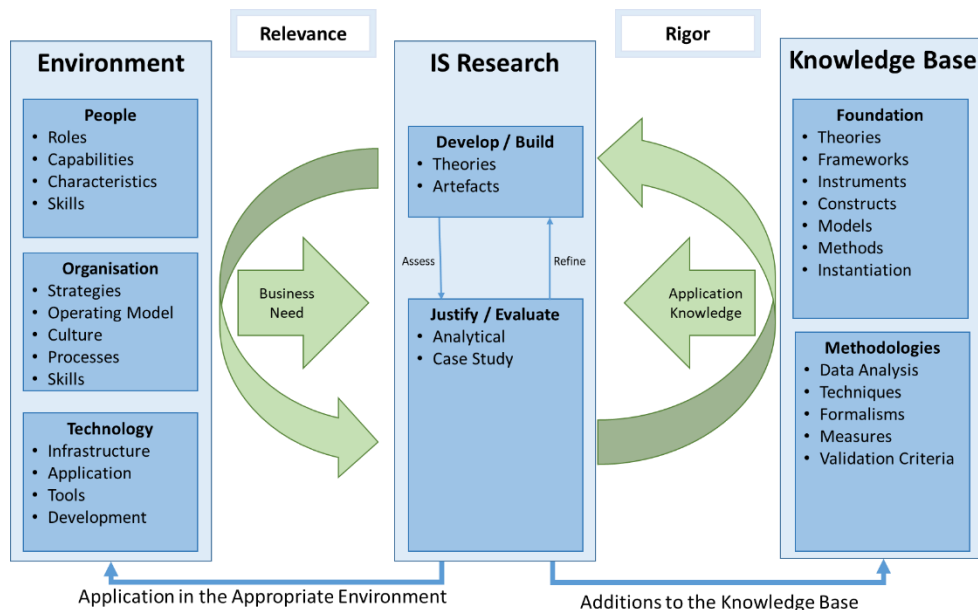


Figure 36: DSR Framework - EAM Framework- Adapted from (A. R. Hevner et al., 2004)

The requirements for the artefact resulted from the systematic literature review conducted for the maturity framework and eMA framework in the subsequent chapters. The eMA framework was developed through the iteration of three phases that formed part of the

overall development of the artefact as depicted in Figure 37: EAM Framework research design. Each of the subphases adds value and/or input into the next phase, at the end resulting in the eMA framework. The main cycle represented in the figure consists of the awareness phase identified by the number [1], the suggestion phase identified by the number [2], the development phase identified by the number [3], the evaluation phase identified by the number [4] and the conclusion phase identified by the number [5].

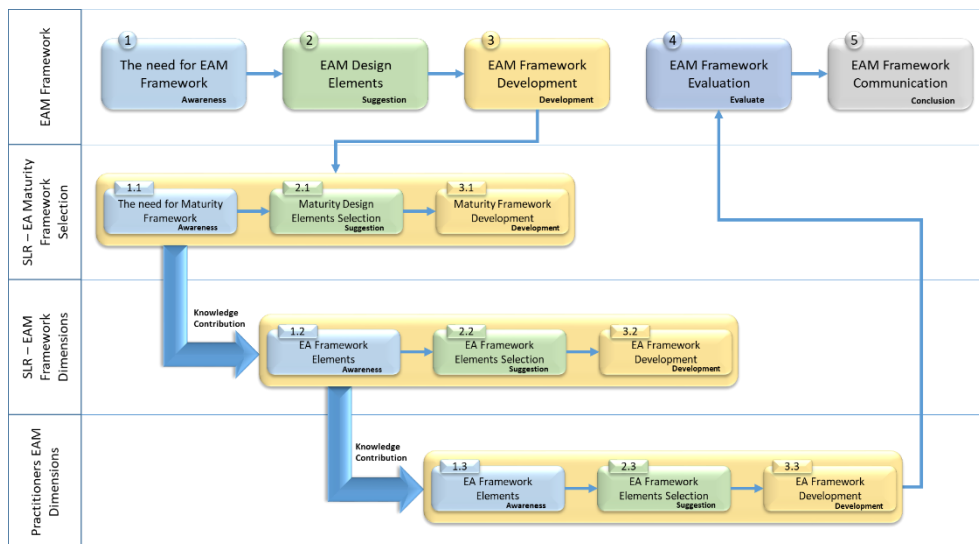


Figure 37: EAM Framework research design

The DSR strategy adopted for this study is described in full detail below (Vaishnavi et al., 2017):

[1]. Problem identification and motivation (Awareness Phase): When adopting DSR, the researcher must clearly identify the business problem or the business need. The need to solve the problem becomes the motivation for the development of an eMA framework that can be used to measure the maturity of an organisation's enterprise architecture management practice. The argument is formed on the basis that organisations spend a lot of time and effort on developing and implementing an EA strategy but then find it challenging to succeed due to a lack of understanding of what needs to come next. As a result, this research has identified the need for an EAM maturity framework that identified key elements of EA and the maturity level to assist the organisation to focus on less mature elements to increase the success of their EAM practice. In **Chapter 1**, the researcher provided the identification and the awareness of the problem, which resulted in the need for this study.

[2]. Objectives Definition (Suggestion Phase): the next step in DSR is the definition of the objectives for this study. This involves creating an initial suggestion for the development of

the artefact. **Chapter 2** explores the different areas of EAM as well as providing a tentative design for the EAM maturity framework.

[3]. Artefact Development (Development Phase): in the third phase of DSR, the main objective is to develop the EAM maturity framework. To achieve this, the development cycle goes through three subcycles, with each cycle providing input or value to the next subcycle. These subcycles consist of the following:

- [1.1]: This subcycle's focus is to be aware of, suggest and develop a list of maturity assessment criteria that were best suited to assess EAM through steps [1.1], [2.1] and [3.1] shown in the figure above. The list of maturity assessment criteria was determined through the use of a systematic literature review. This subcycle is further described in **Chapter 4** of this study.
- [1.2]: This subcycle's focus is to be aware of, suggest and develop a list of EAM elements and attributes through steps [1.2], [2.2] and [3.2] shown in the figure above. The list of the EAM elements was determined through the use of a systematic literature review. This was further described in **Chapter 5** of this study.
- [1.3]: This subcycle's focus is to be aware of, suggest and develop a list of EAM elements that was used to be compared and contrasted with the elements identified in the previous subcycle. While it is important to identify elements from literature, it was equally important to identify elements that practitioners believe are key to the success of EAM. This was further described in **Chapter 6** of this study.

The combined results of the three subcycles make up the design and development of the eMA framework artefact. This was further described in **Chapter 7** of this study.

[4]. Performance Measurement (Evaluation Phase): This step of the DSR process involves the evaluation of the eMa framework through the use of the design theory framework through a focus group case study within financial services. The use and applicability of the framework were through the interactions through interviews of participants described in **Chapter 8**.

[5]. Communication of Results (Conclusion Phase): The final step of the DSR process is the conclusion as described in **Chapter 9** which brings this study to a close.

Figure 38: DSR mapping to thesis below depicts the contrast between DSR with classical science research and shows the outputs in relation.

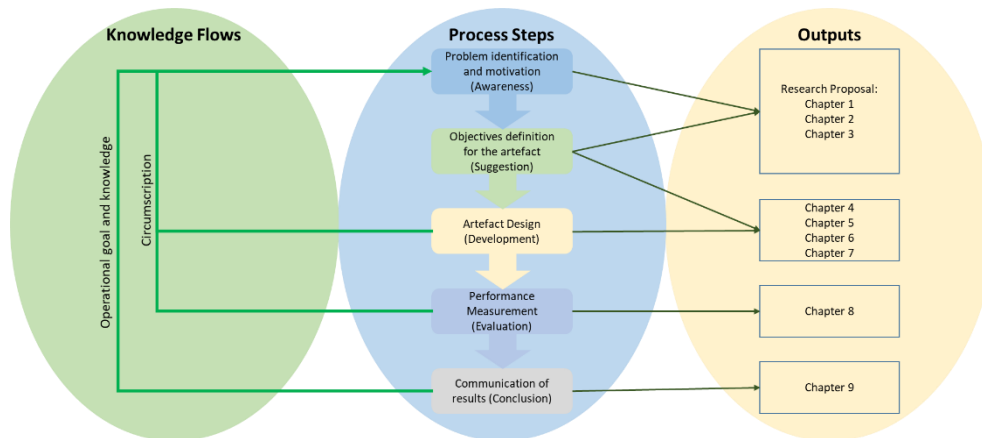


Figure 38: DSR mapping to thesis

3.4.6 Theoretical Perspective

Analysing the problem description and identifying design theory as a suitable theoretical framework is clear, based on the fact that the outcome of this research is to produce an artefact that can be used practically. Design theory offers the guidelines to identify the constructs, complete a design and then test the framework iteratively (A. Hevner & Chatterjee, 2010; Mandviwalla, 2015). The guidelines can be classified into core components and additional components as listed below:

- **Core Components**

- 1) **Purpose and Scope:** “What the system is for”, the set of meta-requirements or goals that specifies the type of artefact to which the theory applies and in conjunction also defines the scope, or boundaries, of the theory.
- 2) **Constructs:** Representations of the entities of interest in the theory.
- 3) **Knowledge of Form and Function:** The abstract “blueprint” or architecture describes an IS artefact, either product or method/intervention.
- 4) **Abstraction and Generalisation:** The changes in the state of the artefact are anticipated in theory, that is, what degree of artefact change is encompassed by the theory.
- 5) **Evaluation and Validation Propositions:** Truth statements about the design theory.

6) **Justificatory Knowledge:** The underlying knowledge or theory from the natural or social, or design sciences gives a basis and explanation for the design (kernel theories).

- **Additional Components**

7) **Principles of Implementation:** A description of processes for implementing the theory (either product or method) in specific contexts.

8) **Expository Instantiation:** A physical implementation of the artefact can assist in representing the theory both as an expository device and for purposes of testing.

Another guiding theory that was used for measuring the maturity of social systems is people, process and technology as described in Section 2.4.3. To measure the maturity of a practice it was important not only to assess the maturity of processes and technology as most maturity models do but also to assess the people dimension which relates to culture, adoption and the change management required for sociotechnological implementations. If this is not considered, the respective practice could fail as processes and technology not in use become irrelevant.

3.5 ARTEFACT DEVELOPMENT

In this section the development cycles are described and it's purposed explained. This is important as it provides the researcher with structure for the development of the artefact.

3.5.1 Cycle 1: EAM Dimensions - SLR

The systematic review of EAM frameworks aims to critically evaluate and identify components of existing EAM frameworks that can be reused as assessment criteria.

Following the guidelines set out by Okoli and Schabram (2010), the SLR conducted used the following steps:

1. Identify the purpose/need for the SLR.
2. Identify and develop the SLR question/s to be answered.
3. Execute a comprehensive and exhaustive search for primary studies.
4. Assess and record the quality.
5. Classify the data.



6. Extract the Data.
7. Summarise and synthesise the data.
8. Analyse the results.
9. Compile the report.

While EA and its adoption has increased over the last few decades, many organisations fail with the management of EA afterwards. EAM is recognised by organisations as the accepted solution to assist with strategic transformation in a rapidly changing economic, technical and regulatory environment (Buckl et al., 2010) yet there is no commonly accepted understanding of maturity in EAM (Buckl et al., 2010; Simon et al., 2013). Olsen and Trelsgard (2016) argued that many organisations choose to implement an EA strategy but most fail as a result of the same EA challenges. The literature provides enough information on frameworks and methodologies for EA but little/no information on what to assess and improve in EAM to increase the maturity to support the success.

Failure is often due to a lack of understanding and an unclear vision of how the different components of EAM fit together (Hacks et al., 2017; Khateeb, 2016; Lim et al., 2009; Niemi & Pekkola, 2017; D. H. Olsen & Trelsgard, 2016; Rouhani et al., 2013). Therefore, understanding the different dimensions and the level at which they need to operate is imperative for success.

3.5.2 Cycle 2: EAM Dimensions – Case Study

EAM Framework Dimensions Questionnaire

The EAM framework dimension questionnaire aims to collect data from industry experts in the financial services sector regarding the identification and importance of critical elements of EAM. This data can be used to verify and validate the results received during the EAM framework SLR. Using a survey questionnaire is particularly useful for this type of data collection because it is relatively easy to administer and cost-efficient. Through this method, the researcher was able to reach many participants in a short period. The data collection instrument used to determine the dimensions that are critical to the EAM framework is a questionnaire. In the sections above, the researcher described the reasons why this is best suited for this type of study.

Interview Questionnaires

The data collected during the data collection phase of the research was facilitated using three questionnaires administered to EA practitioners and selected individuals from within the selected case study. The process was executed in this chapter and segmented into two stages:

- a. **Stage 1:** Key participants were selected to pilot the questionnaires to validate the appropriateness, the ease of completion and the overall tediousness of the process
- b. **Stage 2:** An online questionnaire tool was selected and used to collect data. The collections process was managed by segmenting the participants into manageable campaigns:
 - I. *Campaign 1:* Survey Questionnaire – EA practitioners (Financial Services)
 - II. *Campaign 2:* Interview and Survey Questionnaire – Business Senior Managers and Executives (Case Study)
 - III. *Campaign 3:* Interview and Survey Questionnaire – IT Senior Managers and Executives (Case Study).

Sampling

Sampling is a process of selecting a subset of something that is a representation of a whole or a population (Bhattacharjee, 2012; Onwuegbuzie & Collins, 2007; Saunders et al., 2009). Onwuegbuzie and Collins (2007) argue that sampling is a crucial step in the research process as it assists by informing the quality of the conclusions of the study. With qualitative and quantitative analysis, the researcher must justify the number of participants as well as explain how they were selected. The following sections describe and motivate fully why a particular method was used. Saunders et al. (2009) state that even when adopting a case study of a single organisation as your research strategy, you are required to determine the sample that you used to conclude your investigation. Although this research follows a DSR strategy, the artefact developed in achieving the main objective of this study was validated using a case study from the financial services industry.

Target population

A target population is described by Saunders (2009) as a full set of cases that are selected as a sample, and it is not necessary for the term *population* to mean people but could also mean a group of restaurants or retail businesses. However, suppose it is possible to conduct the data collection from the entire population. In that case, it should not be assumed that collecting data from the entire population was more useful than using a subset of data (Bhattacharjee, 2012). This study consisted of two focus areas with regard to target population data collection.

The first area of focus for the target population is the collection of data from experts in the information systems field of computer science in the financial services industry. A mixed selection of senior domain specialists, senior managers, enterprise architects, chief architects and CIOs from the financial services industries across national and international organisations were used in this data collection process. EA is seen as a senior/strategic role within most organisations and as such, any individual that is below this career level may not be experienced enough to provide valuable input into the study and is therefore excluded from the data collection process.

In the second area of focus, the data collection was conducted in an organisation within financial services. The target population was limited to the employees within that specific organisation selected for the study. Based on the collection method, a mixed selection of senior managers and senior domain specialists was used in the data collection process together with enterprise architects, the chief architect and the CIO within the organisation's specific business units/departments. Similar to the first target population above, EA is seen as a senior/strategic role within most organisations and as such, any individual below this career level may not be experienced enough to provide valuable input into the study and was therefore excluded from the data collection process.

Sampling method

Many researchers will need to consider the use of sampling in pursuit of answering their research questions and achieving their research objectives (Saunders et al., 2009). It may be possible to collect data from the entire population, commonly known as a census, but it

may not be feasible to conclude the study in this manner. The reasons for it not being feasible could be time restrictions, cost factors or the effort versus benefit factor. Saunders et al. (2009) argue that you should not assume that a census is better than using a sample of the population. The use of sampling techniques can be divided into two types, namely probability sampling and nonprobability sampling.

Probability sampling can be described as a known criterion for selection that is equal for all cases in the population. With nonprobability sampling, the probability of every case is not known but can be still be used to make generalisations from the sample population (Saunders et al., 2009). This study adopted the use of nonprobability sampling techniques.

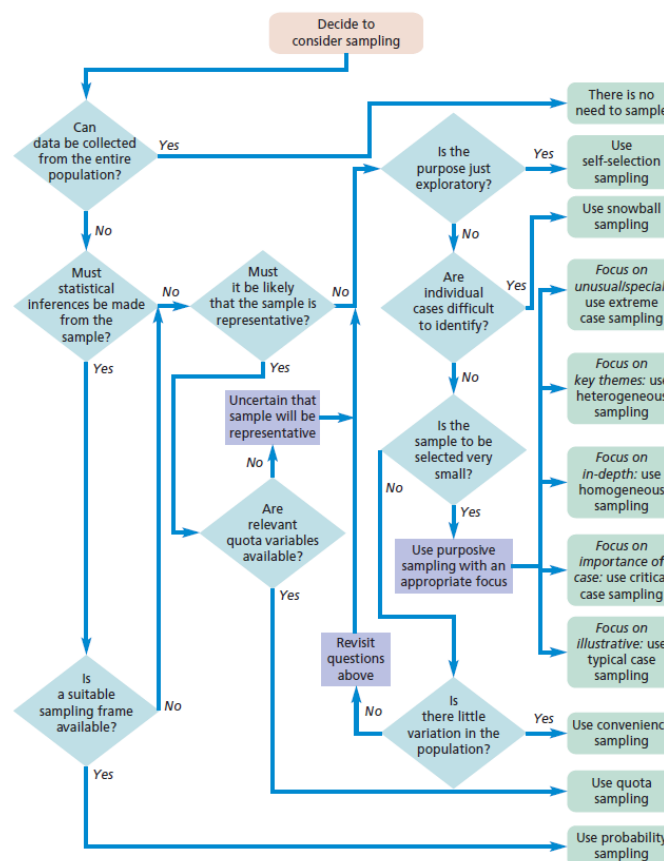


Figure 39: Sampling selection – adapted from (Saunders et al., 2009)

Within nonprobability sampling techniques there are many sampling methods. Choosing the right sampling method is based on the study and the objectives. Using the flowchart from Figure 39: Sampling selection, the researcher was able to identify the sampling methods used in this study. Based on this study, the focus areas described in the target population

section above, the chosen sampling method is self-selection sampling, as depicted in Table 8: Sampling Summary.

No.	Research Question	Research Objectives	Collection Instrument	Sampling Size	Sampling Method
1	What are the most critical components within the existing EAM framework that can be used in a maturity framework?	To examine the existing EAM framework and identify the appropriate components to be reused	SLR	N/A	N/A
2	Which maturity framework would be best suited to be used to assess EAM using the components identified above?	To examine existing maturity frameworks and identify the most appropriate components to be reused	SLR	N/A	N/A
3	What are the most critical components of EAM as seen by EAM practitioners in financial institutions?	To identify critical components of EAM through EAM practitioners in financial institutions.	Questionnaire	10-20	Self-Selection Sampling
4	How can the newly constructed maturity framework be validated within the selected case study?	To validate the newly constructed maturity framework with the selected case study.	Questionnaire	10-20	Self-Selection Sampling

Table 8: Sampling Summary

Self-selection sampling was chosen for this study since it allows individuals who wish to participate in the research the opportunity to do so. This requires that the researcher publicise the need to collect data by advertising or broadcasting the intent on some media platform. If an employee wishes to participate, all that is required from them to start the process is to follow the link/process to the data collection method that was explained in the notification. The advantage of using this method is that it is fairly low-cost and can reach people everywhere. It allows them to take the survey when it is convenient for them as the researcher does not have to find a mutually convenient time slot to administer the survey. This can be a disadvantage as it may result in the participant never making the time to complete the survey. This led to a further consequence of receiving poor responses and discouragement if many do not respond. If the survey receives a poor response, the researcher can publicise in other forums to increase the response rate.

Sample size

A good sample in qualitative studies is enough to adequately answer the research questions (Marshall, 1996). This study requires a sampling size for two types of data collections. In both of these data collection types, the researcher expects to get between 10 and 20 responses. The skills of these individuals are limited in the industry and therefore, it might have been very difficult to find participants of that level of experience and knowledge. The researcher had to rely on the relevant communities to assist in finding participants who provided valuable data for this study. As a result, the researcher personally had to select the participants based on key attributes. These attributes addressed elements like experience, practical and educational knowledge and active involvement in the area of focus and industry exposure. The risk of the sampling method used is that it may provide poor results in the data and findings, this is why the selection process was critical to this study.

3.5.3 Cycle 3: Maturity Framework - SLR

The systematic review of maturity frameworks aims to critically evaluate and identify components of an existing maturity framework that are best suited to be used as assessment measurement criteria to determine the level of maturity of a particular component. The guidelines for conducting SLRs can be described with the following steps (Okoli & Schabram, 2010):

- Screening for literature,
- Practical Screening,
- Quality Appraisal and
- Data Extraction.

While EA and its adoption has seen increased adoption over the last few decades, many organisations fail with the management of EA afterwards. EAM is recognised as the accepted solution by organisations to assist with strategic transformation in a rapidly changing economic, technical and regulatory environment (Buckl et al., 2010) yet there is no a commonly accepted understanding of maturity in EAM (Buckl et al., 2010; Simon et al., 2013). Olsen and Treilsgard (2016) argued that many organisations choose to implement an EA strategy, but most fail as a result of the same EA challenges. The literature provides

some information on maturity models and levels for EA but little/no information on what to assess and improve in EAM to increase the maturity to support the success.

Maturity models are designed to test specific areas within a topic of interest. Within EAM people, process and technology are often vital areas to test for maturity in any practice. Currently, there is a lack of this combination of maturity testing that. To effectively create a maturity model that focuses on these measurement criteria, it is important to identify the vital qualities within the focus areas.

3.6 ARTEFACT EVALUATION

The evaluation of design artefacts is a crucial part of the DSR process as it ensures rigour and feedback for future development (Venable et al., 2016). Venable et al. (2016) identified many approaches for the evaluation of design artefacts and outlined a four-step process to guide researchers develop their evaluation strategy.

It is important to identify the categories that are vital for the evaluation of the design artefact, some of the most used categories are (1) formative vs summative and (2) *ex-ante* vs *ex-post* (Remenyi & Sherwood-Smith, 2012). Each category aligns with intended goals that are linked to the objectives of the evaluation process thereby creating a link between evaluation goals and the evaluation strategy (Venable et al., 2016). The FEDS framework was developed based on two dimensions (1) the functional purpose (formative or summative) and (2) the paradigm of the evaluation (artificial or naturalistic), depicted in Figure 40: FEDS evaluation strategies.

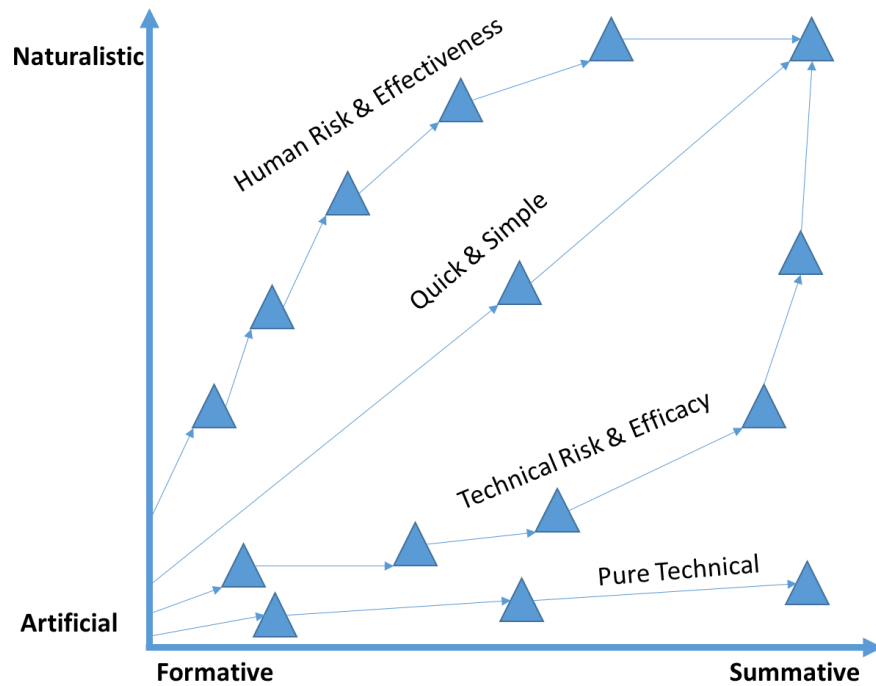


Figure 40: FEDS evaluation strategies - Adapted from (Venable et al., 2016)

Based on the selected strategy, the pathway to be followed in a DSR project is guided by when to evaluate, for what purpose and how. Venable et al. (2016) argue that each of the four strategies is relevant depending on the goals of the evaluation and describes the circumstances under which each strategy is most appropriate:

- **Quick and simple** – If a small and simple construction, with low social and technical risk and uncertainty.
- **Human risk and effectiveness** – If the major design risk is social and user-orientated **and/or** it is relatively cheap to evaluate with real users in their real context **and/or** a critical goal of the evaluation is to rigorously establish that the utility/benefit will continue in the real situation and over the long run.
- **Technical risk and efficacy** – If the major design risk is technically oriented **and/or** it is prohibitively expensive to evaluate with real users and real systems in a real setting **and/or** a critical goal of the evaluation is to rigorously establish that the utility/benefit is due to the artefact, not something else.
- **Purely technical** – If the artefact is purely technical (no social aspects) or artefact use would be good in future but not currently.



3.7 CHAPTER SUMMARY

This chapter started with the research problem and the purpose of the study. Section 3 provided details of the research methodology and described the research design selected for this study. This research is based on a pragmatist philosophy and the related paradigms were discussed with the rationale behind the selection. The instruments used to conduct the data collection for this study were survey questionnaires and interview-based and used a mixed-method approach in analysing the data. This chapter described and discussed the different philosophical and methodological assumptions. Part of the discussion was the selection and motivation of why a philosophy or methodology was chosen. Together with this, the chapter also described the research method, data collection, data analysis and the ethics adopted for this study. A summary of the selection is depicted in Table 9: Research Design Summary.

Philosophical Assumptions	Ontology	Pragmatism	
	Epistemology	Subjective and Objective	
Approach	Methodology	Mix-Method	
	Strategy	DSR / SLR	
		Inductive	
	Non-numeric Data	Method	Survey / SLR
		Instrument	Questionnaire / SLR
		Analysis	Thematic Analysis /SLR

Table 9: Research Design Summary

This chapter also discussed some of the ethical considerations that needed to be in place. The research strategy used for this study was DSR. As such, it involved the development of an artefact. The chapter went on to elaborate on how the development of the artefact created was developed and evaluated.

4 SLR: EAM FRAMEWORK DIMENSION

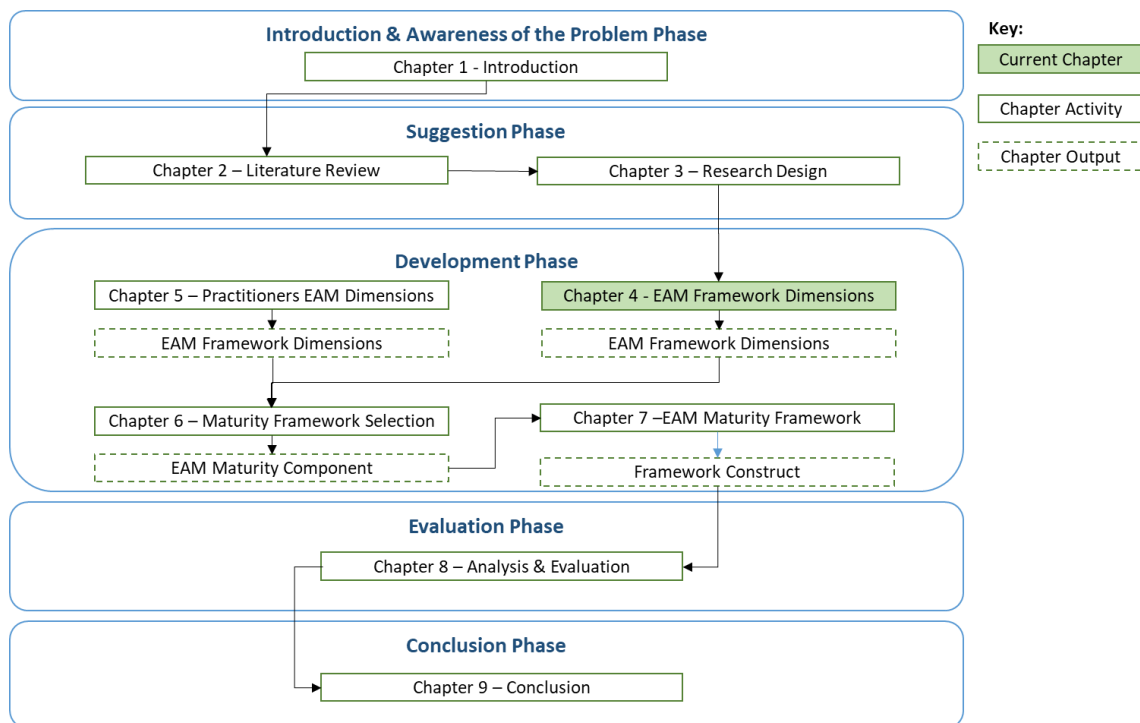


Figure 41: Chapter 4 Thesis Map

4.1 INTRODUCTION

Chapter 3 described the approach and paradigm used to conduct this study. The previous chapter also provided the foundation required to understand the reason for selecting any particular research design philosophies. In **Chapter 4**, the researcher starts the development cycle, which is concerned with identifying key EAM dimensions executed as a systematic literature review. In this chapter, the researcher described the approach used to collect and analyse data and concluded with a list of key EAM dimensions that have an essential role to play in the success and maturity improvement of EAM.

Chapter 4 comprises four parts as depicted in Figure 42: Chapter 4 Map. The first section started with an introduction that argues the research process and the research necessity. **Section 2** detailed the data collection process which includes its planning and execution. In **Section 3**, the researcher applied the first round of quality checks to each study. **Section 4** describes the data appraisal and extraction process, ensuring that the research steps can be repeated and replicated. In **Section 5**, the execution and analysis are completed, and this chapter ends with the conclusion of the findings.

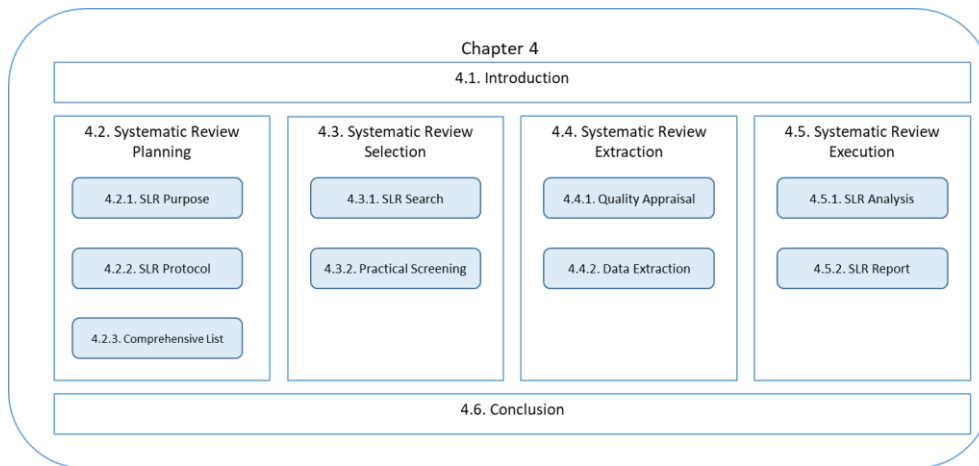


Figure 42: Chapter 4 Map

The start of this SLR is initiated with the development cycle of the DSR strategy and forms the foundation required for the subsequent phases. This is the first of a three-phased iterative approach as depicted in Figure 43: Phase 1 of DSR Strategy.

DSR Research Approach

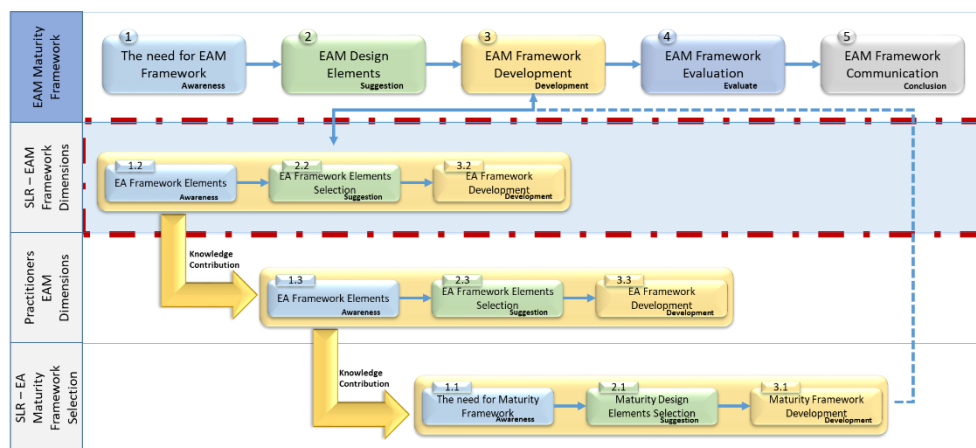


Figure 43: Phase 1 of DSR Strategy

This chapter aims to assist the researcher to plan, collect, analyse and conclude a systematic literature review by following the Okoli and Schabram (2010) guidelines. Understanding the EAM dimensions discussed and described in **Chapter 2** represents the basis from which a framework was developed. The primary motivation for starting this research with an SLR is aligned to Kitchenham and Charters's (2007) most common reason for completing a systematic review which are to:

- Summarise existing empirical evidence in literature EAM dimensions;

- Identify gaps in current research and
- Follow a structured and scientific approach to new research on understanding critical dimensions of EAM.

4.2 SYSTEMATIC REVIEW PLANNING

4.2.1 Systematic Review Purpose

Before conducting an SLR, it is necessary to outline and understand the intent (A. Hevner & Chatterjee, 2010). To fulfil the larger objective of this research, multiple sub objectives have to be fulfilled. The sub objectives related to SRQ1 were to conduct focused-based research that provided the foundation for the subsequent sub objectives, as it provided a baseline of EAM dimensions. Hence, the need for this SLR was based on the objectives set out in **Chapter 1**. Many dimensions of EAM have been covered in **Chapter 2**. The consensus is that there is no common understanding of the key dimensions that EAM is made up of. When addressing the purpose of an SLR, Okoli and Schabram (2010) describe six categories of purposes:

- To analyse the progress of a stream of research.
- To make recommendations for future research.
- To review the application of models in information systems.
- To review the application of methodological approaches.
- To develop a model or framework.
- To answer a specific research question.

The purpose of this SLR, which is linked to SRQ2 “What are the most critical components within existing EAM framework that can be used in a maturity framework?” is aligned to the last two categories. Many SLR approaches exist and can be followed (de Almeida Biolchini et al., 2007; Kitchenham, 2004; Okoli & Schabram, 2010). For this research, the phased approach to conducting an SLR was adopted, as described by Okoli and Schabram (2010), depicted in Figure 44: SLR Approach adapted from Okoli and Schabram, (2010).

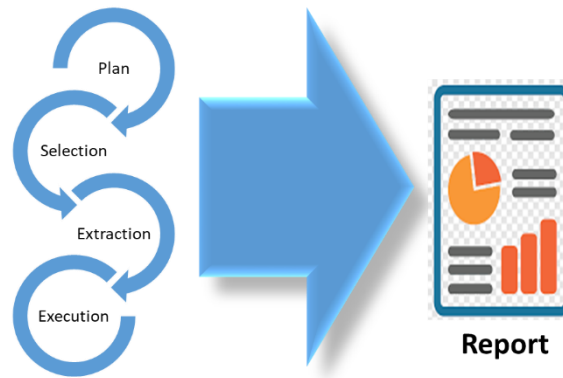


Figure 44: SLR Approach adapted from Okoli and Schabram, (2010)

As part of the guidelines, the requirement to have more than one researcher on this SLR could not be satisfied because a single researcher completed this research as part of the fulfilment of a doctoral dissertation. The process of the guidelines is depicted in Figure 45: SLR approach and process.

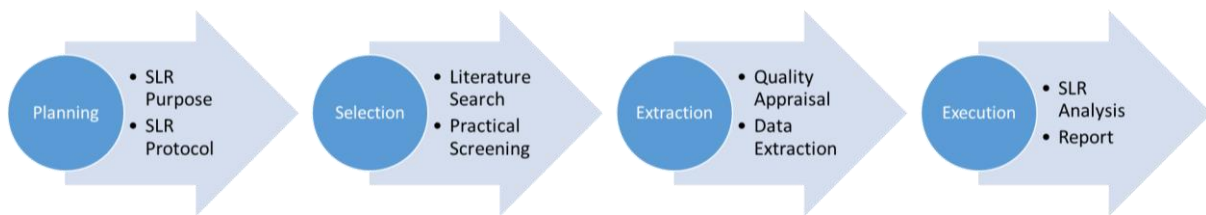


Figure 45: SLR approach and process- adapted from Okoli and Schabram, (2010)

4.2.2 Systematic Review Protocol

In accordance with the guidelines set out by Okoli and Schabram (2010), the SLR was executed using the following steps:

1. Identify the purpose/need for the SLR.
2. Identify and develop the SLR question/s to be answered.
3. Execute a comprehensive and exhaustive search for primary studies.
4. Assess and record the quality.
5. Classify the data.
6. Extract the data.
7. Summarise and synthesise the data.
8. Analyse the results.
9. Compile the report.

Purpose

This SLR is part of a broader study conducted by the researcher in the development of an EAM maturity framework aimed at assisting organisations to improve and mature their EAM practice. While there are increasing studies on the value and the importance of EAM, there is little information on the critical elements and how to mature them through its existence in an organisation.

While EA and its adoption has increased over the last few decades, many organisations fail with the management of EA afterwards (Buckl, Ernst, Matthes, & Schweda, 2009; Hope et al., 2017). EAM is recognised by organisations as the accepted solution to assist with strategic transformation in a rapidly changing economic, technical and regulatory environment (Buckl et al., 2010) yet there is no commonly accepted understanding of maturity in EAM (Buckl et al., 2010; Simon et al., 2013). Olsen and Trelsgard (2016) argued that many organisations choose to implement an EA strategy, but most fail as a result of the same EA challenges. The literature provides enough information on frameworks and methodologies for EA but little/no information on what to assess and improve in EAM to increase the maturity to support its success.

Failure is often due to a lack of understanding and an unclear vision of how the different components of EAM fit together (Hacks et al., 2017; Khateeb, 2016; Lim et al., 2009; Niemi & Pekkola, 2017; D. H. Olsen & Trelsgard, 2016; Rouhani et al., 2013). Therefore, understanding the different dimensions and the levels at which they need to operate is imperative for success.

Research question

The SRQ1 set out in **Chapter 1**, “What are the most critical components within existing EAM framework that can be used in a maturity framework?” and its suitability for investigation using a systematic review are based on Kitchenham's (2007) question types for software engineering. However, this question type does not align with any software engineering question types by Kitchenham (2007). The research question is more aligned to the medical equivalent question type, which is *identifying whether a condition can be predicted*.

Preliminary investigation suggests that there is very little research in EAM maturity improvements in information systems. However, we cannot answer the question without understanding where EAM dimensions are placed within existing frameworks and the implications for people, processes and technology. When the understanding of these dimensions is known, these questions can be asked: which dimensions increase success in EAM, which part of existing frameworks can be adopted, how do people increase success? To ensure that the researcher does not exclude valuable work, he also looked at dimensions that add to the challenges or failures.

To identify the most critical dimensions of existing frameworks, the following question must be answered:

SRQ1: What are the dimensions in existing EA frameworks that increase EAM success (failure)?

The motivation for SRQ1 is to separate those dimensions that contribute to success and those that contribute to failure or provides little/no value.

Search Constructs

Using the guidelines recommended by Kitchenham (2004) that focus on three viewpoints, namely the population, intervention and outcomes, the following details formed the basis for the construction of appropriate search terms later in this section:

- **Population:** Enterprise Architects, Business Strategist, IT Architects, Senior Executives.
- **Intervention:** Maturity improvement, productivity measurements.
- **Outcomes:** EAM success dimensions.

4.3 SYSTEMATIC REVIEW SELECTION

4.3.1 Search Strategy

While an SLR aims to identify as many primary studies relating to the research question by using an unbiased approach (Kitchenham, 2004), it is necessary to determine and follow a search strategy to conduct an SLR effectively. Intrinsically, the following steps were adhered to:

1. Develop/obtain significant terms from the questions using the population, invention and outcomes.
2. Identify and recognise different spelling alternatives as well as synonyms for these terms.
3. Identify keywords from relevant research papers obtained during the literature review.
4. Where possible in search engines make use of Boolean operators such as "AND" and "OR".

Keyword and Synonyms

Keywords are used in SLRs to search databases within a specific academic realm. These keywords were expanded to include synonyms revolving around the constructs identified for each research question. Table 10: Research question keywords below provide a comprehensive list of these keywords used to complete the search activity.

Research keywords		
Enterprise Architecture	Framework	Success
Enterprise Architecture Management	Methodology	Failures
Execution	Methodologies	Planning
Requirement	Dimensions	Adoption
Business Architect	Components	Business Strategy
Maturity improvement	Productivity measurements	IT Architects
Senior Executives		

Table 10: Research question keywords

Sources / Digital Libraries

The objective of this section is to justify the selection of the sources that were used in this SLR. The source selection criteria included the evaluation of all relevant electronically available scientific databases. It also included features and functionalities that allowed for

the use of keyword searches for abstracts, titles and citations with advanced searching capabilities that allows for the use of concatenation and truncation functions. All databases used for the searches were required to be in the English language and have an academic nature, as depicted in Table 11: Source list before evaluation.

Database	Link
IEEE Explore	http://www.ieee.org/web/publications/xplore/
ACM Digital library	http://portal.acm.org
Google scholar	scholar.google.com
Inspec	www.iee.org/Publish/INSPEC/
Science Direct	www.sciencedirect.com
ISI Web of Science	http://portal.isiknowledge.com/
Proceedings for the special interest group for computer personnel research	http://www.sigmis.org/
Springer Link	http://www.springerlink.com

Table 11: Source list before evaluation

Database	Evaluation criteria met
IEEE Explore	Yes
ACM Digital library	Yes
Google Scholar	Yes
Inspec	No
Science Direct	Yes
ISI Web of Science	Yes
Proceedings for the special interest group for computer personnel research	No
Springer Link	Yes

Table 12: Source list after evaluation

4.3.2 Practical Screen

Search Strings

SRQ1 – “Enterprise Architecture Management”



Inclusion/ Exclusion Criteria

After using the search string in a database, there were a large number of articles in the result dataset. Since it is beyond the scope of this study to analyse all of the retrieved articles, the criteria in Table 13: Inclusion and Exclusion Criteria list below were used to select the relevant articles for answering the research question. This step is required to conduct an early-stage separation from articles that may have had potential and those that did not contribute to the value of this SLR. This was achieved by reading through the abstract of the article and applying specific criteria that were either in favour of proceeding with the article or not, which result in the article being discarded.

Inclusions	Exclusions
Doctoral Publications and Technical reports	Web Sources (nonvalidated)
Peer-reviewed full-text academic IS Journals	Non-English versions
Articles from conferences	Content outside ICT driver organisations
Published between 1980-2020	Anything outside direct implication on EAM.
Directly answer any one or more of the research questions	Books
Relate to any practitioner directly involved in EAM	Overhead presentations
Focus on success as well as failures regarding EAM	Non-Full-Text articles
Focus on culture in terms of how IT personnel are motivated	
Focus on satisfaction with EAM at a senior level in organisations	

Table 13: Inclusion and Exclusion Criteria list

4.4 SYSTEMATIC REVIEW EXTRACTION

4.4.1 Quality Appraisal

Assessing Quality

The quality appraisal assessment was completed for all research articles using the assessment criteria shown in Table 14: Quality Assessment Criteria. This was applied to all research papers that had satisfied the inclusion and exclusion criteria assessments. Together with the assessment scoring, the inclusion and exclusion criteria provided an aggregated quality criteria which provided a guide to quality research papers for selection. The score alone has no bearing on the quality of the article itself. Quality was based on the combination of the criteria, the context of the paper and the score.

Item	Assessment Criteria	Score	Scoring Matrix
1	Does the study report clear, unambiguous findings based on evidence and argument?		– Yes = 1 /No = 0
2	Could you replicate the study?		– Yes = 1 /No = 0
3	Number of participants?		– Unit = 1 person – $\leq 5 = 0$; $5 < 50 = .5$; $> 50 = 1$
4	Directly answers the research question?		– Yes = 1 – Moderately = .5 – No = 0
5	Does it have some references to the key aspects?		– Yes = 1 – Moderately = .5 – No = 0
6	Does it relate to any practitioner directly producing enterprise architecture?		– Yes = 1 – Moderately = .5 – No = 0
7	How well are the practices or factors defined?		– Yes: it either explicitly describes practices of EAM or describes factors of EA implementation clearly = 1 – Partially: it only mentioned a few either practices or factors of EAM = .5 – No: it neither described nor mentioned practices and factors of EAM = 0
8	How clearly is the research process established?		– Yes: it explained clearly the process of research – Partially: it mentioned the process but did not explain why – No: it did not explain the process
9	How clearly are the work limitations documented?		– Yes: it clearly explained the limitation of EA implementation practices

Item	Assessment Criteria	Score	Scoring Matrix
			– Partially: it mentioned the limitation but did not explain why – No: it did not mention the limitation

Table 14: Quality Assessment Criteria

Assessment Results Documentation

For all articles that pass the minimum requirements for both the inclusion and exclusion criteria and have been scored accordingly, the results were abstracted and recorded against the relevant fields as depicted in Table 15: Documentation Template. This does not serve as a description of the article. Instead, it provides a list of results documented all in one place.

Reviewer's Name	
Title of the paper	
Paper ID	
RQ List	Recorded In Paper
RQ1: What are the commonly used dimensions of EAM?	

Table 15: Documentation Template

4.4.2 Data Extraction Procedure

To ensure the reliability and replicability of this research, the following prescriptive steps had to be followed and the following prescribed data input values and templates had to be used. The summary of the data extraction procedure is graphically depicted in Figure 46: Data Extraction process.

Extraction Preparation

Before starting with the data extraction process, there are preliminary steps that need to be completed (Kitchenham & Charters, 2007; Okoli & Schabram, 2010). These steps are seen as planning steps and consist of input data, reference data and output data. Once these steps are done, the foundational elements required to start the data extraction process are complete and the process of extraction can begin.

Search Data: The preparation to begin the search requires a list of databases from which studies are found. The URLs for each database used in this study can be found in [Section 4.3.1](#). Together with the databases are the search terms that must be used to maintain the consistency of the search results. The search terms that were tailored for this study have been detailed in [Section 4.3.1](#).

Reference Data: To ensure that quality is maintained, all studies found through the search exercise within each database must be qualified using key criteria. These criteria are listed below with the section of the study that details them:

- Our research questions can be found in [Section 4.2.2](#).
- Exclusion criteria detail the criteria that should be excluded and are located in [Section 4.3.2](#).
- Inclusion criteria form part of [Section 4.3.2](#).
- Quality appraisal criteria are described further in [Section 4.4.1](#).
- The systematic procedure is detailed in [Section 4.2](#) 4.2.

Output Data: Once all studies have been quality assured, only the studies that passed the minimum score were included in the final study. The results from the appraisal exercise can be found in Table 42: EAM Dimension SLR Appraisal Result in Appendix A.

Execution procedure

1 Create the electronic folder structures

The extraction procedure begins with the creation of the respective folder structure in the root directory labelled “**EAM Dimension SLR**”. Within this folder, add two other folders namely “EAM_Dimension_General sub-folder” which will contain the templates described in the section above and EAM_ Dimension _Assessment-Results for the storing of the quality appraisal results.

2 Open electronic reference manager *Zotero*

Zotero is the software reference tool used for the capture and management of all study reference data and metadata for this research. In *Zotero*, the researcher began by

creating a project, labelled it "EAM_Dimensions Library" and created the following folder structure

- All References
- WIP Papers
- Exclusion Met
- Inclusion Met
- Appraisal Paper
- Accepted Papers.

3 Execute search string

After all folder structures have been created the search condition must be executed for each database in the database URL list. The references of the search results must be copied into the "All references folder" in *Zotero*.

3.1 Apply practical screening conditions

After all references from the search string execution are complete, all required details that are missing from the reference metadata must be manually captured. Once this is completed the researcher begins to apply the practical screening conditions, starting with the exclusion criteria defined in the SLR protocol. If the study satisfied the exclusion criteria, it may then be moved into the "Inclusion criteria" folder. If the exclusion criteria were not satisfied, the study is rejected. In a case where the outcome is undecided, the study must be moved in the WIP folder and capture a reason respectively. The same must be completed for the inclusion criteria conditions before continuing. After all studies in the all reference folder have been assessed, it is important to go back to the WIP folder and reject or advance the study to the "appraisal paper" folder.

3.2 Apply appraisal conditions

Once all practical screen conditions are complete the quality appraisal can be completed for all studies in the appraisal paper folder. For each study, the appraisal questions must be applied and scored. Studies with a score above the minimum threshold were advanced to the "Accepted papers" folder and became the primary studies upon which this study is based.

The logical flow described above is depicted in Figure 46: Data Extraction process.

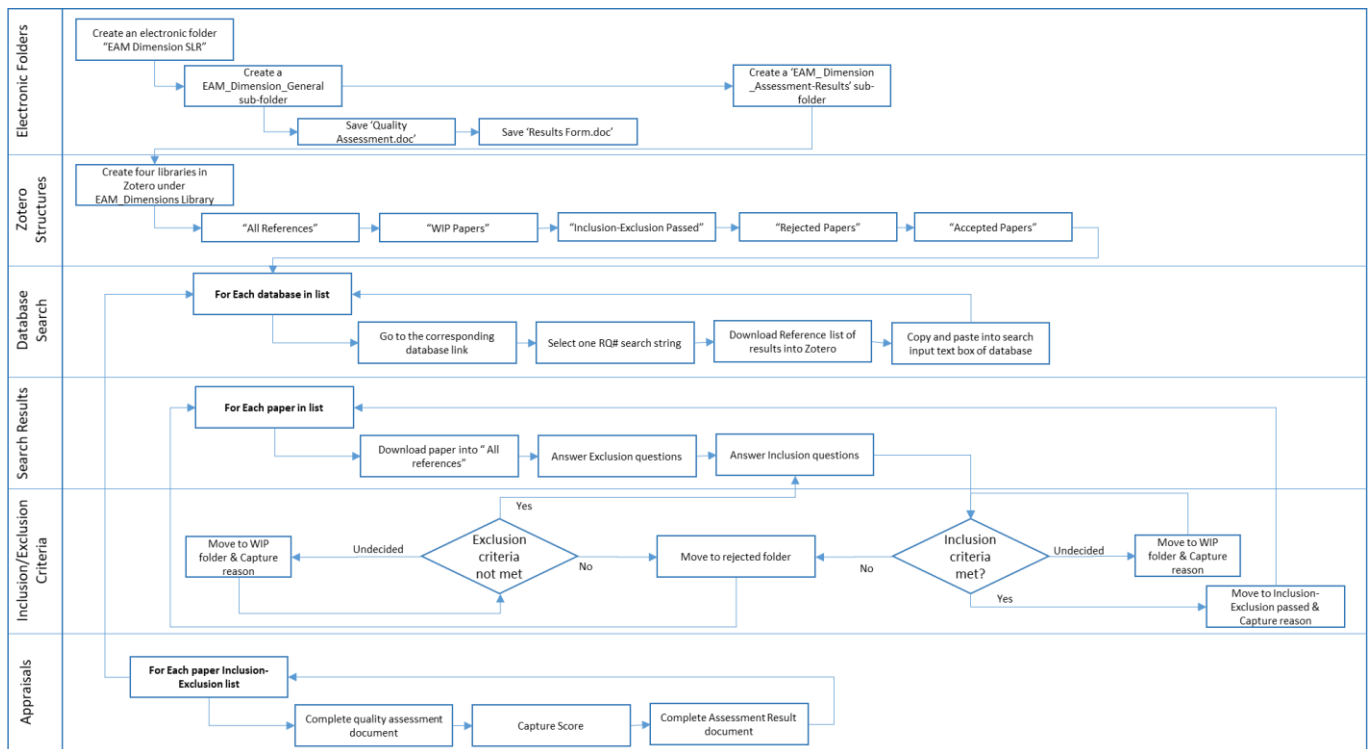


Figure 46: Data Extraction process

4.4.3 Data Synthesis

After carefully following the processes and procedures outlined in the previous section, the result ended with a total of 80 primary studies that were used in answering the research question of this SLR, which is to identify elements that are key to the success of EAM. The summary of the execution procedure is depicted in Figure 47. The search string specified in Section 4.3.1 was used within each qualifying search database. In cases where some database engines had limitations in the manner that the search string could be executed, the search string was altered to adhere to the way that database was required to provide a successful result. This was completed in such a way that the altered search string still provided correct and valid results. The results from each database were captured individually against the respective database and then consolidated to provide a combined list of searched results.

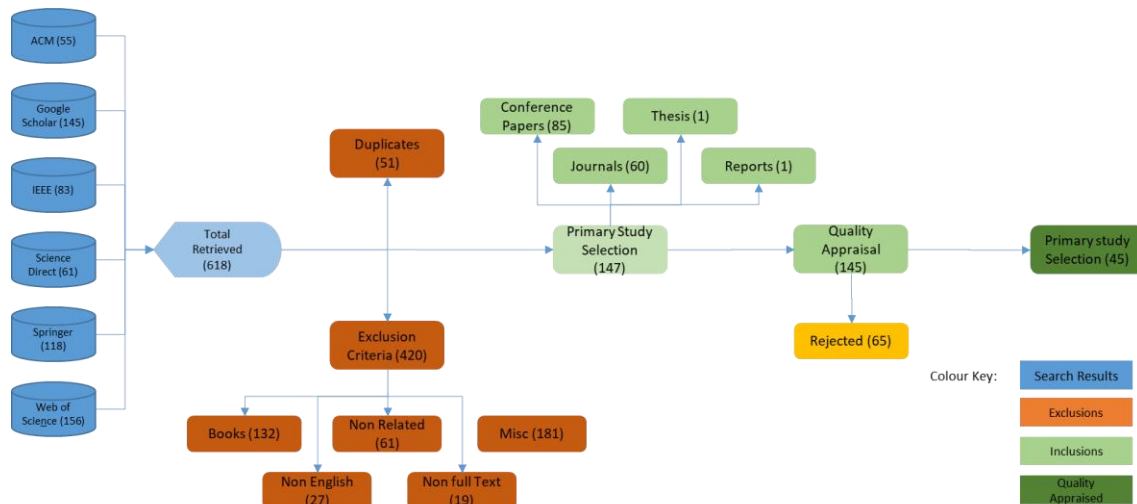


Figure 47: Summary of the execution procedure

Working through the exclusion criteria specified in section 4.3.2, all duplicates were removed. This was followed by removing any study listed as a book, non-English studies, and non-full text studies based on the review of the studies' titles, abstracts or conclusions. This brought down the number of primary studies for a full review. The list of primary studies that remained was then evaluated against the inclusion criteria. All studies that did not meet the criteria were put into the exclusion list as nonrelated studies. Using the scoring appraisal specified in Section 4.4.1, each study was further evaluated and scored accordingly.

Any successful study was regarded as the selection of the primary studies that were used to answer this SLR's research question through a critical review.

Selection Execution

The selection execution process aims to identify the list of primary studies by executing the SLR strategy specified in Section 4.4.2 to maintain a form of standard and consistency between each of the databases identified for this SLR.

Databases / Search Engines

This SLR started with eight online databases/search engines. Two of them were excluded based on not meeting the minimum criteria. For the remaining six databases, the selection

strategy was applied and the results were captured. The search results that were retrieved for each database can be found in APPENDIX A: Chapter 4 – Supporting Data.

Practical Screening

The practical screening criteria specified in Section 4.3.2 were applied to all studies within the search results to verify if the inclusion or exclusion criteria fit. These were then rejected or accepted based on the results.

Quality Appraisal

To ensure that the primary studies were of high quality, each study was scored based on the predefined questions specified in Section 4.4.1. Based on the scoring, the researcher then selected only those studies with a score above seven.

Information Extraction

Once the primary set of studies was identified, the extraction of relevant information began. A selection process that highlighted key elements identified by the authors of the studies was outlined and captured.

4.5 SYSTEMATIC REVIEW EXECUTION

4.5.1 Analysis of Findings

This section discusses how the literature in the SLR assisted the researcher to understand the underlying constructs of EAM.

The analysis of this SLR aims to present the findings from the 45 selected studies that successfully went through the extraction and qualification phase. The method specified in Section 4.4.3 was used to analyse and understand the complexity of the relationships between the results. A summary of the results can be found in Table 16: Summary of EAM Dimensions Citations.



EAM Dimension	# of Quotations	# of Studies	Citations
<i>EAM: Governance</i>	50	23	(Niemi & Pekkola, 2013);(Hacks et al., 2017);(Lange et al., 2016);(Aier & Schelp, 2010);(Nikpay et al., 2013);(Buckl et al., 2011);(Ahlemann et al., 2020);(Olsen & Trelsgård, 2016);(Haki et al., 2012);(Wan et al., 2014);(Schelp and Stutz - 2007);(Seppänen, 2014);(Lange & Mendling, 2011);(Weiss et al., 2013);(Proença & Borbinha, 2017);(Ansyori et al., 2018);(Khateeb, 2016);(Niemi, 2007);(Ylimäki, 2008);(Aier, 2014);(Szabó & Öri, 2017);(Jahani et al., 2010);(Hafsi & Assar, 2020);
<i>EAM: Communication</i>	31	20	(Niemi & Pekkola, 2013);(Hacks et al., - 2017);(Lange et al., 2016);(Aier & Schelp, 2010);(Nikpay et al., 2013);(Buckl et al., 2011);(Ahlemann et al., 2020);(Kotusev et al., 2015b);(Olsen & Trelsgård, 2016);(Haki et al., 2012);(Wan et al., 2014);(Rouhani et al., - 2013);(Seppänen, 2014);(Proença & Borbinha, 2017);(Niemi, 2007);(Ylimäki, 2008);(Iyamu & Mphahlele, 2014);(Hauder et al., 2013);(Al-Kharusi et al., 2016);(Hope et al., 2017);
<i>EAM: Culture</i>	31	18	(Niemi & Pekkola, 2013);(Lange et al., 2016);(Aier & Schelp, 2010);(Nikpay et al., 2013);(Buckl et al., 2011);(Ahlemann et al., 2020);(Kotusev et al., 2015b);(Haki et al., 2012);(Wan et al., 2014);(Seppänen, 2014);(Weiss et al., 2013);(Proença & Borbinha, 2017);(Khateeb, 2016);(Ylimäki, 2008);(Iyamu & Mphahlele, 2014);(Aier, 2014);(Szabó & Öri, 2017);(Kotusev, 2017);
<i>EAM: Methodology</i>	22	17	(Niemi & Pekkola, 2013);(Hacks et al. - 2017);(Nikpay et al., 2013);(Buckl et al., 2011);(Kotusev et al., 2015b);(Olsen & Trelsgård, 2016);(Haki et al., 2012);(Wan et al., 2014);(Schelp and Stutz - 2007);(Rouhani et al. - 2013);(Seppänen, 2014);(Weiss et al., 2013);(Proença & Borbinha, 2017);(Ansyori et al., 2018);(Brosius et al., 2017);(Szabó & Öri, 2017);(Thönssen & von Dewitz, 2018);
<i>EAM: Modelling</i>	24	17	(Niemi & Pekkola, 2013);(Lange et al., 2016);(Aier & Schelp, 2010);(Nikpay et al., 2013);(Buckl et al., 2011);(Ahlemann et al., 2020);(Kotusev et al., 2015b);(Olsen & Trelsgård, 2016);(Haki et al., 2012);(Wan et al., 2014);(Rouhani et al. - 2013);(Lange & Mendling, 2011);(Proença & Borbinha, 2017);(Brosius et al., 2017);(Hauder et al., 2013);(Aier, 2014);(Schmidt et al., 2015);
<i>EAM: Skill</i>	26	16	(Niemi & Pekkola, 2013);(Lange et al., 2016);(Aier & Schelp, 2010);(Nikpay et al., 2013);(Buckl et al., 2011);(Kotusev et al., 2015b);(Olsen & Trelsgård, 2016);(Wan et al., 2014);(Seppänen, 2014);(Proença & Borbinha, 2017);(Ansyori et al., 2018);(Ylimäki, 2008);(Iyamu & Mphahlele, 2014);(Schmidt et al., 2015);(Thönssen & von Dewitz, 2018);(Ylinen & Pekkola, 2018);
<i>EAM: Process Integration</i>	21	15	(Hacks et al. - 2017);(Aier & Schelp, 2010);(Nikpay et al., 2013);(Ahlemann et al., 2020);(Kotusev et al., 2015b);(Olsen & Trelsgård, 2016);(Haki et al., 2012);(Rouhani et al. - 2013);(Seppänen, 2014);(Lange & Mendling, 2011);(Lim et al. - 2009);(Weiss et al., 2013);(Ansyori et al., 2018);(Hauder et al., 2013);(Szabó & Öri, 2017);



EAM Dimension	# of Quotations	# of Studies	Citations
<i>Stakeholder Management</i>	37	15	(Niemi & Pekkola, 2013);(Hacks et al. - 2017);(Lange et al., 2016);(Nikpay et al., 2013);(Buckl et al., 2011);(Ahlemann et al., 2020);(Kotusev et al., 2015b);(Olsen & Trelsgård, 2016);(Wan et al., 2014);(Khateeb, 2016);(Brosius et al., 2017);(Niemi, 2007);(Szabó & Öri, 2017);(Al-Kharusi et al., 2016);(Hope et al., 2017);
<i>EA Decomposition: Business Architecture</i>	22	14	(Lange et al., 2016);(Aier & Schelp, 2010);(Nikpay et al., 2013);(Buckl et al., 2011);(Ahlemann et al., 2020);(Kotusev et al., 2015b);(Olsen & Trelsgård, 2016);(Haki et al., 2012);(Wan et al., 2014);(Seppänen, 2014);(Lange & Mendling, 2011);(Brosius et al., 2017);(Ylimäki, 2008);(Thönssen & von Dewitz, 2018);
<i>EAM: People</i>	26	14	(Niemi & Pekkola, 2013);(Lange et al., 2016);(Aier & Schelp, 2010);(Buckl et al., 2011);(Ahlemann et al., 2020);(Kotusev et al., 2015b);(Haki et al., 2012);(Wan et al., 2014);(Seppänen, 2014);(Weiss et al., 2013);(Proença & Borbinha, 2017);(Khateeb, 2016);(Szabó & Öri, 2017);(Schmidt et al., 2015);
<i>EA Decomposition: Information Architecture</i>	18	13	(Niemi & Pekkola, 2013);(Lange et al., 2016);(Aier & Schelp, 2010);(Nikpay et al., 2013);(Buckl et al., 2011);(Ahlemann et al., 2020);(Kotusev et al., 2015b);(Olsen & Trelsgård, 2016);(Haki et al., 2012);(Seppänen, 2014);(Lange & Mendling, 2011);(Hauder et al., 2013);(Thönssen & von Dewitz, 2018);
<i>EA Decomposition: Data Architecture</i>	14	12	(Niemi & Pekkola, 2013);(Lange et al., 2016);(Aier & Schelp, 2010);(Nikpay et al., 2013);(Buckl et al., 2011);(Ahlemann et al., 2020);(Kotusev et al., 2015b);(Olsen & Trelsgård, 2016);(Haki et al., 2012);(Seppänen, 2014);(Lange & Mendling, 2011);(Thönssen & von Dewitz, 2018);
<i>EAM: Principles</i>	20	12	(Niemi & Pekkola, 2013);(Hacks et al. - 2017);(Lange et al., 2016);(Nikpay et al., 2013);(Buckl et al., 2011);(Ahlemann et al., 2020);(Olsen & Trelsgård, 2016);(Haki et al., 2012);(Wan et al., 2014);(Weiss et al., 2013);(Khateeb, 2016);(Aier, 2014);
<i>EAM Goals: Alignment</i>	16	11	(Niemi & Pekkola, 2013);(Buckl et al., 2011);(Wan et al., 2014);(Seppänen, 2014);(Lange & Mendling, 2011);(Weiss et al., 2013);(Khateeb, 2016);(Aier, 2014);(Szabó & Öri, 2017);(Thönssen & von Dewitz, 2018);(Hafsi & Assar, 2020);
<i>EAM: Framework</i>	22	11	(Niemi & Pekkola, 2013);(Lange et al., 2016);(Buckl et al., 2011);(Olsen & Trelsgård, 2016);(Wan et al., 2014);(Seppänen, 2014);(Ansyori et al., 2018);(Brosius et al., 2017);(Schmidt et al., 2015);(Thönssen & von Dewitz, 2018);(Simon et al., 2014);
<i>EAM: Policy Enforcement</i>	14	11	(Hacks et al. - 2017);(Aier & Schelp, 2010);(Nikpay et al., 2013);(Buckl et al., 2011);(Ahlemann et al., 2020);(Olsen & Trelsgård, 2016);(Haki et al., 2012);(Ansyori et al., 2018);(Khateeb, 2016);(Iyamu & Mphahlele, 2014);(Hope et al., 2017);

EAM Dimension	# of Quotations	# of Studies	Citations
<i>EAM: Tools</i>	17	11	(Niemi & Pekkola, 2013);(Lange et al., 2016);(Aier & Schelp, 2010);(Nikpay et al., 2013);(Kotusev et al., 2015b);(Wan et al., 2014);(Seppänen, 2014);(Proença & Borbinha, 2017);(Hauder et al., 2013);(Aier, 2014);(Farwick et al., 2016);
<i>EAM: Vision</i>	12	11	(Niemi & Pekkola, 2013);(Lange et al., 2016);(Aier & Schelp, 2010);(Nikpay et al., 2013);(Olsen & Trelsgård, 2016);(Haki et al., 2012);(Wan et al., 2014);(Seppänen, 2014);(Khateeb, 2016);(Brosius et al., 2017);(Iyamu & Mphahlele, 2014);
<i>EA Decomposition: Application Architecture</i>	12	10	(Lange et al., 2016);(Aier & Schelp, 2010);(Buckl et al., 2011);(Ahlemann et al., 2020);(Kotusev et al., 2015b);(Olsen & Trelsgård, 2016);(Haki et al., 2012);(Seppänen, 2014);(Lange & Mendling, 2011);(Thönssen & von Dewitz, 2018);
<i>EA Decomposition: Technology Architecture</i>	11	10	(Lange et al., 2016);(Aier & Schelp, 2010);(Buckl et al., 2011);(Ahlemann et al., 2020);(Kotusev et al., 2015b);(Olsen & Trelsgård, 2016);(Haki et al., 2012);(Seppänen, 2014);(Lange & Mendling, 2011);(Thönssen & von Dewitz, 2018);
<i>EAM: Alignment</i>	12	10	(Aier & Schelp, 2010);(Ahlemann et al., 2020);(Olsen & Trelsgård, 2016);(Lange & Mendling, 2011);(Weiss et al., 2013);(Khateeb, 2016);(Brosius et al., 2017);(Aier, 2014);(Schmidt et al., 2015);(Simon et al., 2014);
<i>EAM: Execution</i>	14	10	(Niemi & Pekkola, 2013);(Aier & Schelp, 2010);(Nikpay et al., 2013);(Buckl et al., 2011);(Ahlemann et al., 2020);(Haki et al., 2012);(Brosius et al., 2017);(Iyamu & Mphahlele, 2014);(Szabó & Öri, 2017);(Hope et al., 2017);
<i>EAM: Fit for purpose documentation</i>	14	10	(Niemi & Pekkola, 2013);(Lange et al., 2016);(Nikpay et al., 2013);(Buckl et al., 2011);(Kotusev et al., 2015b);(Haki et al., 2012);(Proença & Borbinha, 2017);(Brosius et al., 2017);(Hauder et al., 2013);(Bricknall et al., 2006);
<i>EAM: Collaboration</i>	16	9	(Niemi & Pekkola, 2013);(Hacks et al. - 2017);(Lange et al., 2016);(Aier & Schelp, 2010);(Olsen & Trelsgård, 2016);(Wan et al., 2014);(Rouhani et al. - 2013);(Seppänen, 2014);(Hauder et al., 2013);
<i>EAM: Concern</i>	12	9	(Niemi & Pekkola, 2013);(Hacks et al. - 2017);(Buckl et al., 2011);(Kotusev et al., 2015b);(Olsen & Trelsgård, 2016);(Haki et al., 2012);(Hauder et al., 2013);(Aier, 2014);(Hafsi & Assar, 2020);
<i>EAM: Mandate</i>	15	9	(Niemi & Pekkola, 2013);(Hacks et al. - 2017);(Lange et al., 2016);(Kotusev et al., 2015b);(Olsen & Trelsgård, 2016);(Wan et al., 2014);(Rouhani et al. - 2013);(Lim et al. - 2009);(Khateeb, 2016);
<i>Stakeholder: Hierarchy</i>	16	9	(Niemi & Pekkola, 2013);(Hacks et al. - 2017);(Kotusev et al., 2015b);(Olsen & Trelsgård, 2016);(Wan et al., 2014);(Seppänen, 2014);(Khateeb, 2016);(Brosius et al., 2017);
<i>EA Definition</i>	9	8	(Niemi & Pekkola, 2013);(Lange et al., 2016);(Aier & Schelp, 2010);(Olsen & Trelsgård, 2016);(Wan et al., 2014);(Schelp and Stutz - 2007);(Lange & Mendling, 2011);(Lim et al. - 2009);



EAM Dimension	# of Quotations	# of Studies	Citations
<i>EAM: Challenges</i>	15	8	(Niemi & Pekkola, 2013);(Kotusev et al., 2015b);(Olsen & Trelsgård, 2016);(Schelp and Stutz - 2007);(Seppänen, 2014);(Hauder et al., 2013);(Aier, 2014);(Hauder et al., n.d.);
<i>EAM: Repository</i>	8	8	(Aier & Schelp, 2010);(Buckl et al., 2011);(Kotusev et al., 2015b);(Haki et al., 2012);(Wan et al., 2014);(Rouhani et al. - 2013);(Lim et al. - 2009);(Farwick et al., 2016);
<i>Strategic Importance of EA</i>	12	8	(Nikpay et al., 2013);(Olsen & Trelsgård, 2016);(Wan et al., 2014);(Schelp and Stutz - 2007);(Seppänen, 2014);(Khateeb, 2016);(Brosius et al., 2017);(Szabó & Öri, 2017);
<i>EA Framework</i>	8	7	(Niemi & Pekkola, 2013);(Hacks et al. - 2017);(Buckl et al., 2011);(Haki et al., 2012);(Schelp and Stutz - 2007);(Seppänen, 2014);(Lim et al. - 2009);(Lange & Mendling, 2011);
<i>EAM: Adoption</i>	7	7	(Hacks et al. - 2017);(Lange et al., 2016);(Aier & Schelp, 2010);(Buckl et al., 2011);(Ahlemann et al., 2020);(Seppänen, 2014);(Khateeb, 2016);
<i>EAM: Change Management</i>	11	7	(Lange et al., 2016);(Aier & Schelp, 2010);(Buckl et al., 2011);(Ahlemann et al., 2020);(Haki et al., 2012);(Ansyori et al., 2018);(Jahani et al., 2010);
<i>EAM: Dimension success</i>	9	7	(Nikpay et al., 2013);(Buckl et al., 2011);(Khateeb, 2016);(Iyamu & Mphahlele, 2014);(Hauder et al., 2013);(Jahani et al., 2010);(Hope et al., 2017);
<i>EAM: Operating Model</i>	10	7	(Niemi & Pekkola, 2013);(Aier & Schelp, 2010);(Nikpay et al., 2013);(Buckl et al., 2011);(Haki et al., 2012);(Brosius et al., 2017);(Jahani et al., 2010);(Niemi & Pekkola, 2013);(Aier & Schelp, 2010);(Nikpay et al., 2013);(Buckl et al., 2011);(Haki et al., 2012);(Brosius et al., 2017);(Jahani et al., 2010);
<i>EAM: Planning</i>	11	7	(Nikpay et al., 2013);(Buckl et al., 2011);(Ahlemann et al., 2020);(Ansyori et al., 2018);(Aier, 2014);(Szabó & Öri, 2017);(Hafsi & Assar, 2020);
<i>EAM: Standards</i>	11	7	(Niemi & Pekkola, 2013);(Aier & Schelp, 2010);(Nikpay et al., 2013);(Ahlemann et al., 2020);(Haki et al., 2012);(Ansyori et al., 2018);(Khateeb, 2016);
<i>EAM: Insights analysis</i>	6	6	(Niemi & Pekkola, 2013);(Lange et al., 2016);(Buckl et al., 2011);(Lange & Mendling, 2011);(Szabó & Öri, 2017);(Schmidt et al., 2015);
<i>EAM: Mission</i>	6	6	(Olsen & Trelsgård, 2016);(Wan et al., 2014);(Seppänen, 2014);(Khateeb, 2016);(Brosius et al., 2017);(Iyamu & Mphahlele, 2014);
<i>EAM: Solution Architecture</i>	8	6	(Aier & Schelp, 2010);(Buckl et al., 2011);(Ahlemann et al., 2020);(Haki et al., 2012);(Wan et al., 2014);(Brosius et al., 2017);
<i>EAM: Training</i>	6	6	(Nikpay et al., 2013);(Buckl et al., 2011);(Ansyori et al., 2018);(Ylimäki, 2008);(Iyamu & Mphahlele, 2014);(Hauder et al., 2013);
<i>EAM: Visibility</i>	9	6	(Niemi & Pekkola, 2013);(Hacks et al. - 2017);(Lange et al., 2016);(Aier & Schelp, 2010);(Kotusev et al., 2015b);(Rouhani et al. - 2013);



EAM Dimension	# of Quotations	# of Studies	Citations
<i>Stakeholder Concerns</i>	21	6	(Olsen & Trelsgård, 2016);(Wan et al., 2014);(Lim et al. - 2009);(Niemi, 2007);
<i>EAM: Artefacts</i>	7	5	(Kotusev et al., 2015b);(Wan et al., 2014);(Seppänen, 2014);(Brosius et al., 2017);(Bricknall et al., 2006);
<i>EAM: Maturity</i>	8	5	(Niemi & Pekkola, 2013);(Buckl et al., 2011);(Ahlemann et al., 2020);(Haki et al., 2012);(Ylimäki, 2008);
<i>Project Office Management</i>	5	5	(Lange et al., 2016);(Proença & Borbinha, 2017);(Khateeb, 2016);(Ylimäki, 2008);(Szabó & Öri, 2017);
<i>Quality: Simplicity</i>	7	5	(Niemi & Pekkola, 2013);(Hacks et al. - 2017);(Lange et al., 2016);(Olsen & Trelsgård, 2016);(Seppänen, 2014);
<i>Resource-based view</i>	9	5	(Kotusev et al., 2015b);(Olsen & Trelsgård, 2016);(Schelp and Stutz - 2007);(Brosius et al., 2017);
<i>Stakeholder: Quality</i>	10	5	(Hacks et al. - 2017);(Lange et al., 2016);(Buckl et al., 2011);(Kotusev et al., 2015b);(Seppänen, 2014);
<i>EA Decomposition</i>	4	4	(Kotusev et al., 2015b);(Schelp and Stutz - 2007);(Lange & Mendling, 2011);(Thönssen & von Dewitz, 2018);
<i>EAM Goals: Governance</i>	4	4	(Buckl et al., 2011);(Ahlemann et al., 2020);(Lange & Mendling, 2011);(Weiss et al., 2013);
<i>EAM: Process</i>	7	4	(Hacks et al. - 2017);(Olsen & Trelsgård, 2016);(Haki et al., 2012);(Ansyori et al., 2018);
<i>EAM: Products & Services</i>	11	4	(Niemi & Pekkola, 2013);(Lange et al., 2016);(Nikpay et al., 2013);(Haki et al., 2012);
<i>EAM: Transition approach</i>	4	4	(Kotusev et al., 2015b);(Haki et al., 2012);(Lange & Mendling, 2011);(Lakhdi & Bounabat, 2012);
<i>Quality: Actuality</i>	5	4	(Niemi & Pekkola, 2013);(Hacks et al. - 2017);(Lange et al., 2016);(Buckl et al., 2011);
<i>Stakeholder: Gap</i>	8	4	(Niemi & Pekkola, 2013);(Hacks et al. - 2017);(Kotusev et al., 2015b);(Niemi, 2007);
<i>EAM Goals: Standardisation</i>	3	3	(Niemi & Pekkola, 2013);(Lange & Mendling, 2011);(Weiss et al., 2013);
<i>EAM: Practicality</i>	3	3	(Niemi & Pekkola, 2013);(Aier & Schelp, 2010);(Haki et al., 2012);
<i>EAM: Quality</i>	17	3	(Niemi & Pekkola, 2013);(Lange et al., 2016);(Lim et al. - 2009);
<i>EAM: Strategic Alignment</i>	3	3	(Aier & Schelp, 2010);(Ahlemann et al., 2020);(Rouhani et al. - 2013);
<i>IT Operational Management</i>	3	3	(Haki et al., 2012);(Khateeb, 2016);(Szabó & Öri, 2017);
<i>Modelling: Consistency</i>	4	3	(Buckl et al., 2011);(Rouhani et al. - 2013);(Seppänen, 2014);
<i>Stakeholder: Engagement Factors</i>	3	3	(Niemi & Pekkola, 2013);(Hacks et al. - 2017);(Lange et al., 2016);(Nikpay et al., 2013);(Buckl et al., 2011);(Ahlemann et al., 2020);(Kotusev et al., 2015b);(Olsen & Trelsgård, 2016);(Wan et al., 2014);(Khateeb, 2016);(Brosius et al., 2017);(Niemi, 2007);(Szabó & Öri, 2017);(Al-Kharusi et al., 2016);(Hope et al., 2017);
<i>Stakeholder: Def</i>	3	3	(Hacks et al. - 2017);(Seppänen, 2014);(Brosius et al., 2017);
<i>Budget</i>	2	2	(Aier & Schelp, 2010);(Ahlemann et al., 2020);
<i>Concept: Alignment</i>	2	2	(Wan et al., 2014);(Rouhani et al. - 2013);



EAM Dimension	# of Quotations	# of Studies	Citations
<i>EAM: Capabilities.</i>	2	2	(Buckl et al., 2011);(Ahlemann et al., 2020);
<i>EAM: Dimension Natural</i>	2	2	(Khateeb, 2016);(Hope et al., 2017);
<i>EAM: Documentation</i>	2	2	(Niemi & Pekkola, 2013);(Farwick et al., 2016);
<i>Interoperability</i>	2	2	(Kotusev et al., 2015b);(Lim et al. - 2009);
<i>Modelling: Ease of use</i>	3	2	(Rouhani et al. - 2013);(Seppänen, 2014);
<i>Process: Requirement</i>	2	2	(Rouhani et al. - 2013);(Brosius et al., 2017);
<i>Quality: Service Measurement</i>	2	2	(Niemi & Pekkola, 2013);(Proença & Borbinha, 2017);
<i>Quality: Stability</i>	2	2	(Niemi & Pekkola, 2013);(Lange et al., 2016);
<i>Reference Model/ Standard</i>	2	2	(Seppänen, 2014);(Lim et al. - 2009);
<i>Stakeholder: Participation</i>	3	2	(Nikpay et al., 2013);(Al-Kharusi et al., 2016);
<i>Stakeholder: artefacts</i>	3	2	(Hacks et al. - 2017);(Kotusev et al., 2015b);
<i>Strategy Value of EAM</i>	2	2	(Aier & Schelp, 2010);(Schelp & Stutz - 2007);
<i>Abstraction level</i>	1	1	(Hacks et al., 2017)
<i>Architecture Layer</i>	1	1	(Lange and Mendling, 2011)
<i>Balance Score Card</i>	1	1	(Schelp & Stutz, 2007)
<i>Best EA framework</i>	1	1	(Schelp & Stutz, 2007)
<i>BSC: Decomposition</i>	1	1	(Schelp & Stutz, 2007)
<i>BSC: Improvement</i>	1	1	(Schelp & Stutz, 2007)
<i>Concept: Governance</i>	1	1	(Rouhani et al., 2013)
<i>EA framework: shortfalls</i>	1	1	Lange & Mendling , 2011)
<i>EAM Goals: Regulatory Compliance</i>	1	1	Lange & Mendling , 2011)
<i>EAM: Benefits</i>	1	1	(Schelp & Stutz, 2007)
<i>EAM: Committee</i>	1	1	(Hacks et al., 2017)
<i>EAM: Granularity</i>	4	1	(Niemi & Pekkola, 2013)
<i>EAM: Stability</i>	1	1	(Hacks et al., 2017)
<i>Ease of adoption</i>	1	1	(Hacks et al., 2017)
<i>Existing Maturity Models</i>	2	1	(Proença & Borbinha , 2017)
<i>Framework: Complexities</i>	1	1	(Hacks et al., 2017)
<i>Flexibility</i>	1	1	(Lim et al. , 2009)

EAM Dimension

	# of Quotations	# of Studies	Citations
Maturity Levels	1	1	(Niemi & Pekkola, 2013)
Outdated data	1	1	(Hacks et al., 2017)
Process: Implementation	1	1	(Rouhani et al., 2013)
Process: Procedures	1	1	(Rouhani et al., 2013)
Procurement	1	1	(Lim et al. , 2009)
Quality: Concerns	1	1	(Niemi & Pekkola, 2013)
Quality: definition	2	1	(Niemi & Pekkola, 2013)
Quality: IS	3	1	(Niemi & Pekkola, 2013)
Tools: Auto documentation challenges	2	1	(Farwick et al. , 2016)

Table 16: Summary of EAM Dimensions Citations

ID	Document	Study Methodology	Study Scope	Study Limitation	Codes	Quotation Count
1	Schelp and Stutz - 2007 - A balanced scorecard approach to measure the value	N/A	Measurement of KPI's in EA	Localize to a few selected Key Performance Indicators (KPI's)	Strategic Importance of EA; EAM: Challenges; Resource-based view; EA Definition; EA Decomposition; EAM: Benefits; EA Framework; EAM: Governance; Strategy Value of EAM; EAM: Methodology; Balance Score Card; BSC: Decomposition; BSC: Improvement	15
2	Hacks et al. - 2017 - A Case Study of Stakeholder Concerns on EAM	Case Study	Stakeholder Concerns of EAM	Done from an IT perspective	Stakeholder Concerns; Stakeholder Management; Stakeholder: Def; Framework: Complexities; Stakeholder: Gap; Stakeholder: artefacts; Stakeholder: Quality; Stakeholder: Hierarchy; EAM: Principles; Ease of adoption; EAM: Policy Enforcement; Quality: Actuality; EAM: Concern; EAM: Collaboration; EAM: Communication; Outdated data; Quality: Simplicity; EAM: Stability; Abstraction level; EAM: Adoption; EAM: Process Integration; EAM: Visiblity; EAM: Mandate; EAM: Governance; EAM: Process; EAM: Methodology; EA Framework	31

ID	Document	Study Methodology	Study Scope	Study Limitation	Codes	Quotation Count
3	Lim et al. - 2009 - A comparative analysis of enterprise architecture	Comparative Analysis	EAM Frameworks	Based on five of the most common	EAM: Respository; EAM: Process Integration; EAM: Quality; EA Definition; EA Framework; Stakeholder Concerns; EAM: Mandate; Interoperability; Procurement; Flexibility; Reference Model/ Standard	12
4	Rouhani et al. - 2013 - A comparison enterprise architecture implementation	Comparative Analysis	EAM Methodologies	Based on five of the most common methodologies	EAM: Mandate; EAM: Strategic Alignment; EAM: Repository; EAM: Visibility; EAM: Communication; EAM: Collaboration; EAM: Modelling; EAM: Methodology; EAM: Process Integration; Modelling: Ease of use; Modelling: Consistency; Process: Requirement; Process: Procedures; Process: Implementation; Concept :Alignment; Concept: Governance	15
5	Lange and Mendling - 2011 - An Experts' Perspective on Enterprise Architecture	Interpretive Study	EAM Goals & framework	Based on 16 experts surveyed.	EA Definition; EAM: Alignment; EAM: Governance; EAM Goals: Standardisation; EAM Goals: Governance; EAM Goals: Regulatory Compliance; EAM Goals: Alignment; Best EA framework; EA framework: shortfalls; EA Decomposition: Business Architecture; EA Decomposition: Technology Architecture; EA Decomposition: Data Architecture; EA Decomposition: Information Architecture; Architecture Layer; EA Decomposition: Application Architecture; EAM: Modelling; EA Decomposition; EAM: Insights analysis; EAM: Transition approach; EAM: Process Integration	14
6	Kotusev et al. - 2015 - Investigating the usage of enterprise architecture	Case Study	Artifacts usage in EA	N/A	EAM: Methodology; EAM: Transition approach; EAM: Artefacts; EA Decomposition: Technology Architecture; EA Decomposition; EA Decomposition: Data Architecture; EA Decomposition: Information Architecture; EA Decomposition: Application Architecture; EA Decomposition: Business Architecture; Stakeholder Management; Stakeholder: artefacts; Stakeholder:Hierarchy; Stakeholder: Gap; EAM: Process Integration; EAM: Communication; EAM: Challenges; EAM: Culture; EAM: People; EAM: Skill; EAM: Modelling; Resource based view; Stakeholder: Quality; EAM: Tools; EAM: Repository; EAM: Fit for purpose documentation; Interoperability; EAM: Visibility; EAM: Mandate; EAM: Concern	21



ID	Document	Study Methodology	Study Scope	Study Limitation	Codes	Quotation Count
7	Seppänen - 2014 - From problems to critical success factors of Enterprise Architecture Adoption	Case Study	EAM Critical success factors	The diversity and heterogeneity	EAM: Mission; EAM: Vision; EAM: Process Integration; EA Framework; EA Decomposition: Application Architecture; EA Decomposition: Business Architecture; EA Decomposition: Information Architecture; EA Decomposition: Technology Architecture; EA Decomposition: Data Architecture; EAM: Methodology; EAM: Framework; EAM Goals: Alignment; Stakeholder: Hierarchy; Stakeholder: Def; Stakeholder: Quality; Strategic Importance of EA; EAM: Skill; EAM: People; EAM: Culture; EAM: Adoption; EAM: Artefacts; EAM: Challenges; EAM: Communication; EAM: Collaboration; Quality: Simplicity; Modelling: Consistency; Modelling: Ease of use; Reference Model/Standard; EAM: Governance; EAM: Tools	15
8	Kotusev - 2017 - Conceptual Model of Enterprise Architecture Manage	Literature Review	EAM	Limited research material	EAM: Culture	1
9	Weiss et al. - 2013 - Institutionalization and the effectiveness of ente	Empirical study	EAM	Small data sample	EAM: Culture; EAM: People; EAM: Governance; EAM Goals: Alignment; EAM: Process Integration; EAM: Alignment; EAM: Principles; EAM: Methodology; EAM Goals: Standardisation; EAM Goals: Governance	12
10	Dang and Pekkola - 2019 - Institutional Perspectives on the Process of Enter	Case Study	EA Adoption	Only 2 case studies were used		0
11	Wan et al. - 2014 - How Enterprise Architecture Formative Critical Suc	Prescriptive literature analysis	EAM CSF	N/A	EA Definition; EAM: Mandate; EAM: Vision; EAM: Mission; EAM Goals: Alignment; EA Decomposition: Business Architecture; Strategic Importance of EA; EAM: Culture; EAM: Governance; Stakeholder: Hierarchy; Stakeholder Management; Stakeholder Concerns; EAM: Communication; EAM: Collaboration; Concept: Alignment; EAM: Artefacts; EAM: Tools; EAM: Repository; EAM: Solution Architecture; EAM: Principles; EAM: Modelling; EAM: Framework; EAM: Methodology; EAM: Skill; EAM: People	18



ID	Document	Study Methodology	Study Scope	Study Limitation	Codes	Quotation Count
12	Olsen and Trelsgård - 2016 - Enterprise Architecture Adoption Challenges An ex	Case Study	Enterprise Architecture adoption challenges	N/A	EAM: Alignment; EA Definition; EAM: Principles; EAM: Methodology; Resource-based view; EAM: Process; EAM: Process Integration; Stakeholder Concerns; Stakeholder Management; Stakeholder: Hierarchy; EAM: Mandate; EAM: Communication; EAM: Collaboration; EAM: Challenges; EAM: Governance; EAM: Policy Enforcement; EAM: Framework; Quality: Simplicity; EAM: Skill; EA Decomposition: Business Architecture; Strategic Importance of EA; EAM: Concern; EAM: Modelling; EAM: Mission; EAM: Vision; EA Decomposition: Technology Architecture; EA Decomposition: Application Architecture; EA Decomposition: Data Architecture; EA Decomposition: Information Architecture	21
13	Niemi and Pekkola - 2013 - Enterprise architecture quality attributes A case	case Study	Enterprise Architecture Quality Attributes	N/A	Quality: definition; EAM: Vision; EA Definition; EAM Goals: Alignment; EAM Goals: Standardisation; EAM: Visibility; EAM: Products & Services; Stakeholder Management; Stakeholder: Gap; Stakeholder: Hierarchy; Quality: IS; Quality: Service Measurement; EAM: Quality; EAM: Maturity; Quality: Concerns; EAM: Framework; EAM: Challenges; EAM: Concern; Quality: Simplicity; EAM: Documentation; EA Decomposition: Information Architecture; EA Framework; EA Decomposition: Data Architecture; EAM: Collaboration; EAM: Standards; EAM: Fit for purpose documentation; EAM: Insights analysis; EAM: Modelling; EAM: Granularity; EAM: Tools; EAM: Culture; EAM: Skill; Quality: Actuality; Quality: Stability; EAM: Governance; EAM: Operating Model; EAM: Mandate; EAM: Execution; EAM: People; EAM: Communication; EAM: Principles; EAM: Methodology; Stakeholder Concerns; EAM: Practicality	53
14	Brosius et al. - 2017 - Introducing a Coordination Perspective to Enterpri	Intepretive Study	Enterprise Architecture Management	N/A	EAM: Framework; EAM: Methodology; Stakeholder: Def; Stakeholder: Hierarchy; Stakeholder Management; EAM: Alignment; Resource-based view; Process: Requirement; EA Decomposition: Business Architecture; Strategic Importance of EA; EAM: Vision; EAM: Mission; EAM: Solution Architecture; EAM: Execution; EAM: Artefacts; EAM: Fit for purpose documentation; EAM: Modelling; EAM: Operating Model	8



ID	Document	Study Methodology	Study Scope	Study Limitation	Codes	Quotation Count
15	Aier and Schelp - 2010 - A Reassessment of Enterprise Architecture Implemen	Case Study	Enterprise Architecture Implementati on	Completed on a small scale	EA Definition; EAM: Culture; Strategy Value of EAM; EA Decomposition: Technology Architecture; EA Decomposition: Data Architecture; EA Decomposition: Information Architecture; EA Decomposition: Application Architecture; EA Decomposition: Business Architecture; EAM: Governance; EAM: Operating Model; EAM: Solution Architecture; EAM: People; EAM: Adoption; EAM: Modelling; EAM: Tools; EAM: Repository; EAM: Execution; EAM: Strategic Alignment; EAM: Change Management; EAM: Policy Enforcement; EAM: Skill; EAM: Communication; EAM: Collaboration; EAM: Practicality; EAM: Standards; EAM: Vision; EAM: Visibility; EAM: Alignment; budget; EAM: Process Integration	27
16	Niemi - 2007 - Enterprise architecture Stakeholders-a holistic vi	Case Study	Enterprise Architecture Stakeholders	N/a	Stakeholder Management; Stakeholder: Gap; Stakeholder: Hierarchy; Stakeholder Concerns; EAM: Communication; EAM: Governance	7
17	Ahlemann et al. - 2020 - A resource-based perspective of value generation t	Case Study	A resource-based perspective of enterprise architecture management	Confidentiality prevented full access to all the documents	Resourc-based view; EAM: People; EAM: Culture; EA Decomposition: Business Architecture; EAM: Governance; EAM: Standards; EAM: Adoption; EAM: Maturity; EAM: Alignment; EAM: Solution Architecture; EAM: Capabilities.; EAM: Modelling; EAM: Execution; EAM: Planning; EA Decomposition: Data Architecture; EA Decomposition: Application Architecture; EA Decomposition: Technology Architecture; EA Decomposition: Information Architecture; EAM: Process Integration; EAM: Policy Enforcement; EAM: Principles; EAM: Strategic Alignment; Stakeholder Management; EAM: Communication; EAM: Change Management; budget; EAM Goals: Governance	23
18	Haki et al. - 2012 - Beyond EA frameworks Towards an understanding of	Case Study	Adoption of enterprise architecture management	Not done on a larger scale	EAM: Concern; EAM: Maturity; EAM: Process; EAM: Principles; EAM: Practicality; EAM: Methodology; EA Framework; EA Decomposition: Business Architecture; EA Decomposition: Technology Architecture; EA Decomposition: Data Architecture; EA Decomposition: Application Architecture; EA Decomposition: Information Architecture; EAM: Solution Architecture; EAM: Modelling; EAM: Governance; EAM: Standards; EAM: Policy Enforcement; EAM: Process	20



ID	Document	Study Methodology	Study Scope	Study Limitation	Codes	Quotation Count
					Integration; EAM: Products & Services; EAM: Operating Model; EAM: People; IT Operational Management; EAM: Repository; EAM: Execution; EAM: Transition approach; EAM: Change Management; EAM: Fit-for-purpose documentation; EAM: Vision; EAM: Communication; EAM: Culture	
19	Proenca and Borbinha - 2017 - Enterprise Architecture A Maturity Model Based on	DSR	Maturity Model Based on EAM	Specific industry evaluation	EAM: Communication; Quality: Service Measurement; EAM: Tools; EAM: Methodology; EAM: Fit for purpose documentation; EAM: Modelling; EAM: Governance; Project Office Management; EAM: Committee; EAM: Skill; EAM: People; EAM: Culture; Existing Maturity Models; Maturity Levels	12
20	Khateeb - 2016 - Enterprise Architecture Management (EAM) Practice Implementation Success Factors	Survey	EAM Practice Implementation on Success Factors	Result dependent on public user credentials	EAM: Mandate; EAM: Vision; EAM: Mission; IT Operational Management; Stakeholder: Hierarchy; Stakeholder Management; Project Office Management; EAM Goals: Alignment; EAM: Alignment; Strategic Importance of EA; EAM: Principles; EAM: Policy Enforcement; EAM: Standards; EAM: Governance; EAM: People; EAM: Culture; EAM: Adoption; EAM: Dimension success; EAM: Dimension Natural	9
21	Hauder et al. - An Examination Of Organizational Factors Influenci	Survey	EAM Challenges	Limited to two frameworks	EAM: Challenges	2
22	Lange et al. - 2016 - An empirical analysis of the factors and measures	Survey	Factors and measures of EAM success	The preferred random sampling strategy for survey research could not be used because of the limited information available about the overall population of EAM stakeholders	EAM: Products & Services; EAM: Visibility; EAM: Modelling; EAM: Principles; EAM: Mandate; EAM: Governance; EA Definition; EAM: Quality; Quality: Actuality; EAM: Tools; Quality: Simplicity; Quality: Stability; EAM: Adoption; Stakeholder Management; Stakeholder: Quality; EAM: Vision; EAM: Insights analysis; EAM: Framework; EAM: Collaboration; EAM: Fit for purpose documentation; EA Decomposition: Business Architecture; EA Decomposition: Information Architecture; EA Decomposition: Application Architecture; EA Decomposition: Technology Architecture; EA Decomposition: Data Architecture; EAM: People; EAM: Skill; EAM:	28



ID	Document	Study Methodology	Study Scope	Study Limitation	Codes	Quotation Count
					Communication; Project Office Management; EAM: Change Management; EAM: Culture	
23	Al-Kharusi et al. - 2016 - Factors Influencing the Engagement between Enterpr	SLR	FACTORS INFLUENCING THE ENGAGEMENT BETWEEN ENTERPRISE ARCHITECTS AND STAKEHOLDERS IN ENTERPRISE ARCHITECTURE DEVELOPMENT	The data collection was restricted to the views of the enterprise architects and the developed model lacked the ability to support some collaboration tasks in some social contexts	Stakeholder: Participation; Stakeholder Management; EAM: Communication; Stakeholder: Engagement Factors	4
24	Simon et al. - 2014 - Enterprise architecture management and its role in	DSR	EAM and its role in corporate strategic management	N/A	EAM: Framework; EAM: Alignment	2



ID	Document	Study Methodology	Study Scope	Study Limitation	Codes	Quotation Count
25	Bricknall et al. - 2006 - Enterprise architecture critical factors affectin	Case Study	Critical factors affecting modelling and management	N/A	EAM: Artefacts; EAM: Fit for purpose documentation	1
26	Waltl et al. - 2015 - Data Governance on EA Information Assets Logical	Literature Review	Data Governance	N/a		0
27	Johnson et al. - 2007 - A tool for enterprise architecture analysis	Literature Review	Tool for Enterprise Architecture Analysis	N/a		0
28	van Steenberg et al. - 2007 - An Instrument for the Development of the Enterpris	Case Study	Development of EA pracice	N/A		0
29	Farwick et al. - 2016 - A situational method for semi-automated Enterprise	SLR	EA Documetatio n	N/A	EAM: Documentation; EAM: Tools; EAM: Respository; Tools: Auto documentation challenges	5
30	Schmidt et al. - 2015 - Benefits of Enterprise Architecture Management – I	Survey	Benefits of Enterprise Architecture Management	Limited to Europe	EAM: Alignment; EAM: Framework; EAM: Insights analysis; EAM: Modelling; EAM: Skill; EAM: People	4
32	Kotusev et al. - 2015 - Consolidating Enterprise Architecture Management R	Literature Review	EAM	Looked at 3 different approaches		0
33	Ansyori et al. - 2018 - A systematic literature review Critical Success F	SLR	EAM CSF	N/A	EAM: Process Integration; EAM: Process; EAM: Standards; EAM: Policy Enforcement; EAM: Governance; EAM: Change	12



ID	Document	Study Methodology	Study Scope	Study Limitation	Codes	Quotation Count
					Management; EAM: Planning; EAM: Skill; EAM: Training; EAM: Framework; EAM: Methodology	
34	Buckl et al. - 2011 - A Method Base for Enterprise Architecture Manageme	Literature Review	EAM	N/A	EA Decomposition: Information Architecture; EAM: Insights analysis; EAM: Fit for purpose documentation; EAM: Modelling; Quality: Actuality; Stakeholder Management; EAM: Communication; EAM Goals: Governance; EAM Goals: Alignment; EA Framework; EA Decomposition: Business Architecture; EAM: Methodology; Modelling: Consistency; EAM: Framework; EAM: Adoption; EAM: Execution; EAM: Change Management; EAM: Culture; EAM: People; EAM: Operating Model; EAM: Principles; EAM: Governance; EAM: Skill; EAM: Repository; EAM: Solution Architecture; EAM: Training; EA Decomposition: Data Architecture; EA Decomposition: Technology Architecture; EA Decomposition: Application Architecture; Stakeholder: Quality; Stakeholder: Engagement Factors; EAM: Policy Enforcement; EAM: Planning; EAM: Concern; EAM: Maturity; EAM: Capabilities.; EAM: Dimension success	24
35	Hafsi and Assar - 2020 - Does Enterprise Architecture Support Customer Expe	SLR	Enterprise Architecture in Support Customer Experience Improvement	N/A	EAM: Governance; EAM: Concern; EAM: Planning; EAM Goals: Alignment	2
36	Hauder et al. - 2013 - Analyzing Task and Technology Characteristics for	Empirical study	Enterprise Architecture Management Tool Support	N/A	EAM: Fit for purpose documentation; EAM: Modelling; EAM: Process Integration; EAM: Tools; EAM: Challenges; EAM: Collaboration; EAM: Communication; EAM: Concern; EAM: Training; EAM: Dimension success; EA Decomposition: Information Architecture	6
37	Kruse et al. - 2010 - Decoupling Models and Visualisations for Practical	Empirical study	EA Tooling	N/A		0



ID	Document	Study Methodology	Study Scope	Study Limitation	Codes	Quotation Count
38	Hacks and Lichter - 2018 - A Probabilistic Enterprise Architecture Model Evol	Empirical study	Enterprise Architecture Model Evolution	N/A		0
39	Nikpay et al. - 2013 - A review of critical success factors of enterprise	Empirical study	EAM CSF	N/A	EA Decomposition: Information Architecture; EA Decomposition: Business Architecture; Strategic Importance of EA; EAM: Vision; EAM: Dimension success; EAM: Governance; EAM: Process Integration; EAM: Execution; Stakeholder Management; EA Decomposition: Data Architecture; EAM: Operating Model; EAM: Fit for purpose documentation; EAM: Planning; EAM: Principles; EAM: Standards; EAM: Products & Services; EAM: Communication; Stakeholder: Engagement Factors; Stakeholder: Participation; EAM: Training; EAM: Modelling; EAM: Policy Enforcement; EAM: Methodology; EAM: Tools; EAM: Skill; EAM: Culture; EAM: Process	25
40	Lakhdiss and Bounabat - 2012 - A new content framework and metamodel for Enterpri	Empirical study	Metamodel for Enterprise Architecture and IS Strategic Planning	N/A	EAM: Transition approach; EAM: Vision	2
41	Thönssen and von Dewitz - 2018 - A Label is not enough – Approach for an Enterprise	DSR	EA role description framework	N/A	EAM: Skill; EAM: Methodology; EAM: Framework; EA Decomposition; EA Decomposition: Business Architecture; EA Decomposition: Technology Architecture; EA Decomposition: Information Architecture; EA Decomposition: Application Architecture; EA Decomposition: Data Architecture; EAM Goals: Alignment	4
42	Szabó and Öri - 2017 - Information strategy challenges in the digital era	Case Study	Information Strategy Challenges	N/A	EAM Goals: Alignment; Strategic Importance of EA; Stakeholder Management; EAM: Planning; EAM: Governance; IT Operational Management; Project Office Management;	5



ID	Document	Study Methodology	Study Scope	Study Limitation	Codes	Quotation Count
					EAM: Process Integration; EAM: Insights analysis; EAM: Execution; EAM: Methodology; EAM: Culture; EAM: People	
43	Aier - 2014 - The role of organizational culture for grounding,	Survey	The role of culture in EAM	Only German-speaking countries and small sample base	EAM Goals: Alignment; EAM: Culture; EAM: Governance; EAM: Principles; EAM: Concern; EAM: Tools; EAM: Modelling; EAM: Challenges; EAM: Planning; EAM: Alignment	6
44	Ernst et al. - 2006 - Tool Support for Enterprise Architecture Management	Survey	Tools Support for EAM	N/A		0
45	Hope et al. - 2017 - The Failure of Success Factors Lessons from Success	Comparative Case study	Failure and success factors of EA implementation	N/A	EAM: Policy Enforcement; EAM: Communication; EAM: Execution; Stakeholder Management; EAM: Dimension success; EAM: Dimension Natural	2
46	Bartenschlager and Goeken - 2010 - IT strategy Implementation Framework-Bridging Enterprise	DSR	EA Governance	N/A		0
47	Ylimäki - 2008 - Potential critical success factors for enterprise	Survey	EA CSF	N/A	EAM: Communication; EA Decomposition: Business Architecture; EAM: Governance; Project Office Management; EAM: Maturity; EAM: Culture; EAM: Skill; EAM: Training	7
48	Iyamu and Mphahlele - 2014 - The impact of organisational structure on enterprise	Case Study	Impact of organisational structure on enterprise architecture	N/A	EAM: Execution; EAM: Dimension success; EAM: Policy Enforcement; EAM: Communication; EAM: Training; EAM: Skill; EAM: Vision; EAM: Mission; EAM: Culture	7
49	Jahani et al. - 2010 - Measurement of enterprise architecture readiness	Applied Research	Enterprise architecture readiness	N/A	EAM: Dimension success; EAM: Governance; EAM: Change Management; EAM: Operating Model	3



ID	Document	Study Methodology	Study Scope	Study Limitation	Codes	Quotation Count
50	<i>Ylinen and Pekkola - 2018 - Looking for a five-legged sheep identifying enter</i>	<i>Case Study</i>	<i>Enterprise architects' skills and competencies</i>	<i>survey restricted to finland</i>	<i>EAM: Skill</i>	1

Table 17: Summary of Document Coding Analysis

By applying the selected search strings, this SLR started with 618 studies. After applying the inclusion/exclusion criteria as well as the appraisals, 45 studies were selected as the primary studies which were used in the final analysis.

4.5.2 Discussion

An in-depth understanding of the EAM dimensions was acquired through the execution of this SLR. Many conclusions were extracted through the synthesis of the results. For example, there is no consensus on what the exhaustive list of essential dimensions should be, but some agreement on a few dimensions. One of the key contributions from this study is that many of these dimensions have direct and indirect implications for one another. This can be viewed at a very abstract level in Figure 48. EAM dimensions and their relationships. The key dimensions should be directly linked to the objectives of the EAM mandate and a strong focus on people rather than technology for EAM to succeed. Integration was identified as a vital dimension with the focus on people integration and process integration, tightly coupling governance and policy enforcement to these areas. EAM frameworks have lost focus, or at least it is assumed that these frameworks are in place and are mature. Repositories and methodologies are becoming more important and are based on the frameworks. Communication has become more important as well. It is not enough for IT departments to understand and adopt EAM; business departments should be involved as well. Visibility is essential for selling the EAM service so that value can be derived at all levels. The above analysis highlights areas for future research with a more detailed focus. Some other equally important dimensions that did not feature very often in this SLR was EAM adoption, the EAM mandate, EAM change management and the operating model, to mention a few needs to be explored further. Given that academic studies in this area are still growing, more practical case studies should be developed to test and verify the dimensions.

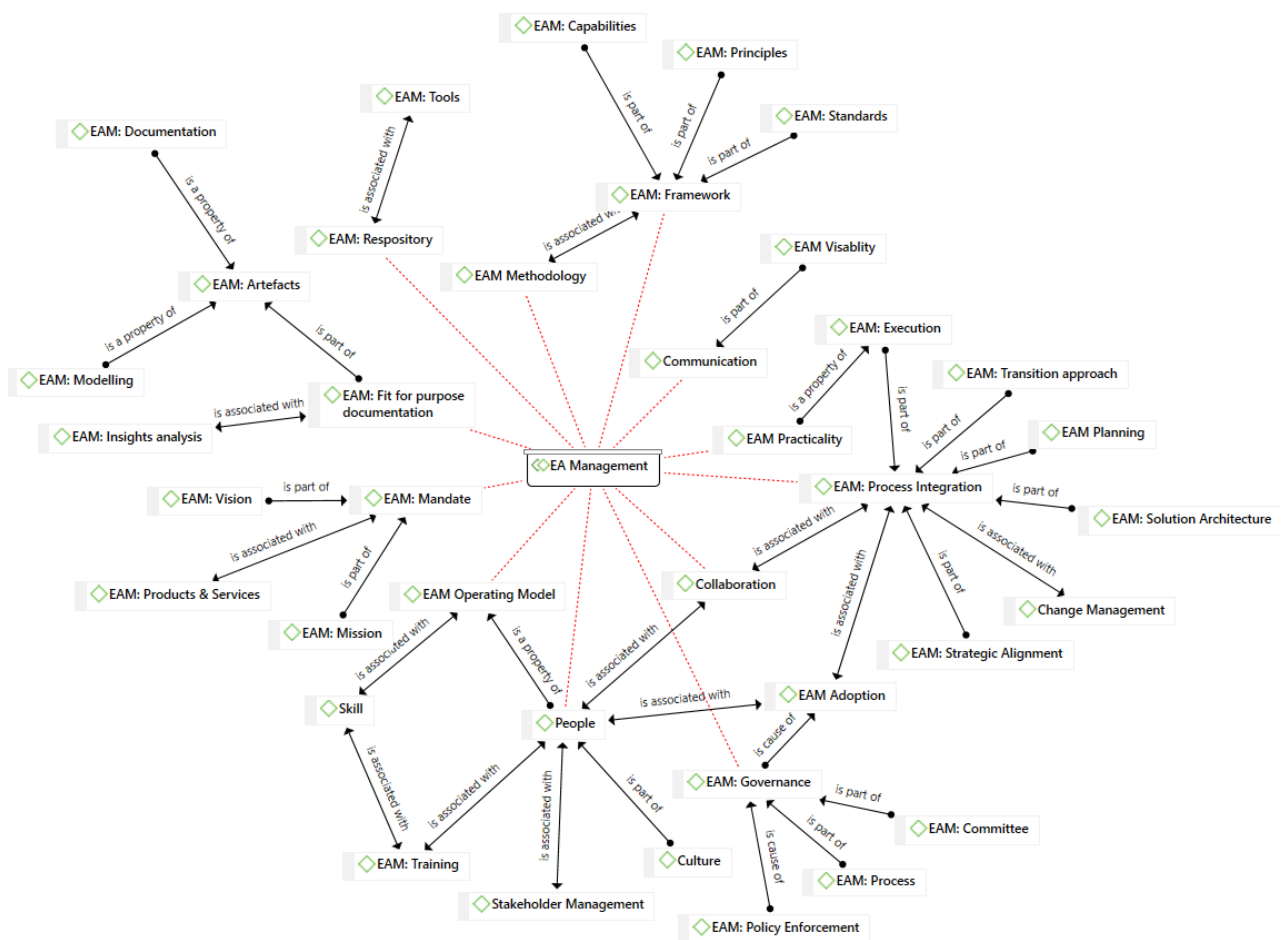


Figure 48. EAM dimensions and their relationships

The paper concludes with the identification of a list of vital EAM dimensions extracted from 45 studies. The list of key dimensions is depicted in Figure 49. List of EAM Dimensions. Four categories emerged based on the dimensions identified, namely the EAM Alignment, compliance, enablement, and transition.

EAM Alignment

The literature provides a huge spectrum of dimensions for the EAM Alignment as depicted in Figure 49. List of EAM Dimensions. It is fair to assume that some of the common dimensions such as frameworks, methodologies, principles and domain architecture deliverables are strongly evident. Skills on the other hand, are generally seen as something that was developed over time.

EAM Alignment	EAM Compliance	EAM Enablement	EAM Transition
• Application Architecture • Business Architecture • Mandate • Mission • Artefacts • Solution Architecture • Principles • Data Architecture • Standards • Information Architecture • EA Framework • Skill • Technology Architecture • EA Definition • Framework • Vision • Methodology • Planning • Execution • Products & Services	• Balance Score Card • Business/IT Alignment • Strategic Alignment • Goals Alignment • Governance • A framework to systematically integrate • Regulatory Compliance • Committee • Develop an EA strategy and metrics • Policy Enforcement • Quality Assurance	• Tools • Standardisation • Modelling • Visibility • Insights analysis • Maturity Models • Process Integration • Documentation • Interoperability • Outdated data • Stability • Fit for purpose documentation • Repository • Modelling: Consistency • Granularity	• Capabilities • Maturity • Operating Model • Ease of adoption • Stakeholder Management • Practicality • Change Management • Collaboration • People • Concern • Communication • Culture • Flexibility • Modelling: Ease of use • Adoption • Training • Transition approach • IT Operational Management • Maturity Levels

Figure 49. List of EAM Dimensions

The skills of resources in an EA team are cross-cutting, and there are often slight overlaps among the different domains. The expectation is then that over and above the specialist skills of a particular domain, practitioners must have good all-round experience in other domains as well. Second to skills as an essential dimension is the EAM mandate. Many organisations are still very unclear when it comes to how decisions are to be made and the processes to be followed (Hacks et al., 2017). Low integration into the organisation leads to the EAM team building ivory towers. Ultimately this will result in the organisation not making use of EAM services, leading to the failure of the practice.

While the relevance of an EAM methodology is obvious, many problems have been identified related to this dimension, including the image issue affecting EAM as a result of poor implementations of a methodology. Organisations adopt complete methodologies without aligning and adapting these to existing methodologies in the organisation. Existing EAM methodologies are guiding principles and not prescriptions for implementation.

In the previous section, EAM alignment dimensions were discussed and provided an overview of the relating considerations. In the next section, the researcher continues this approach for the EAM enablement and EAM transition themes.



EAM Compliance

While it is not surprising that governance was identified as the most essential dimension under compliance, organisations do place enough focus on this area in general. However, the analysis provided a little more insight into some of the less prominent details of governance implications. Some of these lower-level implications were EAM goals alignment, policy enforcement and process integration. There is a stronger focus on the integration between the different areas of the organisation and EAM. It is not enough to create principles, standards and policies—adoption has to be increased through awareness and socialisation. Figure 1 provides a view of the relationships with other key dimensions that are prominent in current EAM practice. Governance assists with the communication of EAM artefacts among different stakeholders. This form of communication ensures compliance and alignment between business and IT, which fall outside other existing forms of governance, such as IT and corporate governance.

Stakeholder management was the second-highest dimension identified within compliance throughout the 45 primary studies. In many of the studies, it was highlighted as an area of concern and one of the most significant contributors to EAM failure (Hacks et al., 2017; D. H. Olsen & Trelsgard, 2016). Understanding who the key stakeholders are from both business and IT becomes crucial for EAM, including having them participating in decision-making committees. It can be argued that top management buy-in is essential for EAM but middle management involvement is becoming equally important to drive the EA agenda. High stakeholder participation is required for improved decision-making. To ensure that stakeholder participation is engaged at the correct level, understanding the stakeholder hierarchy is crucial.

EAM Enablement

Tools and technology were always essential. However, the mindset has shifted from entry-level platforms/applications like *Excel* sheets and modelling tools as standalone solutions to more insight-driven, relationship-mapping software that can automatically model architectures or dynamically produce dashboards and views for faster decision-making. These capabilities tie into the second and third most essential dimensions in EAM enablement, namely collaboration and fit-for-purpose documentation.

Making the information that one already has available to all those who require it is fundamental to EAM success. There is no benefit in putting full effort into recording and documenting architectural information if it is not available for use. Not being able to use information was noted as one of the most common problems experienced since no one knew where or how to find the relevant information. On the other hand, one might be able to find what one wants but it is not at the right level of detail. Finding the balance of relevant information for each stakeholder is key to understanding that tools should not be adopted to provide something new but rather enhance the existing process to satisfy information needs which will lead to long-term success (Seppänen, 2014).

EAM Transition

As with EAM compliance, stakeholder management is an essential dimension of EAM transition. Understanding the stakeholder hierarchy and its needs is a concern identified through the SLR. It is necessary to satisfy stakeholders' needs while providing the value that EAM requires. To effect culture change, a combination of EAM Alignment requirements comes into play. These can be described as policy enforcement, rewards and recognition, support, training, awareness programmes and roadshows. Communication and marketing become essential for driving buy-in across the organisation. Educating the entire organisation assists in working toward the same goal; this ties in with goal alignment dimensions in the EAM Alignment.

Communication was identified as one of the key challenges in EAM. This stems from the lack of a shared dictionary (Kotusev et al., 2015). Every area of the organisation develops key/common terms in its respective realm. Often stakeholders, EA practitioners and IT personnel assume that these terms are also common outside their area. This leads to misunderstanding and misalignment of outcomes and objectives. Communication extends further than this as it touches on everything EA practitioners do, including communicating the services they provide so that the rest of the organisation is aware of them and more importantly, uses them. If the EAM team is not providing a service to satisfy a particular stakeholder's needs, it is seen as ineffective in the organisation which ultimately leads to its demise.

4.6 CHAPTER SUMMARY

In this chapter, the researcher presented findings based on the SLR on identifying the key dimensions that are required for EAM success. Since the existence of EAM frameworks and methodologies there has been no published research that provides a view of what the key dimensions for EAM success are. By starting the work in this area, this research will help enterprises to understand their current state of EAM and focus on key dimensions that could accelerate the EAM maturity. This approach to analysing published studies allows the researcher to select good, reliable literature that can be used to identify recurring themes that are represented through conflicting findings, gaps and commonalities in successful use cases.

Dimensions of measure in EAM extend far and wide in current frameworks and methodologies, providing more a general guideline than a prescription of precisely what is required. This has been the biggest problem in managing enterprise architecture once it has been implemented. While there has been increasing recognition by practitioners of EA and researchers alike for the understanding of the key dimensions, no systematic review has been completed to bring together published work.



Adoption	Standards	Plan: Develop an EA strategy and metrics
Alignment	Strategic Alignment	Process: Requirement
Artefacts	Tools	Process: Implementation
Benefits	Training	Process: Procedures
Capabilities.	Transition approach	Procurement
Challenges	Visibility	Project Office Management
Change Management	Vision	Quality: Actuality
Collaboration	A framework to systematically integrate	Quality: Concerns
Committee	Abstraction level	Quality: definition
Communication	Architecture Layer	Quality: IS
Concern	Balance Score Card	Quality: Service Measurement
Culture	Best EA framework	Quality: Simplicity
Dimension Natural	BSC: Decomposition	Quality: Stability
Dimension success	BSC: Improvement	Reference Model/ Standard
Documentation	Budget	Resource based view
Execution	Concept: Alignment	Stakeholder Concerns
Fit for purpose documentation	Concept: Governance	Stakeholder Management
Framework	EA Decomposition	Stakeholder: Engagement Factors
Governance	EA Decomposition: Application Architecture	Stakeholder: Participation
Granularity	EA Decomposition: Business Architecture	Stakeholder: Artefacts
Insights analysis	EA Decomposition: Data Architecture	Stakeholder: Definition
Mandate	EA Decomposition: Information Architecture	Stakeholder: Gap
Maturity	EA Decomposition: Technology Architecture	Stakeholder: Hierarchy
Methodology	EA Definition	Stakeholder: Quality
Mission	EA Framework	Strategic Importance of EA
Modelling	EA framework: shortfalls	Strategy Value of EAM
Operating Model	EAM Goals: Alignment	Tools: Auto documentation challenges
People	EAM Goals: Regulatory Compliance	Modelling: Consistency
Planning	EAM Goals: Standardisation	Modelling: Ease of use
Policy Enforcement	EAM Goals: Governance	Outdated data
Practicality	Ease of adoption	Skill
Principles	Existing Maturity Models	Solution Architecture
Process	Framework: Complexities	Stability
Process Integration	Flexibility	Maturity Levels
Products and Services	Interoperability	Repository
Quality	IT Operational Management	

Table 18: List of EAM Dimensions

5 EAM FRAMEWORK DIMENSIONS: PRACTITIONERS SELECTION

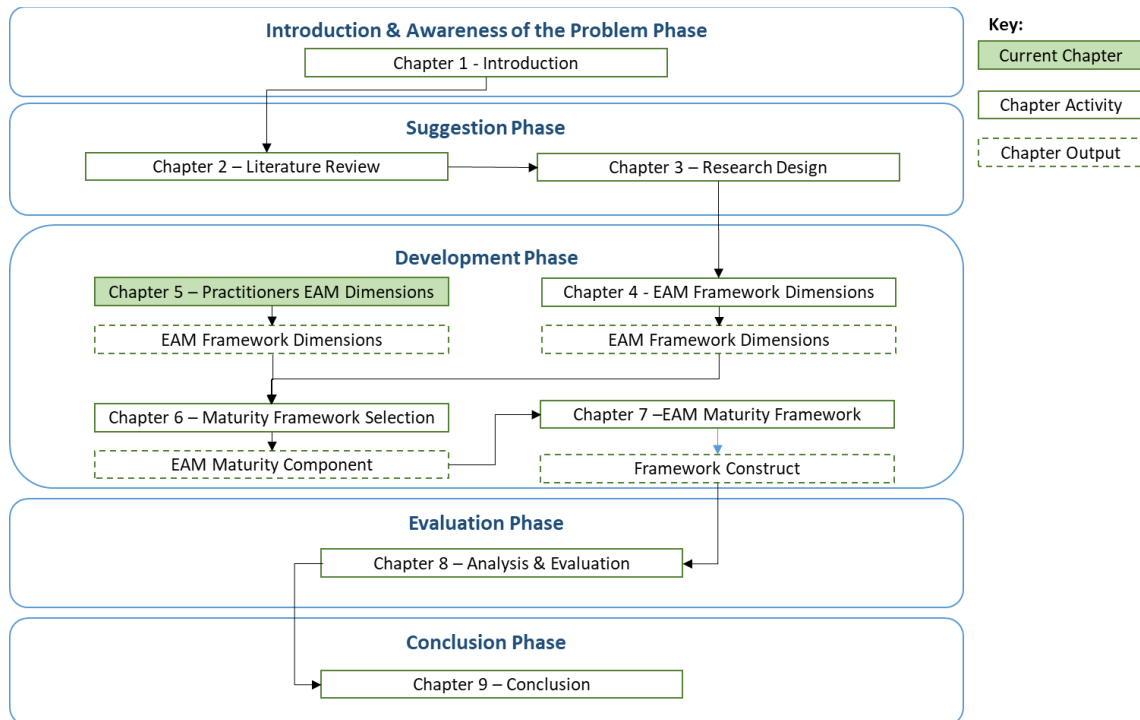


Figure 51: Chapter 5 Thesis Map

5.1 INTRODUCTION

Chapter 4 started the first DSR cycle with a systematic literature review that concluded with a list of EAM dimensions identified as key to the success of EA maturity in an organisation. In **Chapter 5**, the researcher continues with the development cycle which is concerned with identifying key EAM dimensions as seen by EA practitioners. In this chapter, the researcher described the approach used to collect and analyse data and was concluded with a list of key EAM dimensions that have an equally important role to play in the success and maturity improvement of EAM. This chapter uses survey interviews and questionnaires to collect and evaluate the results with EA practitioners and the case study identified to conclude this research study.

Chapter 5 comprises four parts as depicted in Figure 52: Chapter Map. The first section started with an introduction that argues the research process and the research necessity. **Section 2** detailed the data collection process, which includes the planning and the execution thereof. In **Section 3**, the researcher analysed the data and identified key findings

and this chapter ended with a summary and a conclusion of the key dimensions in **Section 4**.

What we read in literature often does not reflect in practice (Silvius, 2007). This could be related to the constraints and limitations of the study itself. Therefore, it is important to try and replicate our understanding of literature in practice to allow researchers to identify relations and differences between the two worlds and help fill the gaps where necessary. Different case studies have different constraints and as a result, help researchers to understand the elements that contribute both positively and negatively. This chapter aligns the dimensions as identified in **Chapter 4** with the dimensions as seen through the eyes of the practitioner and the identified case study.

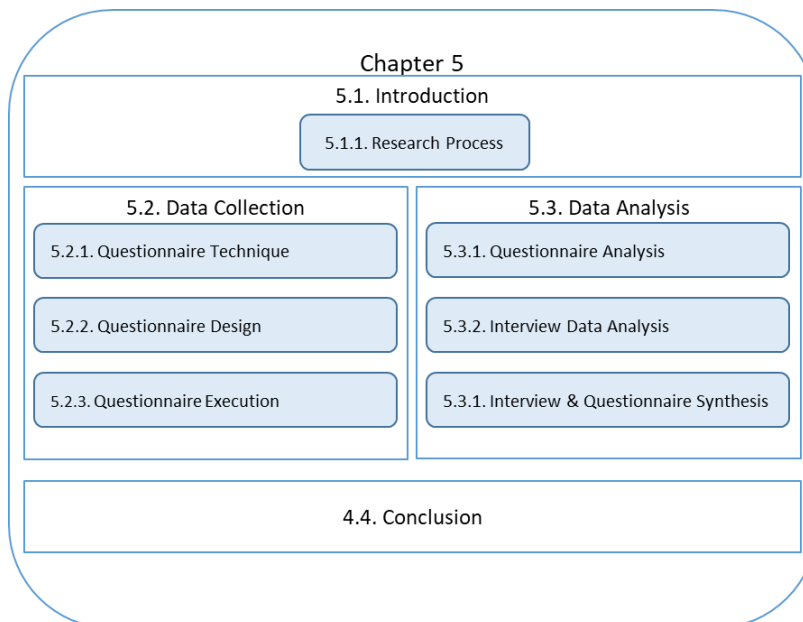


Figure 52: Chapter Map

This chapter explores data pertaining to the EAM key dimensions as viewed by the EA practitioners. The alignment of this chapter to the larger study conducted through this thesis is depicted in Table 19: Data Collection Objectives.

Research Question	Research Objectives	Population	Collection Instrument	Sampling Size	Sampling Method
What are the most critical components of EAM as seen by EAM practitioners in financial institutions?	To identify critical components of EAM through EAM practitioners in financial institutions.	Industry-Wide	Questionnaire	40-50	Self-Selection Sampling
		Selected Case Study	Interviews	10-15	Self-Selection Sampling

Table 19: Data Collection Objectives

5.1.1 Research process

The identification of the key EAM dimensions as experienced by EA practitioners is executed as the second part of this research study using the DSR strategy as depicted in Figure 53: Section relation to DSR.

DSR Research Approach

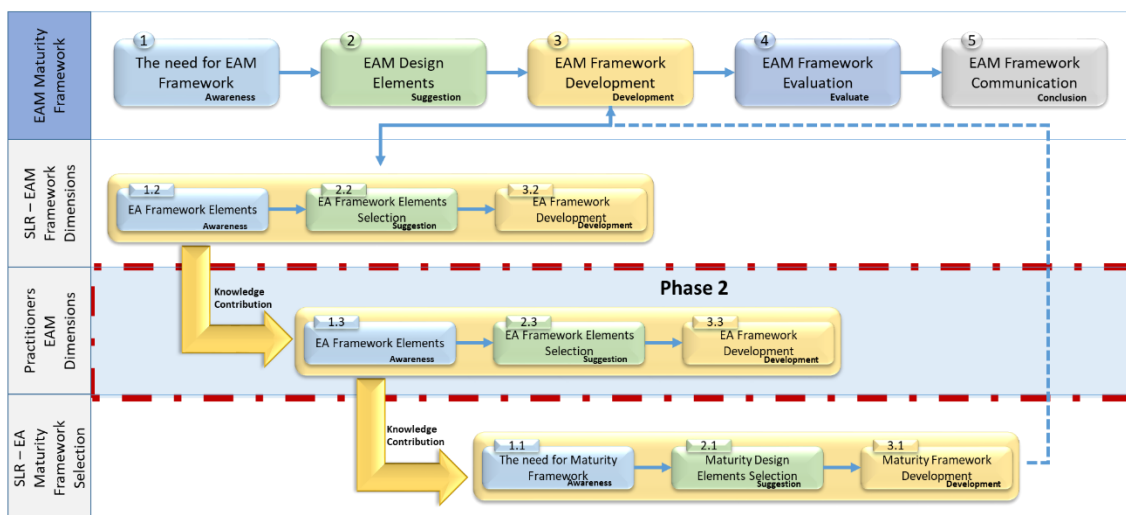


Figure 53: Section relation to DSR

The aim of this chapter, which forms part of the second development cycle, is to determine a list of key EAM dimensions through the examination of the result concluded from the SLR in Chapter 4 and the results concluded from this chapter and qualified the dimensions through the identified case study. A list of dimensions is identified through a questionnaire that was sent to EA practitioners across the financial services industry. This DSR cycle was executed in three phases as depicted in Figure 54: Data Collection Process.

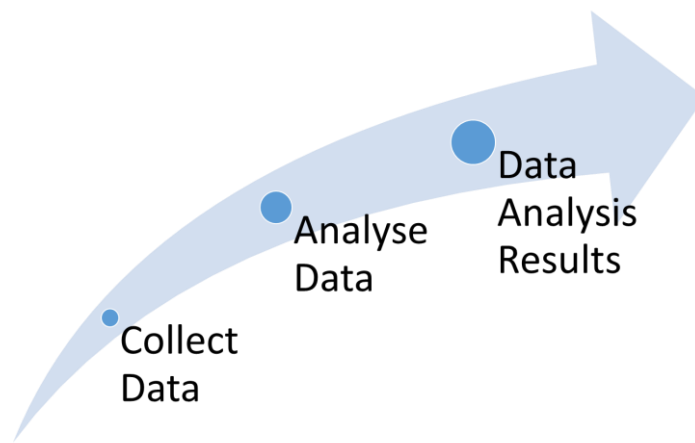


Figure 54: Data Collection Process

5.2 DATA COLLECTION

This study is concerned with identifying dimensions that are key to EAM as they can relate to a higher rate of success of the practice. Questionnaires were developed to collect the practitioner's view of which dimensions they see as essential for the success of the practice (Antwi & Hamza, 2015; R. L. Harrison, 2013; Marczyk et al., 2005). Hence, the design of the questionnaire was in line with the research study's objectives.

5.2.1 Questionnaire Technique

The data collection method selected for the second phase of the development cycle using the DSR strategy is that of a questionnaire. The construction of the questionnaire was guided by the findings from the SLR conducted in **Chapter 4**. Figure 55: Approach to the DSR development phase depicts this approach.

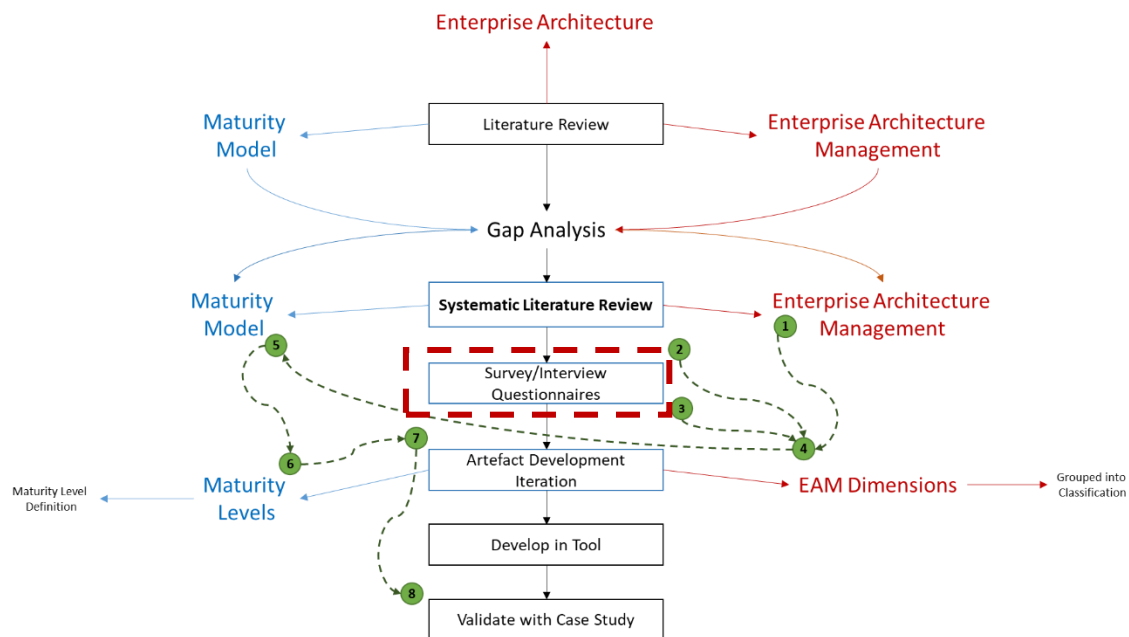


Figure 55: Approach to the DSR development phase

This part of the research study uses the mixed-method approach that was described in **Chapter 3**, to determine the key dimensions of EAM that increase the success of the EA practice by concentrating on maturing key dimensions as seen by practitioners. An exploratory questionnaire was developed to achieve this with each question aligning to a specific EAM dimension as described in Table 20: Personality and Experience and Level of understanding of EAM to Table 22: Identifying Gaps and Challenges in the next section. Two types of questionnaires were used to collect the data namely survey questionnaires and interview questionnaires. The survey questionnaire was administrated through an online channel through the use of the service solution software, *QuestionPro*, to assist with capturing and analysing the results. The full questionnaire can be found in the subsequent section. The interview questionnaires were administered within the selected financial services case study and targeted the organisation's senior IT and business managers as described in [section 3.5.2](#).

Using interview questionnaires provided a structured approach to exploring topics or concerns to gain insights and to get additional context through the interactions between both parties during the interview (Cornford & Smithson, 2005) and can also in some cases be designed as a semistructure approach. This flexibility allows for deviation from the semistructured interview questions to better understand the interviewee's world of the

related matter. This is achieved by redirecting questions to other related areas in the interview process or asking new questions that were not originally planned, to get further insights into the subject area under discussion. It also assists the researcher by having a predefined set of guiding questions that are defined and described in the next section and are used to lead the conversation of the interview. These questions form part of the key dimensions of EAM as identified in **Chapter 4** that are required to meet the researcher's objectives for this study.

5.2.2 Questionnaire Design

The EAM dimension questionnaire aims to collect data from industry experts in the financial services sector regarding the identification and importance of critical elements of EAM. This data can be used to verify and validate the results received during the EAM dimensions SLR. Using a survey questionnaire is particularly useful for this type of data collection because it is relatively easy to administer and cost-efficient. Through this method, the researcher was able to reach many participants in a short period. This data collection instrument that was used to determine vital dimensions to the EAM framework by EA practitioners consisted of three questionnaires:

Questionnaire 1: Consists of a set of structured multiple-choice questions. This questionnaire aims to collect data that speaks to the levels of understanding of EA through the lens of participants at different levels of experience. This can be linked to the expectancy from the participants around EAM as well as provide a view of what they deemed as critical and what is not. This set of questions was directed to EA practitioners across the financial services industry. The questionnaire is split into three sections which was elaborated on in the next section. These questionnaires consist of a demographics questionnaire collecting data on experience, education and designation as depicted in Table 20 and extends to determine the beliefs of success and failure factors in Table 21 and Table 22.

Questionnaire 2: Consists of a mixture of semistructured interview questions. The purpose of this questionnaire was to collect data that provides more detail on their level of understanding of EA and their beliefs about what success factors are and the factors that contribute to failure as seen through the experiences of the participants. The results will be directly linked to the experience of the participants around EAM and provide a view of what

they deemed critical or not. This set of questions was directed only at IT representatives within the selected case study. Table 23 and Table 24 describe the use of the survey interviews questions adopted in the development phase of the DSR.

#	Question	Purpose
1	What level of experience do you have in EA?	To provide insights into the thinking pattern within specific levels of EA experience.
2	What are your total years of experience?	To provide insights into the thinking pattern within specific levels of the experience.
3	What is your highest level of education?	To provide insights into the thinking pattern within specific levels of the experience.
4	What is the scope of EAM?	To provide insights into the level of understanding of EAM.
5	What EA framework and methodology are you most associated with?	To provide insights into the level of understanding of EAM.
6	Which operating area do you reside in?	To provide insights into the participant's knowledge and focus areas with EAM.
7	Who do you consider to be your most valuable stakeholder, i.e., interact with the most?	To provide insights into the participant's knowledge and focus areas with EAM.
8	What level of maturity do you think your EA efforts have obtained?	To provide insights into the level of understanding of EAM.
9	What do you think EA demonstrates well?	To provide insights into the level of understanding of EAM.
10	What governance structure do you interact with?	To provide insights into the culture and adoption of EAM.
11	What EA concerns do you have in your current role?	To provide insights into the participant's knowledge and focus areas with EAM.
12	What EA Challenges do you have in your current role?	To provide insights into the participant's knowledge and focus areas with EAM.
13	What techniques are used to promote EA in your current role?	To provide insights into the participant's knowledge and focus areas with EAM.
14	What organisational culture best fits the EA function in your organisation?	To provide insights into the participant's knowledge and focus areas with EAM.
15	Who does the EA function report into?	To provide insights into the participant's knowledge and focus areas with EAM.
16	What is your interest in EA?	To provide insights into the participant's knowledge and focus areas with EAM.
17	What do you think best describes an EA?	To provide insights into the participant's knowledge and focus areas with EAM.

Table 20: Personality and Experience and Level of understanding of EAM



#	Question	Purpose
1	Top Management	To determine the practitioner's views on the importance of enterprise/organisation's continuous support after implementing an EA strategy.
2	EAM Methodology/Framework	To determine the practitioner's views on the importance of project management office continuous support after implementing an EA strategy.
3	Governance/Steering Committee	To determine the practitioner's views on the importance of the Steering Committee's continuous support after implementing an EA strategy.
4	Competent/Skilled Architects	To determine the practitioner's views on the importance of having skilled resources to support EA after implementation.
5	Process Integration (between operating areas)	To determine the practitioner's views on the importance of quality decision making after implementing an EA strategy.
6	Communication	To determine the practitioner's views on the importance of top management continuous support after implementing an EA strategy.
7	EAM Principles	To determine the practitioner's views on the importance of top management continuous support after implementing an EA strategy.
8	Collaboration	To determine the practitioner's views on the importance of top management continuous support after implementing an EA strategy.
9	Clear Goals and Mandate	To determine the practitioner's views on the importance of top management continuous support after implementing an EA strategy.
10	Tools/Technology Adoption	To determine the practitioner's views on the importance of top management continuous support after implementing an EA strategy.
11	Organisation Culture	To determine the practitioner's views on the importance of top management continuous support after implementing an EA strategy.
12	Policy Enforce	To determine the practitioner's views on the importance of top management continuous support after implementing an EA strategy.

#	Question	Purpose
13	Change Management	To determine the practitioner's views on the importance of top management continuous support after implementing an EA strategy.
14	EAM Execution	To determine the practitioner's views on the importance of top management continuous support after implementing an EA strategy.
15	EAM Roles and Responsibility	To determine the practitioner's views on the importance of top management continuous support after implementing an EA strategy.
16	EAM Operating Model	To determine the practitioner's views on the importance of top management continuous support after implementing an EA strategy.
17	Stakeholder Management	To determine the practitioner's views on the importance of top management continuous support after implementing an EA strategy.

Table 21: Critical Dimensions of EAM

#	Question	Purpose
1	Top Management	To determine the practitioner's views on the gaps/challenges of Enterprise/organisation continuous support with EAM.
2	EAM Methodology/Framework	To determine the practitioner's views on the gaps/challenges of project management office continuous support with EAM.
3	Governance/Steering Committee	To determine the practitioner's views on the gaps/challenges of the Steering Committee's continuous support with EAM.
4	Competent/Skilled Architects	To determine the practitioner's views on the gaps/challenges of having skilled resources to support EA after implementation.
5	Process Integration (between operating areas)	To determine the practitioner's views on the gaps/challenges of quality decision making after implementing an EA strategy.
6	Communication	To determine the practitioner's views on the gaps/challenges of top management continuous support after implementing an EA strategy.

#	Question	Purpose
7	EAM Principles	To determine the practitioner's views on the gaps/challenges of top management continuous support after implementing an EA strategy.
8	Collaboration	To determine the practitioner's views on the gaps/challenges of top management continuous support after implementing an EA strategy.
9	Clear Goals and Mandate	To determine the practitioner's views on the gaps/challenges of top management continuous support after implementing an EA strategy.
10	Tools/Technology Adoption	To determine the practitioner's views on the gaps/challenges of top management continuous support after implementing an EA strategy.
11	Organisation Culture	To determine the practitioner's views on the gaps/challenges of top management continuous support after implementing an EA strategy.
12	Policy Enforce	To determine the practitioner's views on the gaps/challenges of top management continuous support after implementing an EA strategy.
13	Change Management	To determine the practitioner's views on the gaps/challenges of top management continuous support after implementing an EA strategy.
14	EAM Execution	To determine the practitioner's views on the gaps/challenges of top management continuous support after implementing an EA strategy.
15	EAM Roles and Responsibility	To determine the practitioner's views on the gaps/challenges of top management continuous support after implementing an EA strategy.
16	EAM Operating Model	To determine the practitioner's views on the gaps/challenges of top management continuous support after implementing an EA strategy.
17	Stakeholder Management	To determine the practitioner's views on the gaps/challenges of top management continuous support after implementing an EA strategy.

Table 22: Identifying Gaps and Challenges

#	Question	Purpose
1	How are you involved in EA?	To provide insights into the participant's knowledge and focus areas with EAM.
2	Can you briefly describe the level of importance of Enterprise Architecture within your organisation?	To provide insights into the culture and adoption of EAM.
3	In your organisation, who are the custodians for EA Management? (in terms of developing, implement and maintain) and what are some of your key expectations from them?	To provide insights into the culture and adoption of EAM.
4	What are the major challenges in meeting these expectations? Why?	To provide insights into the participant's knowledge and focus areas with EAM.
5	What do you think is required to overcome these challenges? Why?	To provide insights into the culture and adoption of EAM.
6	What would you list as values/benefits that you would like to see from EA? Why?	To provide insights into the culture and adoption of EAM.
7	Do you think that business or the rest of the organisation has gained anticipated value from EAM? Why or why not?	To provide insights into the culture and adoption of EAM.
8	What are the top one or two things that you believe EA is doing right? Why?	To provide insights into the culture and adoption of EAM.
9	What are the key things that you can do to support EA to deliver anticipated value/benefits to their stakeholders?	To provide insights into the culture and adoption of EAM.

Table 23: Part 1: Guiding questions for IT

#	Question	Purpose
1	How are you involved in EA in your organisation?	To provide insights into the participant's knowledge and focus areas with EAM.
2	Can you briefly describe the level of importance of Enterprise Architecture within your organisation?	To provide insights into the culture and adoption of EAM.
3	In your organisation, who are the major stakeholders for EAM and what is your expectation from them?	To provide insights into the culture and adoption of EAM.

#	Question	Purpose
4	Do you find it difficult to work/communicate with the EA division/people? Why?	To provide insights into the culture and adoption of EAM.
5	Do you believe the business has given EA the support that is required?	To provide insights into the culture and adoption of EAM.
6	Do you think that you are getting all or partial anticipated value from EA?	To provide insights into the culture and adoption of EAM.
7	What value do you think EA can or should provide the organisation? (to consider them successful)	To provide insights into the culture and adoption of EAM.
8	Do you think your inputs are instrumental for architectural planning? How would EA get those inputs?	To provide insights into the culture and adoption of EAM.
9	What are the top one or two things that you believe EA is doing right? Why?	To provide insights into the culture and adoption of EAM.
10	How do you think you can support EA to deliver value/benefits to the organisation?	To provide insights into the culture and adoption of EAM.

Table 24: Part 2: Guiding questions for business

The data collection process is divided into two Campaigns.

- Campaign 1 consisted of three sections that were captured online and at the participants own convenience via an access link that was provided:
 - a. *Section 1* is multiple-choice questions that provided the researcher with the required demographics for the field and this study and levels of understanding of EAM, respectively.
 - b. *Section 2* continues with multiple-choice questions that provide insight into what the interviewee deems important to EAM.
 - c. *Section 3* as section 2, provides insight into the major challenges to EAM.
- Campaign 2 has three sections and consists of open-ended, semistructured interview questions that were conducted face-to-face or via video conference facilities. The interview questions were shared before the agreed date and time for the participant's convenience and preparation.
 - a. *Section 1a*: Open-ended interview questions aimed at understanding EAM from a business perspective, or

- b. *Section 1b*: Open-ended interview questions aimed at understanding EAM from an IT perspective.
- c. *Section 2*: Continues with multiple-choice questions that provide insight into what the interviewee deems important to EAM.
- d. *Section 3*: Provides insight into what the major challenges to EAM are, similar to section 2.

5.2.3 Interview Questionnaire Execution

The data collected during the data collection phase of the research was facilitated using three questionnaires administered to EA practitioners and selected individuals from within the selected case study. The process was executed in this chapter were segmented into two stages:

- c. **Stage 1**: Key participants were selected to pilot the questionnaires to validate the appropriateness, ease of completion and overall tediousness of the process.
- d. **Stage 2**: An online questionnaire tool was selected and used to collect the data. The collection process was managed by segmenting the participants into manageable campaigns:
 - I. *Campaign 1*: Survey Questionnaire – EA practitioners (Financial Services)
 - II. *Campaign 2*: Interview and Survey Questionnaire – Business Senior Managers and Executives (Case Study)
 - III. *Campaign 3*: Interview and Survey Questionnaire – IT Senior Managers and Executives (Case Study).

5.3 DATA ANALYSIS AND SYNTHESIS

The previous section described the questions around the data to be collected. In this section, the process of analysing the data is discussed and described. The research method used the collected and analysed the data was the mixed-method, adopting the convergent design approach (R. L. Harrison, 2013) using qualitative and quantitative analysis as depicted in Figure 56: Mixed-Method - Convergent Design (R. L. Harrison, 2013, pp. 1990–2010).

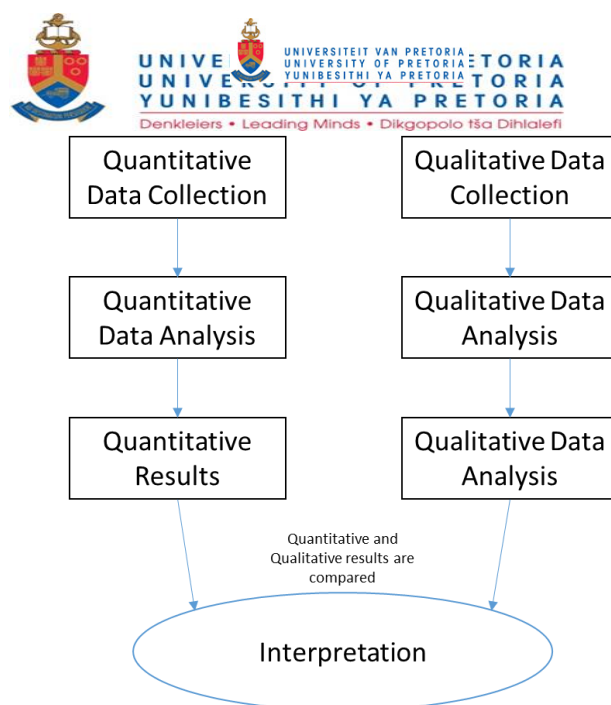


Figure 56: Mixed-Method - Convergent Design

For this study, one organisation representing the financial services industry was selected. Using a case study is appropriate for research where there is a limitation on time and resources and the study's purpose is not generalised (Yin, 2011). This research procedure can be repeated for other organisations in the financial services industry in future research. The organisation represents a fairly large organisation in South Africa with a focus within the head office branch. The data collected was also compared against data collected through the EAM practitioner's data collection process. The full data collection can be found in Section 12 APPENDIX B: Chapter 5 – Supporting Data.

5.3.1 Questionnaire Data Analysis and Key Results

As stated in the previous section, the data collection was split into two stages. In Stage 1, a multiple-choice questionnaire was sent to 41 EA practitioners. This formed the pilot questionnaire and was created and sent to a limited amount of people to test the relevance, practicality and duration of the questionnaire. After taking into consideration the results and the feedback from that questionnaire, it was modified to suit the needs of the participants and the questions were reduced to make it more practical from a time perspective.

Once the researcher was content with the changes from Stage 1, Stage 2 was initiated, and the survey was sent out to public forums with which EA practitioners were associated. The approach depicted in Figure 57: Data Analysis Approach was used to analyse the data

collected through the online survey questionnaires as well as the interviews that were completed with senior resources within the selected case study chosen for this research. Thematic analysis was used since it is a flexible process that can be completed using one of two approaches. The analysis could start as soon as the data had been collected or after all data had been collected. In this study, the data was analysed after the collection of all the data.

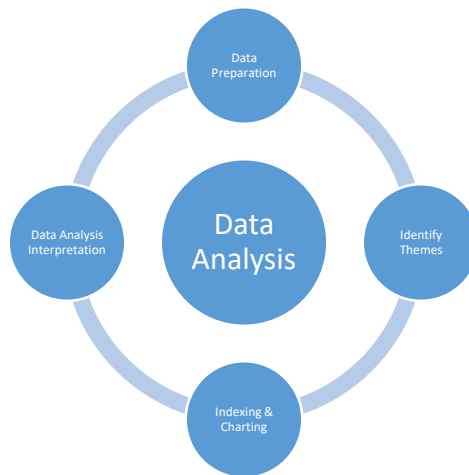


Figure 57: Data Analysis Approach

The first section of the questionnaire aimed at getting a better understanding of the individuals who participated in the research as well as gaining some insights into their EA practice. Before starting with the data analysis, the data was prepared by classifying the questions into their relevant areas of focus as the researcher intended. The relevant areas were the EA experience, problem identification, EA knowledge, operating area, EA practice and general EA questions. The related focus areas and questions described in Table 25: EA Questionnaire Focus Areas are further examined and described in upcoming sections.

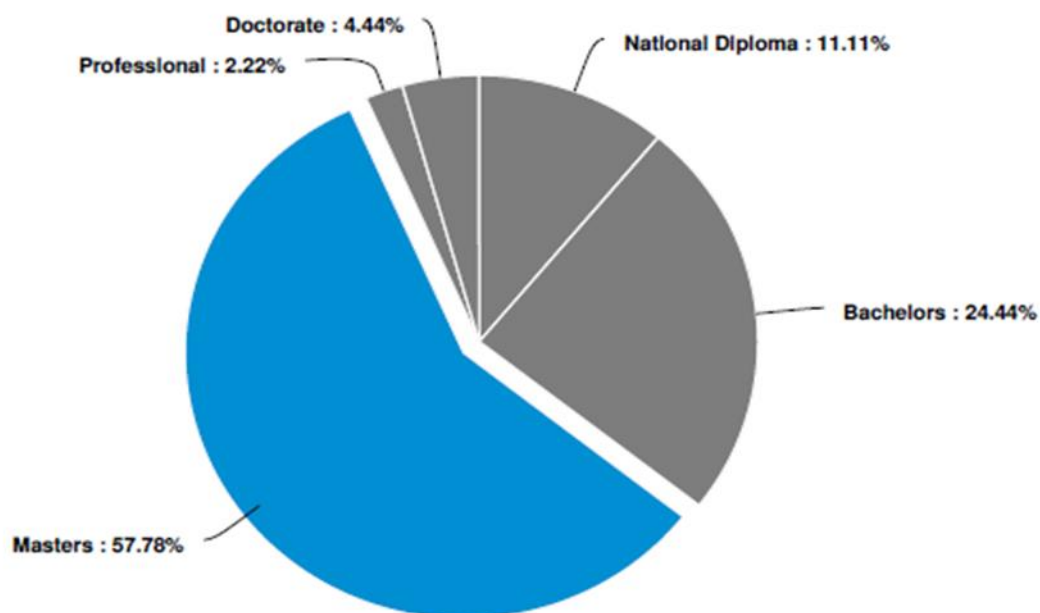
<i>Focus Area</i>	<i>Questions</i>
<i>EA experience</i>	• What level of experience do you have in EA? • What are your total years of experience? • What is your highest level of education?
<i>Problem identification</i>	• What EA concerns do you have in your current role? • What EA Challenges do you have in your current role?
<i>EA knowledge</i>	• What is the scope of EAM? • What EA framework and methodology are you most associated with?

<i>Operating area</i>	• What is your interest in EA? • Which operating area do you reside in? • Who do you consider to be your most valuable stakeholder, i.e., interact the most with? • What governance structure do you interact with?
<i>EA practice</i>	• Who does the EA function report into? • What do you think EA demonstrates well? • What level of maturity do you think your EA efforts have obtained?
<i>General EA questions</i>	• What do you think best describes an EA? • What techniques are used to promote EA in your current role? • What organisational culture best fits the EA function in your organisation?

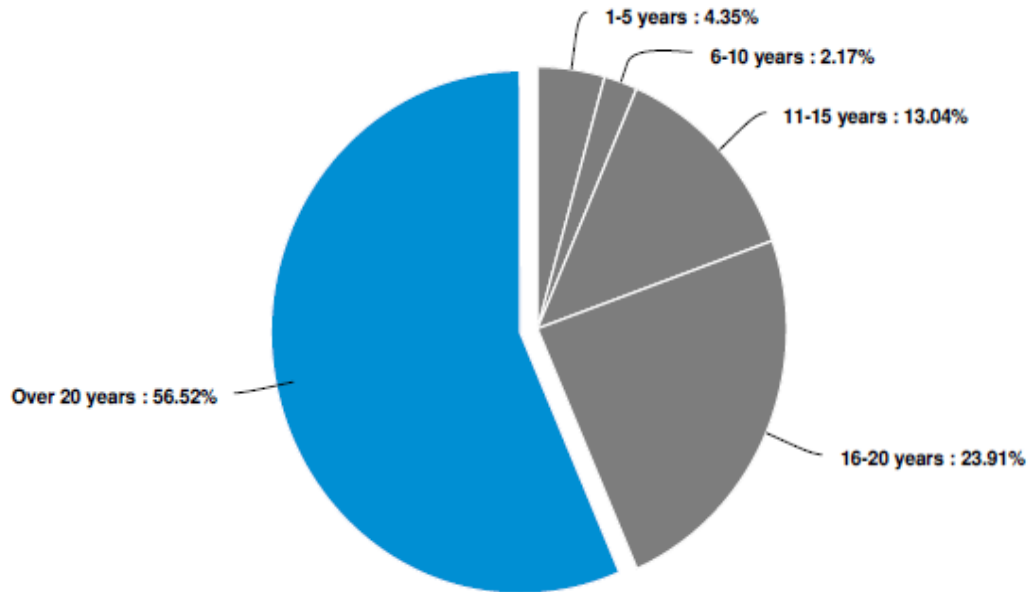
Table 25: EA Questionnaire Focus Areas

Within the EA experience focus area, data concerning the overall experience of the participant and the specific experience in the practice of EA was collected. These two questions together with the data on the level of education that each participant had were crucial. The combination of data collected spoke to the reliability and validity of the data collected and was extremely important in terms of the credibility of the selected options from each participant. The result of the data can be seen in the figure below.

What is your highest level of education?



What are your total years of work experience?



What level of experience you do have in EA?

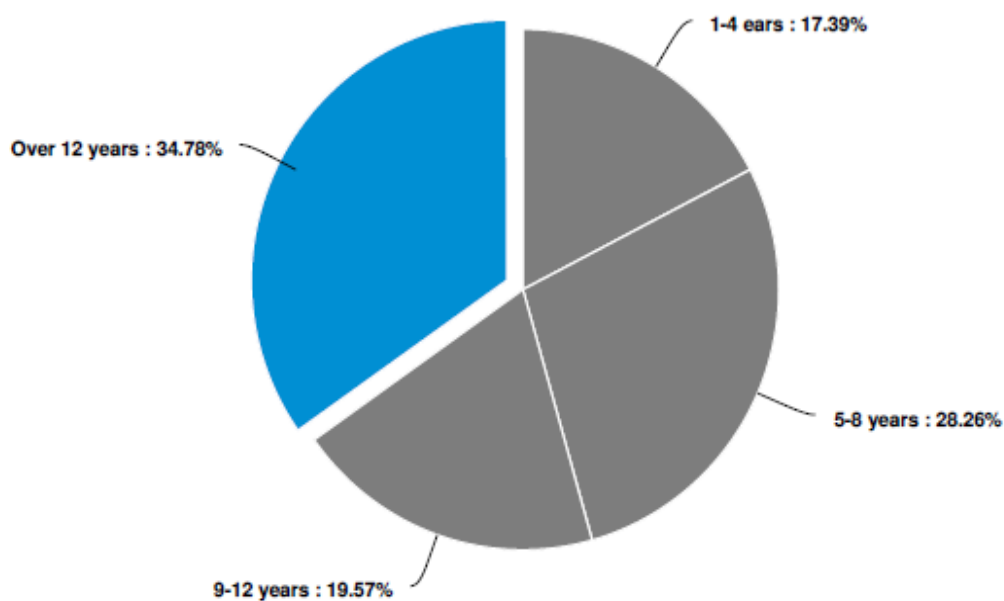


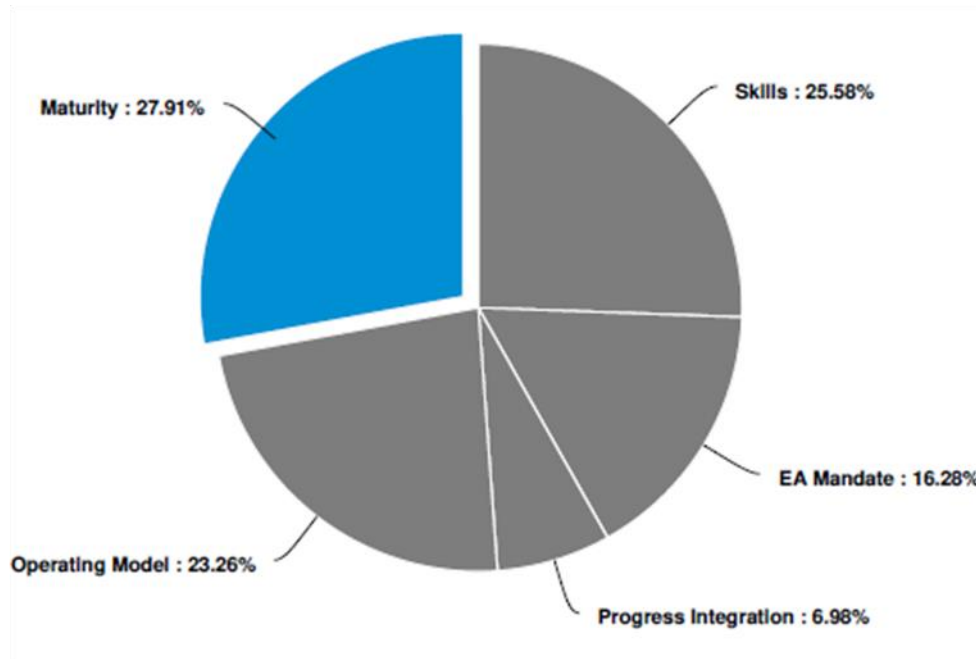
Figure 58: EA Experience

The findings from this data indicate that EA practitioners are seasoned professionals with many years of experience both in the industry as well as EA. Complimentary to the experience is that many participants hold high qualifications in their respective fields. The data collected from these participants can be acknowledged as reliable and credible

because more than 50% of the respondents to this survey questionnaire had been in their respective industries for over twenty years. This was the same for EA skills and experience, as about 50% had more than ten years of experience in EA. This can be further strengthened in that close to 60% had a master's qualification. Current framework and methodologies in academia and practice are meant to provide information by means of guidelines to meeting one's objectives and are by no means a prescription of how or what needs to be done. Often it requires that EA practitioners select what is appropriate to meet their needs. This cannot easily be done if the EA practitioner does not have the experience to select accurately. Time and many years of selecting incorrect dimensions or artefacts assist every EA practitioner in getting closer to success or maybe results in continuous failure which ultimately leads to the demise of the EA practice. Therefore, the insights received through the analysis of this data would provide a fair reflection of the needs and concerns in the field of EAM.

The problem identification focus area provided insight into some of the concerns and key challenges with EAM. With many of the participants having a wealth of experience and the capability to manage EA, this focus area was very valuable in understanding some of these areas and the commonality of problems being experienced and assisted with identifying potential dimensions that would be essential for EAM success. Figure 59: Problem Identification provides the data that was collected with very clear views on which dimensions need to be focused on.

What EA challenges do you have in your current role?



What EA concerns do you have in your current role?

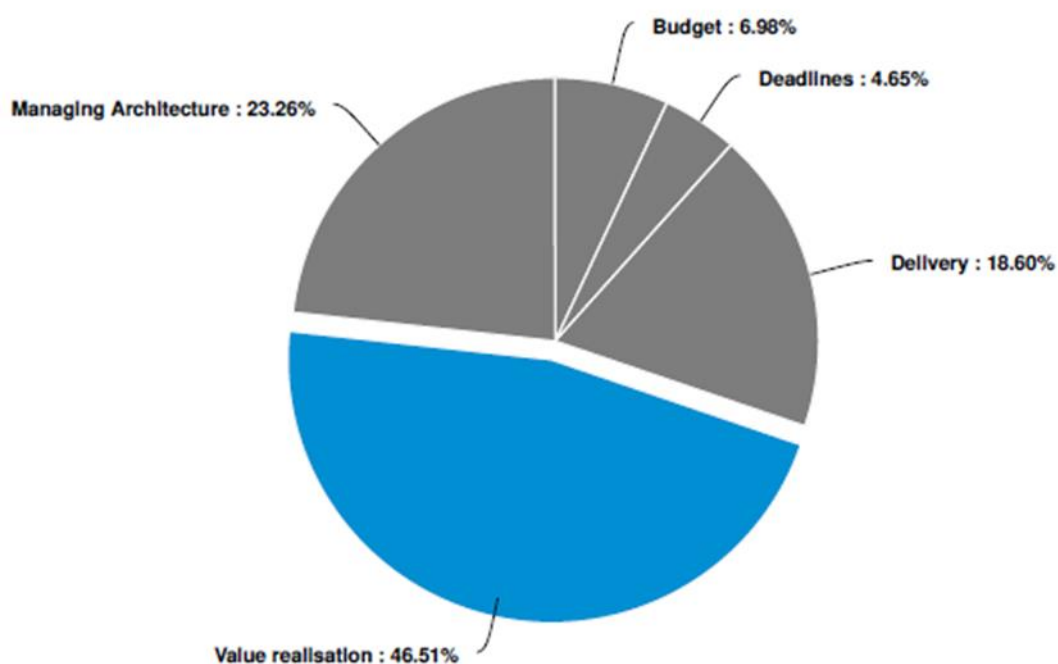


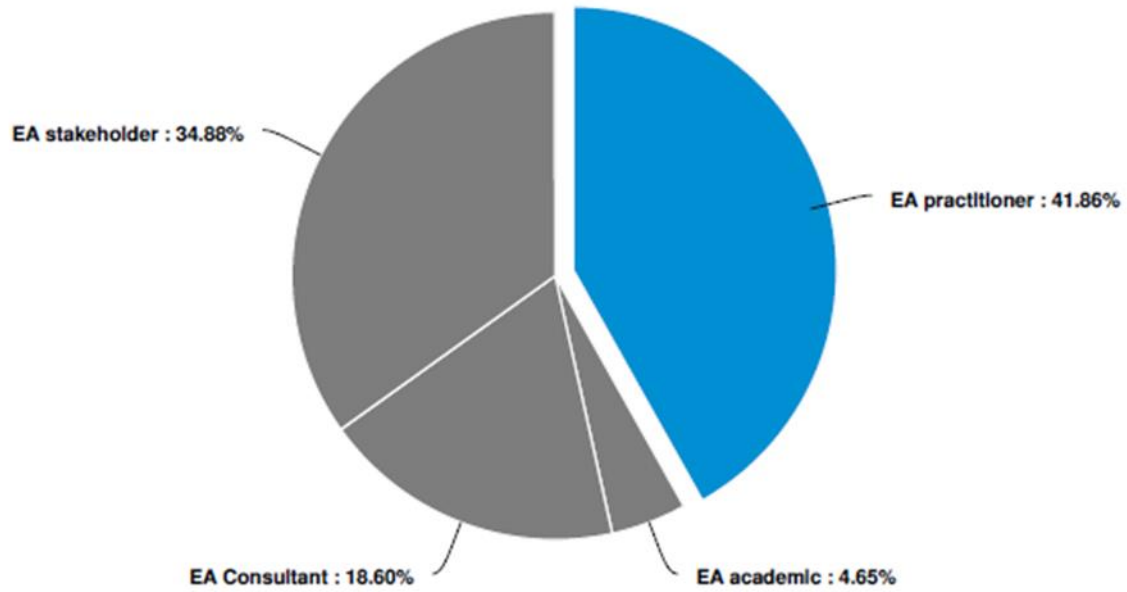
Figure 59: Problem Identification

Related to participants' concerns, an overwhelming 46% indicated that they had not gained the anticipated value from EA. This may be the reason for many indirect factors such as communication, skills, collaboration engagement management, EA mandate and few others. Further analysis of these dimensions follows in subsequent sections. Managing

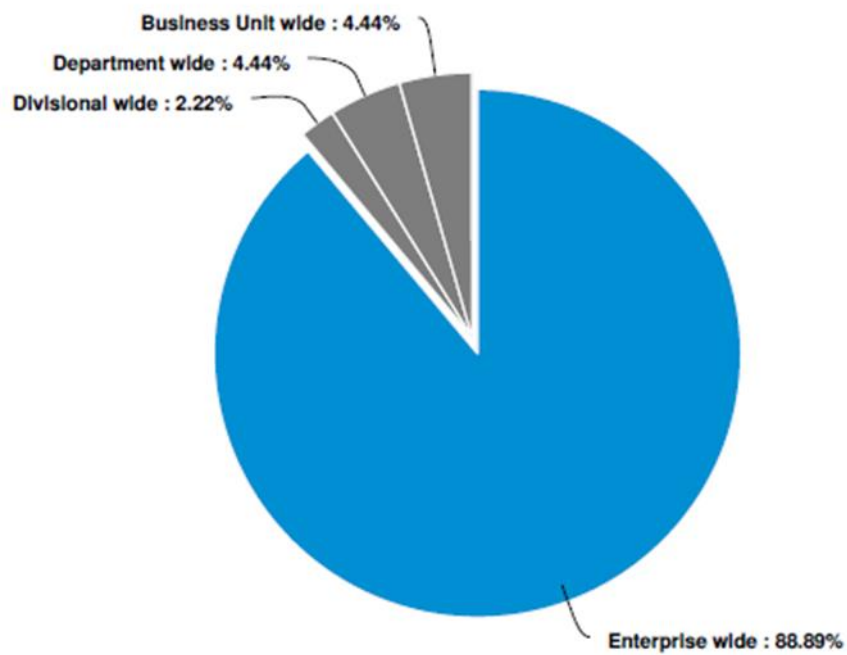
architecture featured second in this analysis, with 23% indicating this as a concern. This concern may be focused on architecture artefacts and the management of such through the use of technical tools (or not) and is directly associated with having up-to-date information quicker. The last concern around delivery made up 18% and this may be due to the time lost in delivery as a result of the complexity of the solution or not understanding the need. When analysing the challenges that impede EAM success, almost 28% indicated that getting the EA to the right maturity or to increase maturity was top on the list. Skills, EA mandate and operating model also feature very high, which links to value realisation concerns, which is crucial because these dimensions directly affect value. With skills, some of the relating factors that influence them are capacity constraints and capability, with 25% indicating skills. While it may be relatively low, this dimension is becoming a vital component for EAM success, as determined in the previous chapter.

The third focus area confirms the school of thought the participants have on EA as well as provides insights into the interest of EA with the participants. With many different frameworks and methodologies come many different interpretations of EA Figure 60: EA Knowledge depicts the aggregated scores in terms of their relation to EA, frameworks and methodologies they have chosen to adopt, and their environment's complexity.

What is your interest in EA?



What is the scope of EA?



What EA frameworks & methodology are you most associated with?

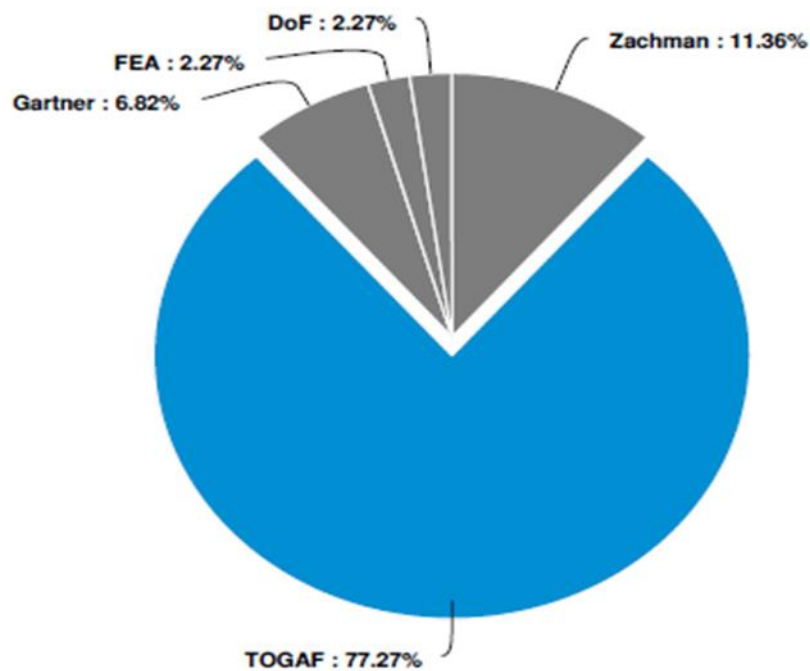


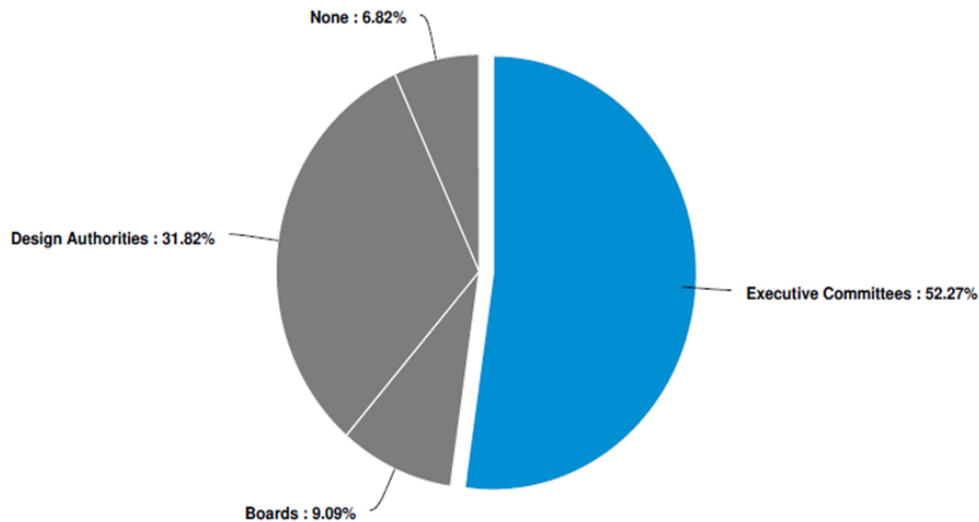
Figure 60: EA Knowledge

The vast majority of participants, nearly 19%, indicated that EA is an enterprise-wide role. To employ this strategy in a large organisation always seems to be the correct way as it may seem like a good way of getting the most out of an EA implementation but it may result in resource constraint issues as the teams are not big enough to support the entire organisation. Some organisations where their operating model is not centralised follow a more federated structure. These organisations split the EA functions into the divisional unit or department units that may or may not have a governing structure to regulate the policy enforcement standards and principles. This questionnaire provides a good mix of EA practitioners and stakeholders of EA. Almost 42% of the participants expressed their interest in EA as practitioners and almost thirty-five indicated that they were stakeholders. This would provide insight into the life cycle of management and would assist in identifying gaps as a result of bias. It is not surprising that TOGAF was the most adopted framework and methodology, with 77% indicating that this was what they most associated with.

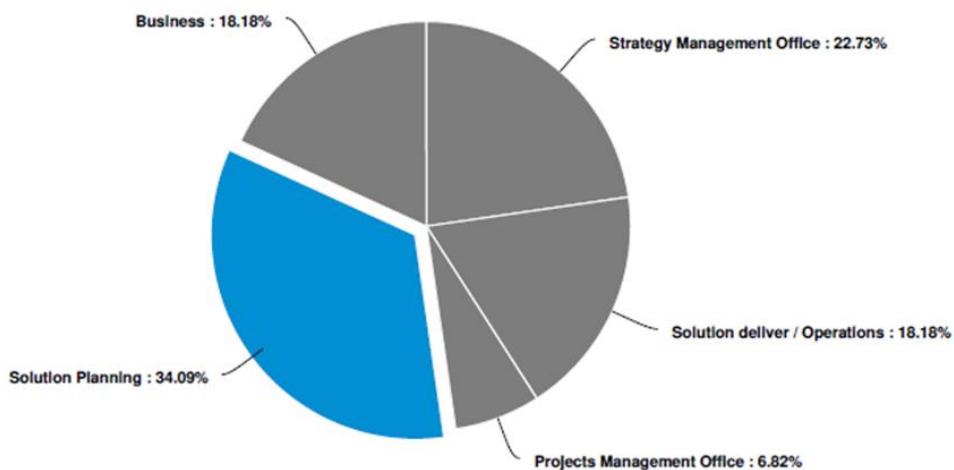
Focus area four provided insight into the operating area and as well as the type of engagement and the level of engagement within each participant's role as depicted in Figure

61: Operating Area. Different stakeholders within an organisation have different perspectives on the organisation. Hence, their priorities are not the same and understanding the different stakeholders and their needs is crucial for satisfying those needs.

What governance structure do you interact with?



Which operating areas do you reside in?



Who do you consider to be your most valuable stakeholder?

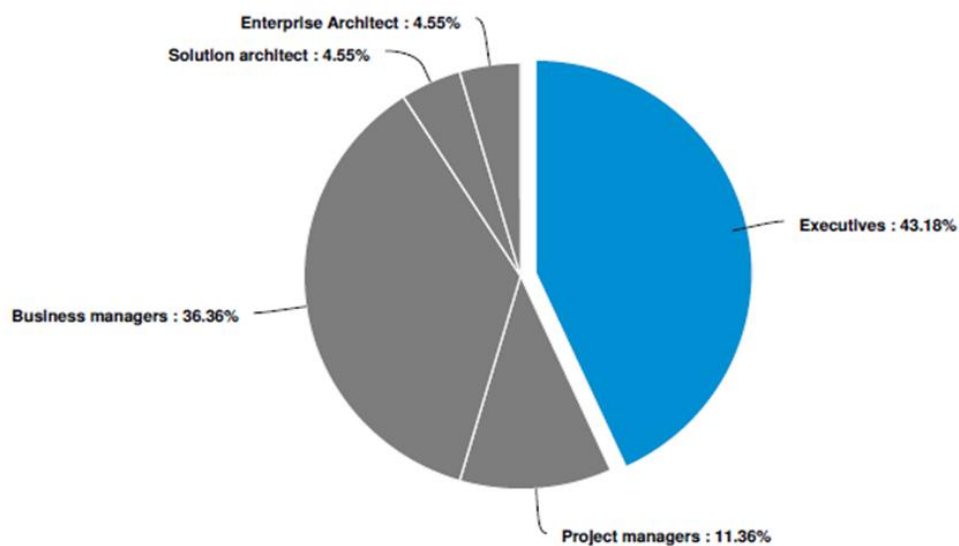
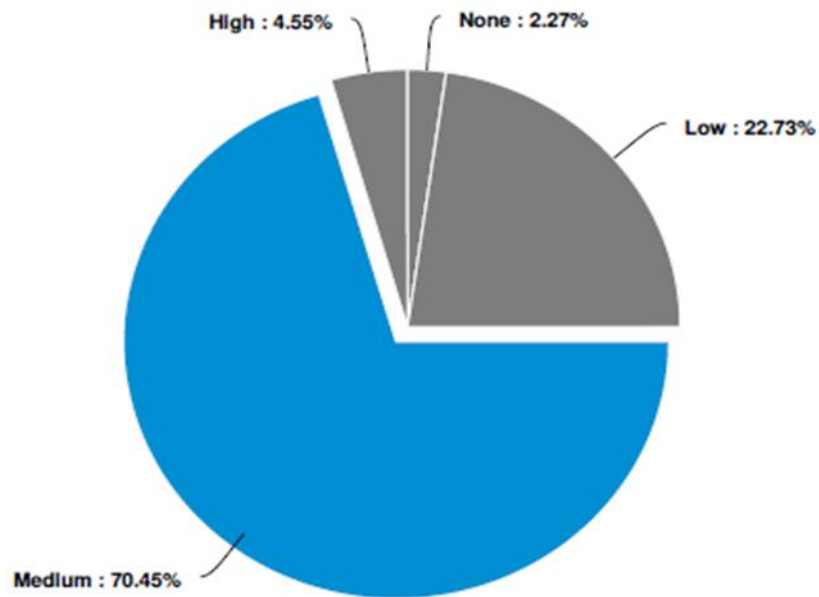


Figure 61: Operating Area

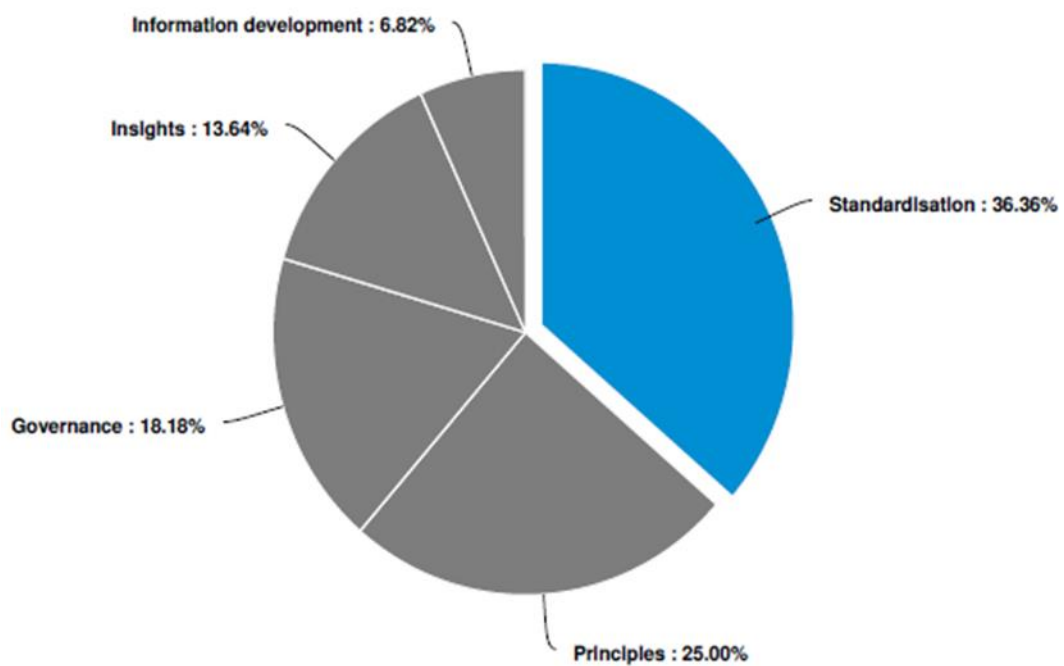
When we look at the participants and the operating area they reside in, more than 50% indicated that they are in a strategically focused role. With these participants, it becomes important to have a view into the longer time frame plans such as roadmaps, principles and standards. In these roles, EA becomes an important factor in how decisions we make and implement are validated. If this is not managed well, you will see the result after many years with the technical debt in the organisation and EA would have failed in their duties to rationalise, consolidate and standardise on business and technical capabilities. It is interesting but not uncommon that executives were highlighted as being the most important stakeholder, with 43% indicating this. Ultimately, most decisions come down to executive sponsorship and if the buy-in is not strong, that is where the journey will stop. Some of the most under-served stakeholders are business managers, this stakeholder was the second most selected attribute at 36%. If the ultimate decision lies with the executives, then the ultimate test for the value of EA lies with the business. All that an enterprise architect does is support businesses in making informed decisions faster and more efficiently. In understanding the data with regard to the governance structures that the participants engage with, it becomes clear why so many of the participants selected executives, not business managers as the most important stakeholder. Fifty-two per cent of the participants interact with executives within the governance structures. While it is important to satisfy the executives' needs, it is equally important to satisfy the business needs and this can often mean going against an executive within an organisation.

The fifth focus area examines data on the EA practice as depicted in Figure 62: EA Practice. Understanding a little about the EA practice can provide insight into some of the developmental areas. Depending on which organisation structure EA falls under, it will provide insights into the objectives that they will need to satisfy. For example, suppose EA fell under the Chief Financial Officer (CFO), in that case, their objectives could have more of a financial perspective, more around cost savings and total cost of ownership of technical solution or a strategic influence than if they fell under the Chief Executive Officer (CEO).

What level of maturity do you think your EA effort has obtained?



What do you think EA demonstrates well?



Who does the EA function report into?

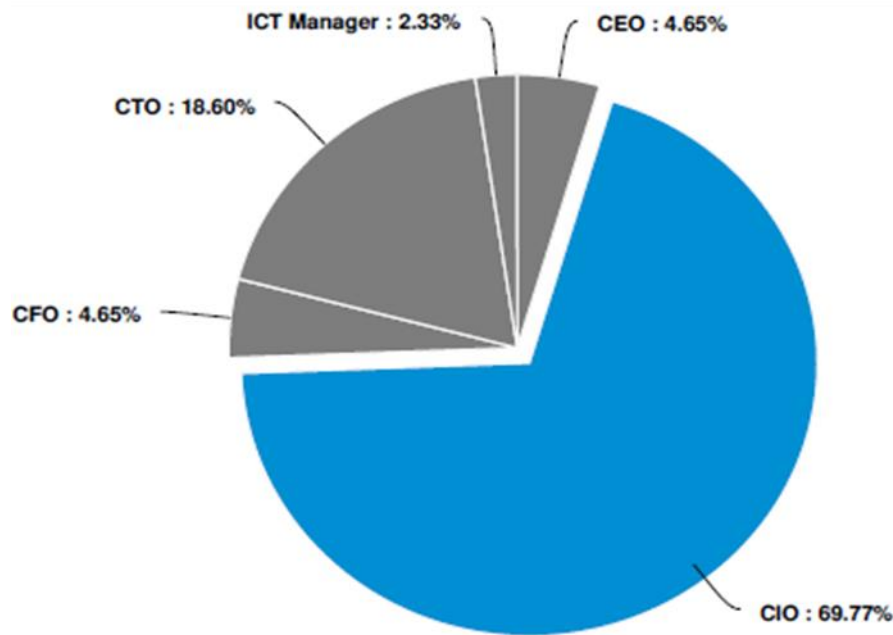
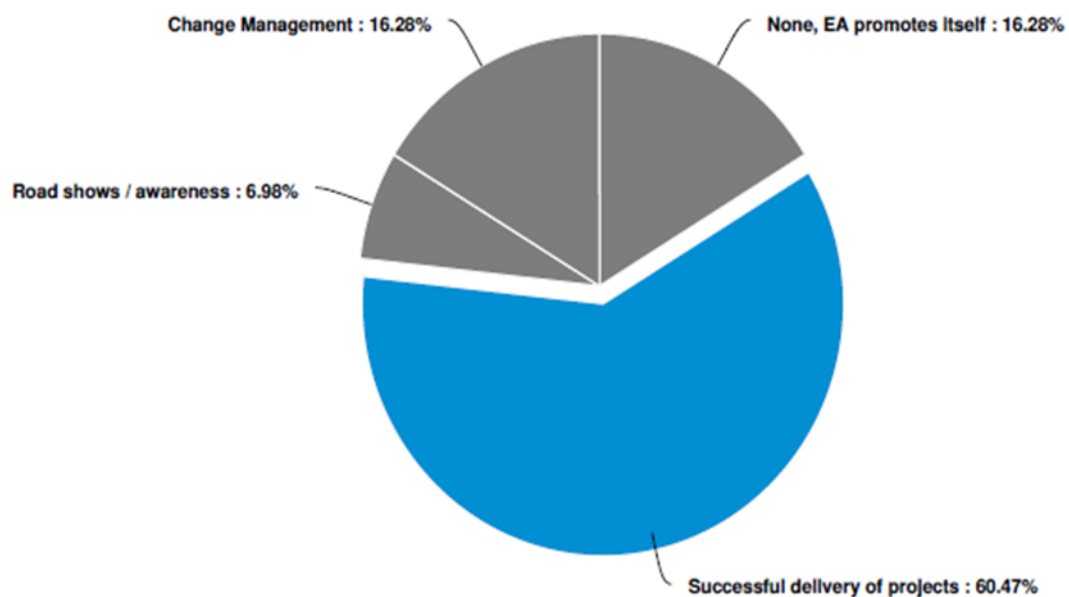


Figure 62: EA Practice

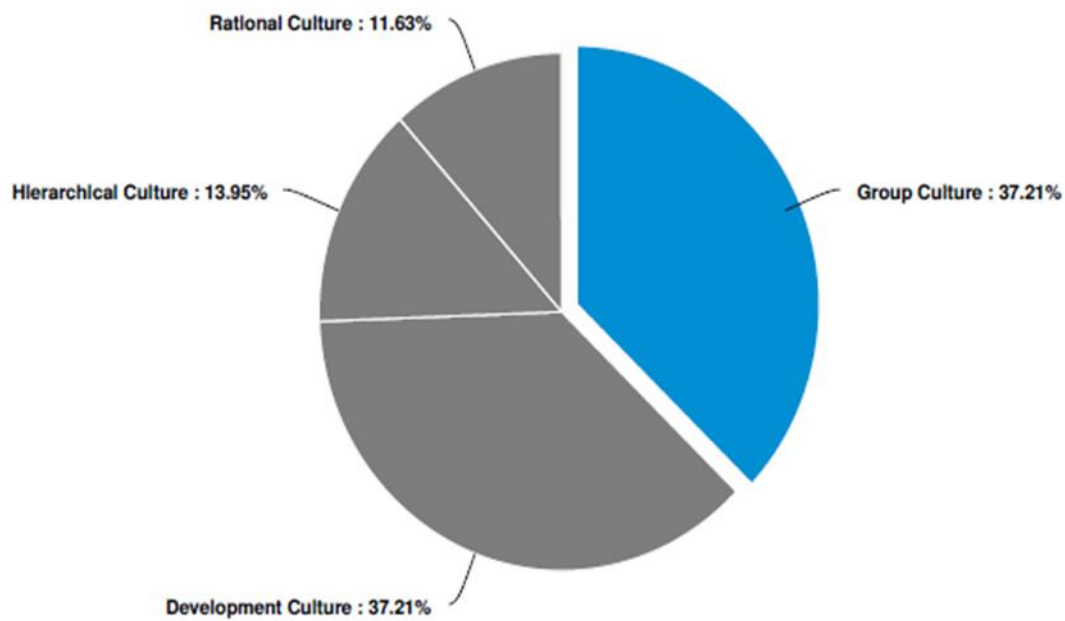
The two most common organisational structures that EA falls under are the Chief Technology Officer (CTO) and the CIO. In the questionnaire, almost 70% of the participants indicated that EA fell under the CIO and about 19% indicated that EA fell under the CTO. In EA has a strong governance perspective to it, it would make sense that it would fall under the CIO in line with the "King IV" corporate governance structure. The foundational elements featured very high with principles and standardisation 25% and 36% respectively. While this is great, EA is in its third evolution which looks at insights management and this feature is a little low, with 13% indicating that this is what EA demonstrates well for their organisations. When asked about the level of maturity that EA had obtained in their organisation, a very high 70% indicated that EA's maturity is of a medium level. This is most likely linked to the question that indicated high foundational elements success and the coverage of all elements/dimensions may not be looked at in totality as this does not align with focus area 2, which showed a 46% of EA value realisation as a concern. The assumption here is that if your mature level is medium to high, EA would have demonstrated high-value realisation as well.

The last focus area addressed some of the softer dimensions of EA as depicted in Figure 63: General EA Implications. These include organisational culture, change management, the marketing and selling of the EA services and the overall visibility of EA within an organisation. The EA division is seen as the visionaries of the organisation and is meant to advise and lead accordingly, but EA is a combined effort and requires everyone in the organisation to succeed. The figure below provides insights into some of these dimensions.

What techniques are used to promote EA in your organisation?



What organizational culture best fits the EA function in your organisation?



What do you think best describes an Enterprise Architect

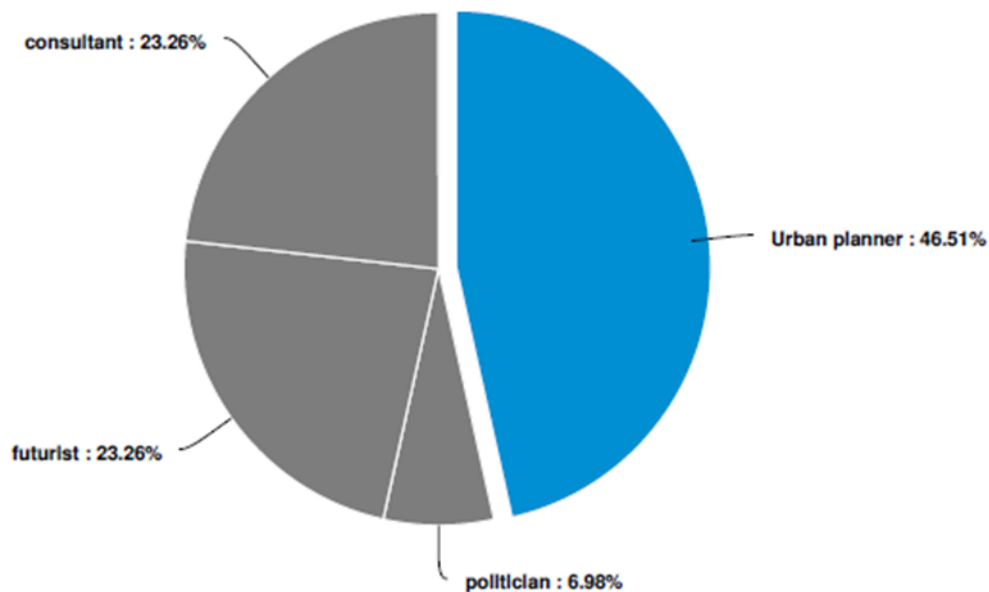


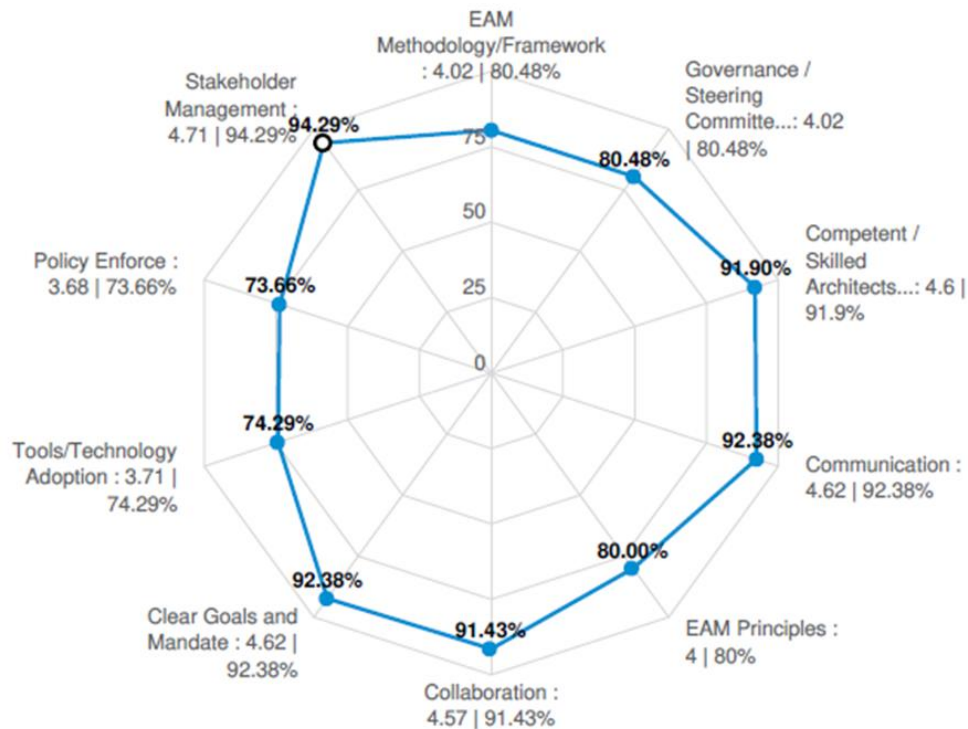
Figure 63: General EA Implications

EAM success can be influenced by the visibility of its services and its own successes. This means that there should be an active process of socialising success in whatever form it is, either through roadshows or successful implementations of EAM deliverables through

change management. This is an area of concern as the accepted way of promoting EAM was through solution delivery, as illustrated by 60% of the participants who indicated this. While this is an effective way, it is only truly effective if it is done via change management otherwise these successes become known only to the implementers of the solution. Over and above celebrating successful delivery through change management, it is also important to conduct a roadshow that speaks about the products and services that come out of EA so that these services become known and used by any individual in the organisation. Seven per cent indicated that roadshows are how EA is promoted—a very low percentage. These roadshows will eventually add to the corporate culture and become part of the organisation's brand. More than 65% of the participants see the EA function as the future planner for the organisation. Therefore, a part of increasing value realisation is to "play the part". To plan your route to reach your destination, you have to know your current location and understanding your maturity is one way to achieve this.

The second section of the questionnaire dealt with understanding some of the success factors of EAM as well as factors that impede EAM success. Figure 64: EAM Success vs Challenges Dimensions illustrates the percentages of selection for each attribute within both the success and failure factors of EAM. In preparation for the data analysis, the EAM dimension was classified into themes that have been identified in the previous chapter. These themes were named EAM Alignment, EAM Compliance, EAM Enablement and EAM transition.

The factors that increase the SUCCESS of EAM.



The factors that contribute to the FAILURES of EAM

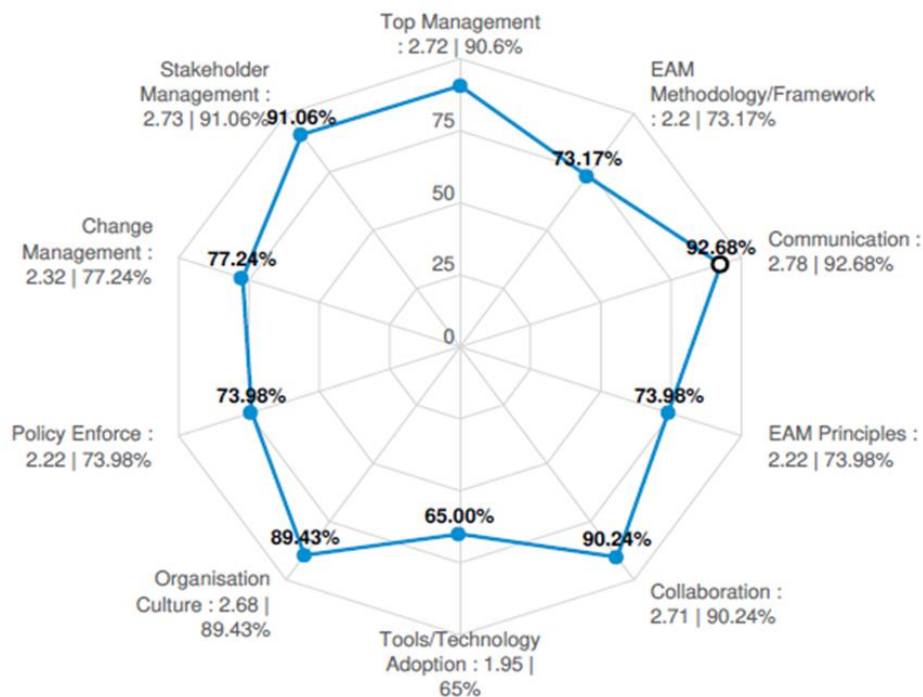


Figure 64: EAM Success vs Challenges Dimensions

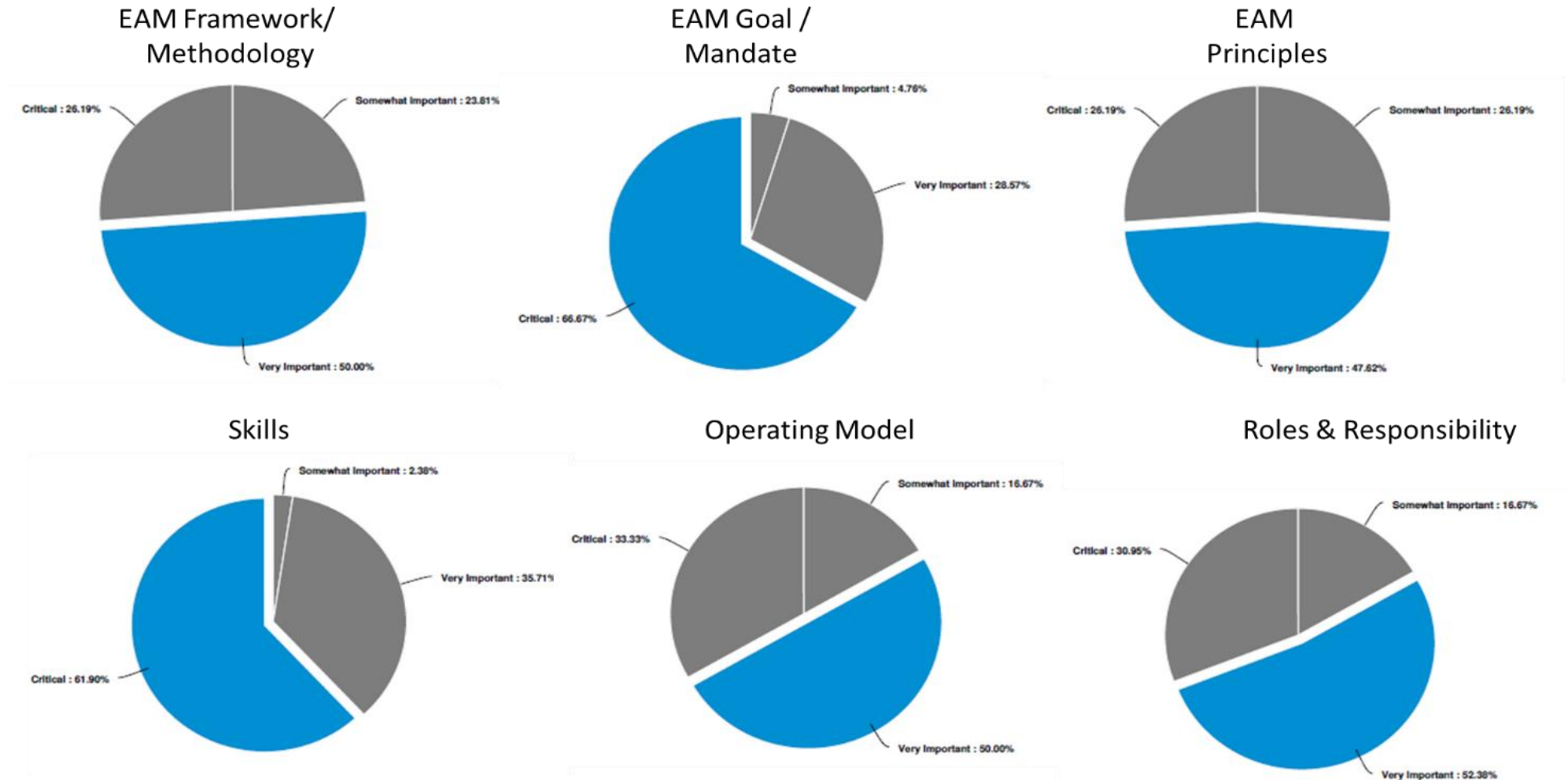
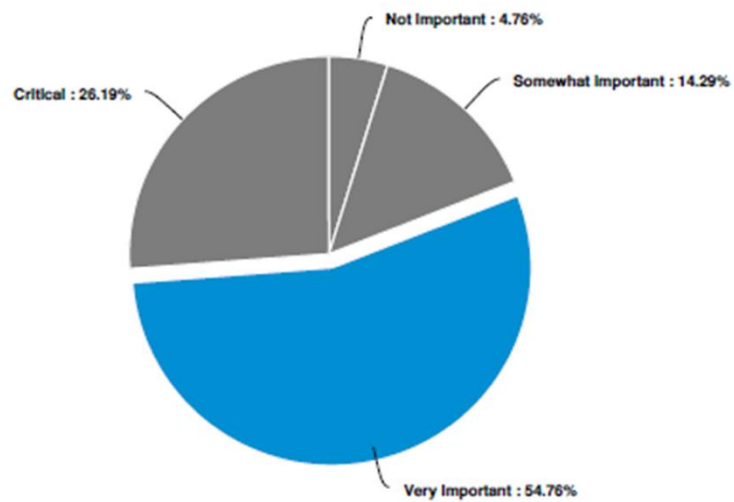


Figure 65: EAM Alignment

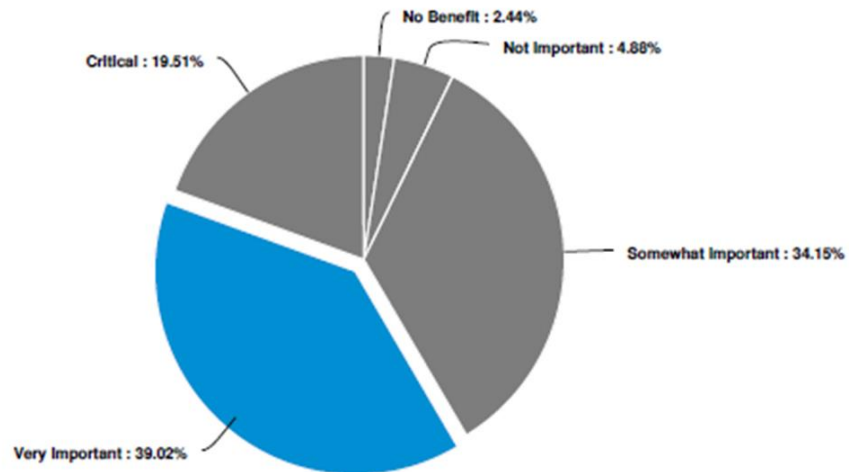
The EAM Alignment theme grouped all related dimensions that dealt with the foundational areas of EAM as depicted in Alignment. Pertaining to framework and methodologies, we see less focus on this by the participants, as indicated by 50% versus 23% who indicated that they are crucial. The same statistics were true for principles. These two dimensions are seen as foundational and while they had been some of the most critical dimensions in the past they lost focus in recent times, to make room for some of the other dimensions. Although these dimensions are seen as important, the data suggests that these dimensions are not the biggest contributors to EAM failure. One of the dimensions that is increasing in importance is skills, with almost 62% of the participants indicating that it is critical. Skills were also identified in the survey as one of the key contributors to EAM failure, with 71% indicating such. There are, however, some dimensions that have always had a little confusion and still require a lot of attention. These dimensions include EAM mandate, operating model and roles and responsibilities. Sixty-six per cent indicated that the mandate is critical for success, with string backing from the operating model and roles dimension still featuring very high at 50% for both. When we contrast this with what the participants indicated in the survey, there is a gap in these dimensions with unclear or nonexistent EAM mandate scoring 70% as a key contributor with just under 50% indicating the same for operating model and roles and responsibilities. This is echoed with one of the participants stating that *“as long as stakeholder management is not done well, organizations hardly consume EA artefacts, and leads to the whole misconception of(sic) we don’t know what EA does.”*

In the EAM compliance theme, as depicted in Figure 66: EAM Compliance , the focus was on controls set by the EA division and the enforcement of such dimensions. After analysing the data, we see more people focusing less on framework and methodologies, as indicated by 54% of the participants versus the 26% that indicated that it is crucial. Top management is still a critical dimension.

Governance



Policy Enforcement



Top Management

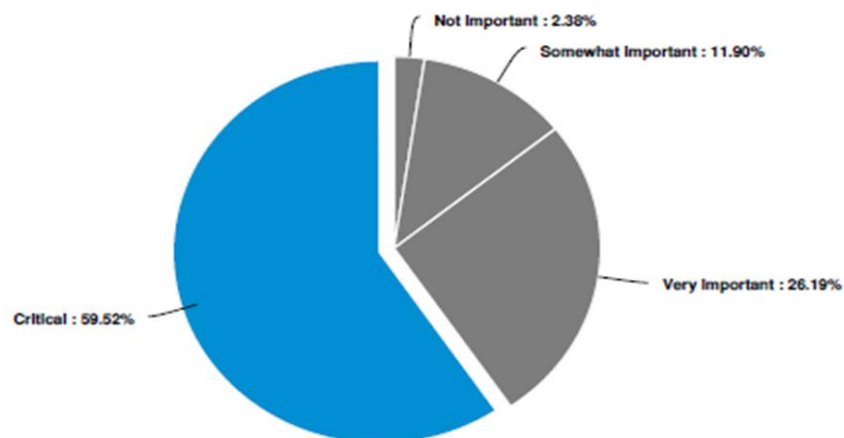
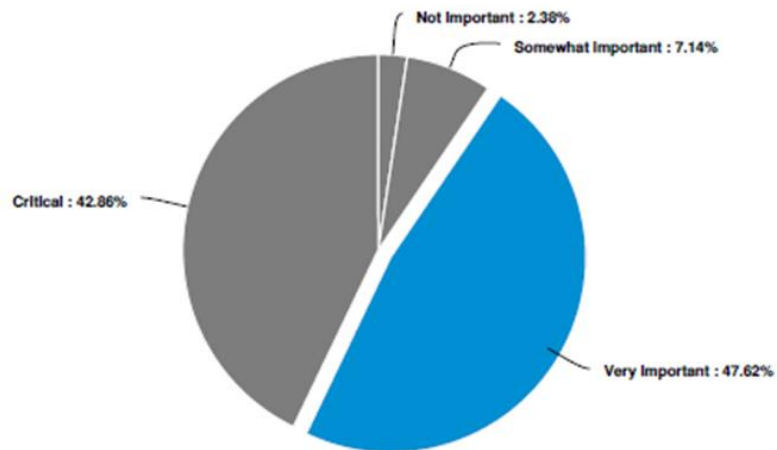


Figure 66: EAM Compliance

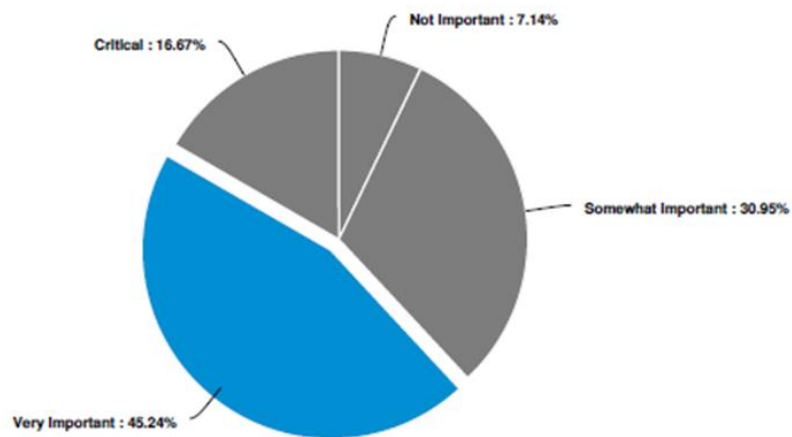
These three dimensions are seen as foundational and while they were some of the most critical dimensions, the fact that they are still critical may indicate that not enough has been done in this dimension. A very large number of participants still believes that top management is key to success. The participants still view this dimension as an area of improvement because they highlighted it as a key contributor. We see a similar pattern with governance and policy enforcement. This may be due to the two dimensions being indirectly related to each other through controls within EAM. As indicated by most participants in this survey, they are not seen as the most critical dimension as we mature across the foundation dimensions at the medium level. This is evident in the participants' scoring for these two areas, in that they have not indicated this to be key contributors. Although we must be able to change and adapt at a fast pace, as stated by one of the participants, indicating that *“Agile governance is needed as the rate of change and level of complexity far outstrips the traditional architecture boards and governance.”*

The enablement theme starts to focus on the dimensions that are used to deliver EAM services, as depicted in Figure 67: EAM Enablement. The three dimensions within this theme also extend each dimension in the EAM Alignment theme, which means it has an indirect relation to them, and more importantly, they need to coexist seamlessly.

Execution



Tools/Technology



Process Integration

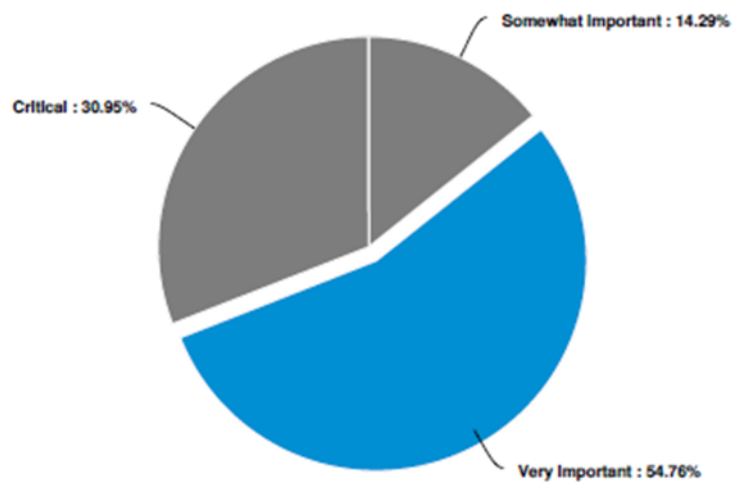
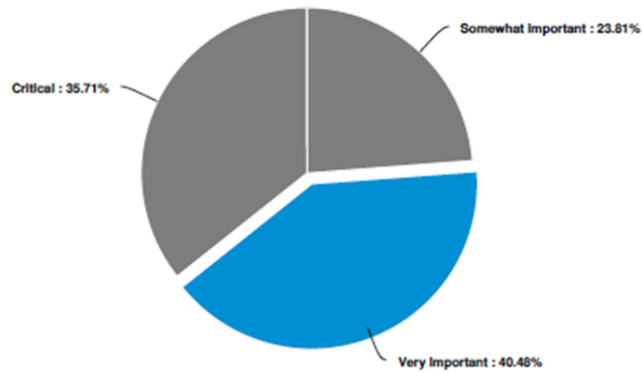


Figure 67: EAM Enablement

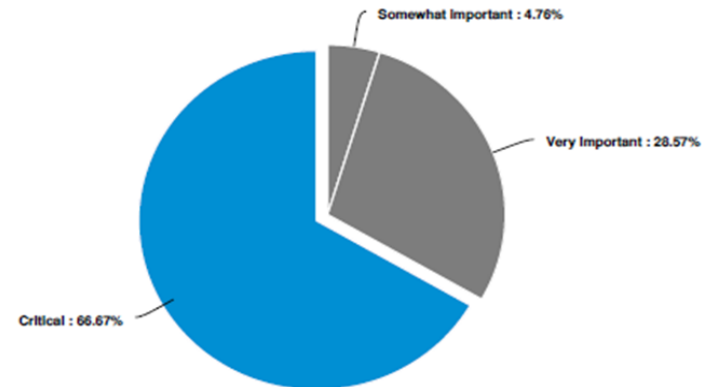
Process integration was not a dimension that featured in the past, but there is great interest in it now as 80% thinks that is crucial for EAM success. Implementing EAM without understanding the implications for the other existing processes within the organisation may lead to bypassing of the EAM services. There are mixed feelings regarding process integration as there is almost a 40% split between participants believing it is a key contributor while others believe that it may lead to failure. This speaks directly to execution as participants still feel very strongly about execution with over 80% indicating that it's crucial. According to the survey, execution is still a concern as 65% indicated that not having this in place will lead to failure. If an organisation is executing poorly, this may be the reason that EAM value realisation was raised as a concern in this survey. This sentiment was shared by one of the participants who indicated that *“enterprise management is a good concept, but getting all the aspects coordinated and ensuring that actual delivery takes place is very problematic”*. Tools and technology have definitely seen a shift in expectations, with 45% indicating that this is important. Organisations are expecting more insights from the information that is being documented. Fifty per cent of the participants also thought these tools and technology could contribute to failure. This sentiment was shared by a participant who stated, *“for an EA function to be effective, its need to be responsive to the business needs and provide valuable insights to executives to enhance and quicken decision making(sic)”*.

The transition theme dealt with some of the sociotechnical dimensions of EAM as depicted in Figure 68: EAM Transition. These can be viewed as some of the most vital dimensions because even if you have most of the other dimensions at their highest level of operations, it's the people aspect that can still make it fail. The people aspect can also allow you to overlook certain dimensions that are not very mature in just the same. Being able to communicate and collaborate with the people around you in understanding the need for and value of EAM will eventually change the organisational culture to be more accepting of the processes and controls that EAM adds to the transition from strategy to execution. The figure below illustrates the need for these dimensions for EAM to succeed.

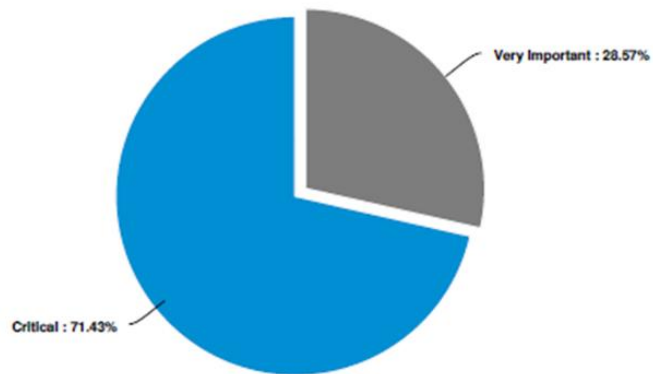
Change Management



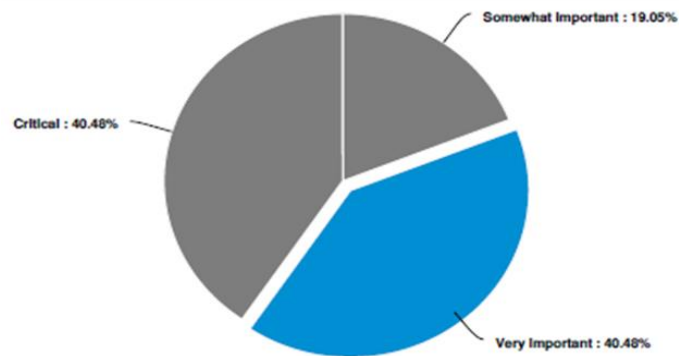
Communication



Stakeholder Management



Culture



Collaboration

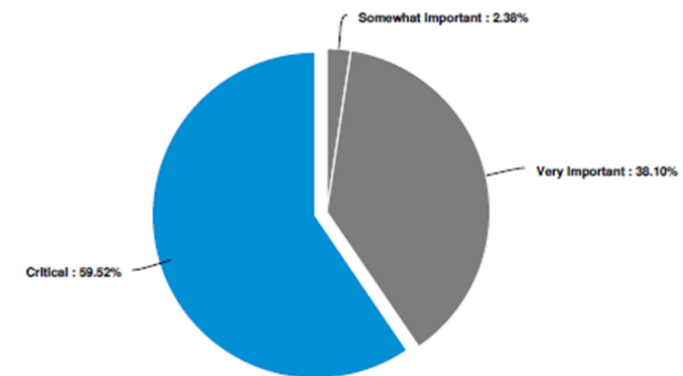


Figure 68: EAM Transition

Collaboration and communication featured extremely high, with over 90% of the participants indicating that this is important. Just as a high collaboration and communication score influences success, they score equally high as dimensions that can make EAM fail where 70% of the participants indicated that this will lead to failure if not properly in place. Eighty participants agreed that organisation culture is another critical dimension. This is echoed on the factors that impede EAM as a key contributor. Organisational culture is one of the most difficult dimensions to mature as it is not something that can change over short to medium terms; it's something that can takes years before change can be seen. However, it can most certainly change through the other dimensions in this theme. Stakeholder management is something of critical importance as well. Managing stakeholder expectations is vital, with over 70% indicating that this is critical. This is back up by the finding from the 73% of the participants who see this as a challenge. This sentiment was shared by one of the participants who indicated that *"The same methodologies and policies might not work the same way for every unit of the enterprise. The key is steering each stakeholder/unit towards common goals while adapting to their needs and culture"*.

5.3.2 Interview Data Analysis and Key Results

As described in the previous section, this study focused on a single case study within the financial services industry. It was selected based on the organisation already having an established EA practice and is actively addressing the need to mature its EA practice. The study was targeted at senior business and IT managers of the organisation who actively engage with the EA division to conduct part of the day-to-day activities.

This section provides insight into the findings of the interviews. In total, eleven interviews were conducted, six with senior IT managers and five with senior business managers. Through all the interviews it is worthy to note that strong commonalities existed between all of them. These interviews were conducted via online services using *MS Teams* as the facilitating technology. All conversations were recorded with the permission of the interviewee after which all recordings were transcribed and then transcoded into themes combining the positives and challenges with that area to mark its importance. Table 26: Interview Transcoding Report provides a view of the themes ordered by the number of times it was relevantly quoted during the interview.

Transcoding Theme	Quotes
<i>Collaboration</i>	30
<i>Communication</i>	28
<i>Strategic Alignment</i>	18
<i>EA operating model</i>	17
<i>EA resource Capacity</i>	16
<i>Stakeholder Management</i>	14
<i>EA skills</i>	14
<i>Business Architecture</i>	14
<i>Roles and Responsibility</i>	14
<i>Strategic fit</i>	12
<i>EA mandate</i>	12
<i>process integration</i>	12
<i>EA education</i>	11
<i>Change Management</i>	10
<i>Organisation Culture</i>	9
<i>engagement</i>	9
<i>Capacity Constraints</i>	9
<i>EA visibility</i>	8
<i>EAM Importance</i>	8
<i>Lack of EA services understanding</i>	8
<i>Stakeholder Needs satisfaction</i>	7
<i>EA drive</i>	6
<i>Governance</i>	6
<i>Policy enforcement</i>	6
<i>Marketing</i>	5
<i>Unclear EA Mandate</i>	5
<i>EA Advisory</i>	5
<i>Lack of business understanding</i>	5
<i>Lack of understanding</i>	5
<i>Solution Architecture</i>	4
<i>Lack of prioritisation</i>	4
<i>Standardisation</i>	4
<i>Knowledge Barrier</i>	4
<i>Products and services</i>	4
<i>Business and IT alignment</i>	4
<i>EA Value</i>	4
<i>Lack of Roadmaps</i>	4
<i>EA Foundation</i>	4
<i>Solution visibility</i>	4

Table 26: Interview Transcoding Report

Each of the transcoded elements was then classified into the four themes as depicted in Figure 69: Transcoding classification into themes.

EAM Alignment	EAM Compliance	EAM Enablement	EAM Transition
• Business Architecture • EA Advisory • EA Foundation • EA Mandate • EA Operating model • EA Skills • EA Value • EAM Importance • Lack of business understanding • Roles and Responsibility • Solution Architecture • Stakeholder Needs satisfaction • Unclear EA Mandate	• Business and IT alignment • Governance • Policy enforcement • Strategic Alignment • Strategic fit	• Capacity Constraints • EA resource Capacity • Lack of EA services understanding • Lack of prioritisation • Process integration • Standardisation	• Collaboration • Change Management • Communication • EA Education • EA Visibility • engagement • Knowledge Barrier • Lack of Roadmaps • lack of understanding • Marketing • Organisation Culture • Products and services • Solution visibility • Stakeholder Management

Figure 69: Transcoding classification into themes

EAM Alignment

The theme of the EAM Alignment looks at the foundational dimensions of the EA practice. Over the years, organisations that implemented EA have focused specifically on what they believed was key to their business needs and EA objectives but most of these dimensions were selected by the EA implementer based on his experience and understanding of literature. In most cases, the literature can be very overwhelming as it provides guidelines with a generalised view and is by no means a prescription of how to implement and manage EA. While organisations mature some of the dimensions, they lose focus or fail to mature others. One of the dimensions that came out strongly was the implementation and management of the EA operating model. Every organisation follows one of four models that satisfies how business should be conducted within their organisation. This can be a central model or a federated model. Whatever the model, the EA operating model should try and mimic that model. Gaps in alignment between the two create confusion with the expectations from EA stakeholders, as stated by a few participants from an IT and business perspective. One participant identifies a gap with the relating business activities involved with the EA practice stating, *“the organisation has over 20 departments and for each and every one of them we need to have this business. I mean operating model, we need to have the business capabilities defined”*. It is not enough to have roles within your EA operating model, there

also has to be a good representation of the role to support the entire organisation's needs. This does not mean having an individual map to every business unit or department but ensuring full coverage of the business units within that particular role.

The operating model within EA should have good integration with the delivery value chain of the organisation. This was confirmed with one of the participants stating, *“Generally, EA is seen as very good at coming up with a plan and the strategy, but if it's not tightly aligned with the solution delivery execution(sic) is always an issue, and I think that is one of the most critical parts in the entire EA operating model”*. When EAs provides their services without integration into the existing organisation operating model, it results in the EA working in isolation, no one making use of the services and ultimately, in failure. Having a good operating model alignment also starts to assist with faster delivery and prioritisations. Many organisations struggle between strategy projects and tactical project implementations. There needs to be a good split between these two as you want to satisfy your organisation's current needs while still staying relevant in the industry: grow and future-proof your organisation or run the risk of not staying in the market. This aligns with one of the participants who stated, *“the right mix of people to have involved from the architecture point of view, they can service the organisation at both the strategic and tactical operational level”*. Another participant stated: *“Right now, we're using like a one size fits all kind of approach. There is no proper structure to say (sic)”*. Organisations tend to favour specific domain areas in EA and give special focus to these areas, either because it's easier to complete or the other areas are just too complex for them to execute on. Having a good balance capability set within your EA operating model is vital, as indicated by one of the participants who stated, *“and more often than not, you know that those focus areas are related to applications and technology and not that much related to data and information and business and the things that are really important to make sure that the business gets run properly”*.

Tightly linked to the EA operating model are the roles and responsibilities of the resources within the model. It is essential to have clear boundaries in terms of your core duties. This was a clear concern in the case study as it was stated, *“I don't think there's a proper understanding in terms of how we are meant to work together and collaborate in terms of understanding how we deal with things”* and *“it sort of comes down to, you know, having clear roles and responsibilities and having a proper understanding of how we work together”*.

There are a few blurred lines when it comes to the duties of an operational resource and

planning resource. This creates tension between the two resources if there are not clear boundaries in their roles as stated by a participant that *“the infrastructure guys feel that you know enterprise architecture sees themselves as you know, on a higher level, and you know they shouldn’t be dabbling with these insignificant infrastructure-related type things because it’s sort of commodity”*. The same argument as in the previous section around having a business architect for each area of the business applies to the other domain areas of EA such as the application architect, technology architect and data architect. A good example of this within the case study was the business architect and the strategy office having synergy between what they need to do in their duties as stated by a participant that *“most of the discussions you know the three or four key stakeholders that we work with in the enterprise architecture team we talk the same language”*.

Once we have bedded down the roles and responsibilities, the next step is to ensure that you have the right skills and competencies to execute those roles and responsibilities. The moment you have gaps in skills and competencies, there is a natural requirement for someone to fill that need. This results in the boundaries becoming unclear again or your stakeholders' lack of trust in you achieving your objectives. It starts with tight synergy between the enterprise architects, who are the resources that come up with the principles, standards and strategies and the solution architects, who are the resources that implement the solutions and ensure compliance to the control set out by the enterprise architect. These skills are not something that can be learnt from a textbook but is developed over time with experience and exposure to certain scenarios. This was acknowledged by participants who stated: *“It’s not easy to find architects at a certain level, so I think it’s quite a challenge.”* and *“Cultivated over a long period of time as people themselves get a bit(sic) understanding of what enterprise architecture is meant to do and how it’s meant to actually aid(sic) organisation”*.

Within the skills and competencies of EA, one concern came up frequently—the domain of business architecture. There is a gap that could stem from a multitude of origins but one of the biggest concerns is the gap of knowledge that exists. The cause could be not investing enough time in understanding the business and its needs as some participants indicated, *“I think another challenge would also be just what you call it. Our lack of understanding of the business”* and *“I think the challenge that the enterprise architecture has is that specifically if you start looking at things from a business architecture perspective”,* or *“that sometimes*

business sees EA as a "treat" because they may come across as knowing the business better than they know themselves".

EAM Compliance

One of the biggest roles of the EA practice is compliance. As the EA team develops the standards, principles and reference models (among many other deliverables), they need to apply controls to ensure that their guidance is applied and adopted. Often when providing advisory services, the EA team themselves needs to follow the same guidelines as the expectation from the stakeholders indicate that is this what they require. As stated in the interviews by participants, *"my expectation of the EA team is not to provide us with solutions, but provide us with the landscape of how the environment looks, so they should be providing us with the advice of so we as the business have a fairly good idea"*. It is easy to lose strategic alignment when trying to solve a particular business or technical need and so strategic alignment or testing for strategic fit is one of the most important compliance functions. There is a larger interest in implementing enterprise-wide technologies to reduce technical debt and complexity as stated in the interview: *"for example with this enterprise view is being able to leverage from things that other departments, for example, are doing"* and *"Get an alignment of products and services and to keep ... also to manage it not to get out of hand"*. There are many ways to ensure compliance and aligning to strategy. One of these methods is to have department strategic sessions where business gets to discuss their future plans and the EA team gets exposure to what they should look out for down the line. Through understanding or having a view of all departments' plans, the EA can create a roadmap to match the period where expectations can be provided in terms of when certain business requirements or plans can be matched. This understanding was confirmed with participants indicating that *"your strategic to-be state of the organisation, you do need to have some level of architecture defined which could provide you with the road map, the boundaries"*. One of the reasons you would want to align to the organisation's strategic objectives is that there are often more requirements that the development and execution teams can deliver. Hence it makes sense to prioritise requirements that are directly aligned to the strategy. This is the result of one of the values that can be received from EA, being able to strike a balance from tactical short term initiatives from longer medium to longer-term initiatives. A short term problem may potentially cost more down the line if not rectified in time, as agreed with by one of the participants, *"ultimately striking that balance between*

dealing with things that are short term focused versus you know dealing with the things that are ultimately going to yield the most value because else we end up in a situation where we penny wise and pound foolish".

Governance is also another very important function that must be present in your EA practice. Governance can come in the form of a methodology or sequence of events with control gates between them to validate what we are trying to achieve with the minimum expected inputs to make an informed decision and to mitigate any future risk. Generally, an organisation can have many of these control gates, each one looking at a different level of detail from a solution design approval to the business case of the solution itself. Participants agree that if this is not done, it introduces potential risks for the organisation as time passes. As was indicated in the interview, *"it hasn't been given the stamp of approval from that point of view, then we always had a risk in terms of maintaining and up keeping these solutions"*. During the interview, it was concluded that there are benefits to having these controls as previous solutions and strategies were implemented as desired, creating huge technical debt and complexity in the management of IT, *"I believe that we are making progress from that point of view; we initially would have gone away as a business with getting whatever technology we want"*. Organisations must be careful not to maintain too many of these control gates as it can be seen as tedious and time-consuming which only delays delivery more than assisting it. While it does have many positives, the one drawback is the frustration it can cause, as indicated in the interview, *"I think the thought process that we follow that sometimes frustrates and annoys business"* and *"I think the patient has been very stretched"*.

EAM Enablement

To be able to deliver the anticipated value of EA, certain key dimensions are key. One of the biggest concerns that were brought up during the interviews was resource capacity. In the 12 interviews this topic was quoted 16 times. Once an EA practice is established and becomes more known and part of the processes within the organisation, the requirements that need to go through this process to ensure compliance increase, this means that you very quickly come to the point of having more requirements than resources to satisfy them, *"we struggle with new demands that are coming now and again from business and that struggle is mainly sometimes because there is no capacity"*. Finding resources to supplement the need becomes an issue. Some of the reasons for this is finding the right

skills and capabilities or sometimes it's a matter of not being able to compete with market-related salaries as mentioned by one of the participants, *"the bank is unable to compete with other organisations in terms of salaries"* and *"We then get stuck in that you're not getting the right people that we're looking for"*. Another participant went on to say, *"It's not easy to find architects at a certain level, so I think it's quite a challenge"* and the head of the EA division stated *"I actually don't have any enterprise architects"*. Some participants stated that they spend a lot of time convincing the business of the value EA could bring and when they have the opportunity to show this, they do not have the resources which then takes the organisation and business back to square one in trying to convince the organisation that there is value in EA: *"You get business buy-in and then when it is time to deliver on that mandate, there are no resources"*. Being overstretched with work also leads to frustration within the EA teams, ultimately resulting in a high attrition rate which also frustrates business in that the intellectual property leaves, and the resource and training on the business-related aspects have to start again: *"regular turnover or changes staffing and that for me I think from a business side ... you get to work with someone ... build up a relationship and then somebody changes position or they leave"*. It has also been noticed that to protect an organisation from over committing to permanent resources, a lot of the time you resort to employing part-time or full-time contract resources whereby employees leave once their contracts have ended.

Success comes from satisfying a need or an object. It is no different when we speak about the practice of EA. If we do not satisfy the need, the result is doing something for the sake of doing it. Therefore, it would make sense that to be a successful EA practice, understanding the needs of your stakeholders should be the highest priority. This is much easier said than done; often, the needs are not clearly defined or cannot be clearly articulated. The assumption is that we understand perfectly well what is required. A fairly small assumption could turn out to be very costly down the road: *"Almost sometimes I get the feeling it's overkill in terms of what you want to accomplish as to what you tried to deploy to accomplish that now"* and *"We as users have a certain way of specifying our requirements..., it does have aspects of what we describe, but it is if that understanding is not fully there and that's always the issue that I have with it"*. It seems that the assumptions we make are not often shared with the stakeholders and this leaves room for a lot of misalignment. The head of EA stated that this is one of the top priorities: *"And it's very*

important for us to understand our stakeholders first before we can understand what value we provide to them”.

EAM Transition

The dimensions within the EAM transition theme is by far the most underestimated theme when it comes to successfully running an EAM practice; one of the most important dimensions in the collaboration and communication dimensions, with them being quoted over fifty times during the interviews. Enterprise architects are seen as the resources with the widest view of technology and concern/issues in an organisation. They span the breadth of the organisation but have very little depth within each area. This means that there is a great deal of collaboration and communication that needs to occur to fill that gap to provide a full view of what is trying to be achieved. Sometimes the EA is expected to translate between business and IT. This means that when we communicate with the respective stakeholders, they use terminologies that are familiar to the listeners. Some business participants indicated, *“Many of the business team members would get lost in in the discussion”*. Communication can sometimes mean to compromise in order to get something close to the desired objectives. As one participant stated, *“you have to meet each other halfway to ensure that the product at the end of the days(sic) of the highest quality”*. Having the right conversations at a different level of involvement is also important. It does not make sense to have a technical conversation with someone from business; you may lose that individual and not get anything of value: *“you also don't want to be involved in, for example, in a platform where there will be lots of technical discussions, and you will be lost”*. One of the biggest perceived values of EA is rationalising and consolidating capabilities making use of one platform/solution across the enterprise that is making use of that capability. This is almost impossible to achieve if you are not collaborating with any or all areas of the organisation that are making use of the same or similar functionality: *“we need to understand that there needs to be collaboration to ensure that you don't have duplication that we're driving towards an optimised solution landscaping organisation”*.

The introduction of policies, governance control and an approval board will definitely bring about an increase in lead time to deliver or implement strategies or solutions. This will bring dissatisfaction, and many are impacted by the increase in lead time. It may even be perceived that the execution cycle has slowed down but this is not the case. This is where

stakeholder management comes into play. Like with any quality gate, you will increase the delivery time but you also increase the quality of the delivery, which may save more in the long run. These expectations must be managed with every stakeholder or they will feel like the EA practice has slowed down the execution as some participants stated: *“the fact [is] that people feel that it's a very slow wheel that turns and we can do things quicker”*. If you do not manage or control this perception of the EA practices, it will be seen as a blocker or hurdle and is ultimately bypassed, *“that is sometimes EA is bypassed because of the slow reaction”*. Another way to manage your stakeholder is to really understand their business without making too many assumptions and getting to know their needs intimately. As mentioned in the interview, *“it's very important for us to understand our stakeholders first before we could understand what value we provide to them”*.

5.3.3 Interview and Questionnaire Data Synthesis

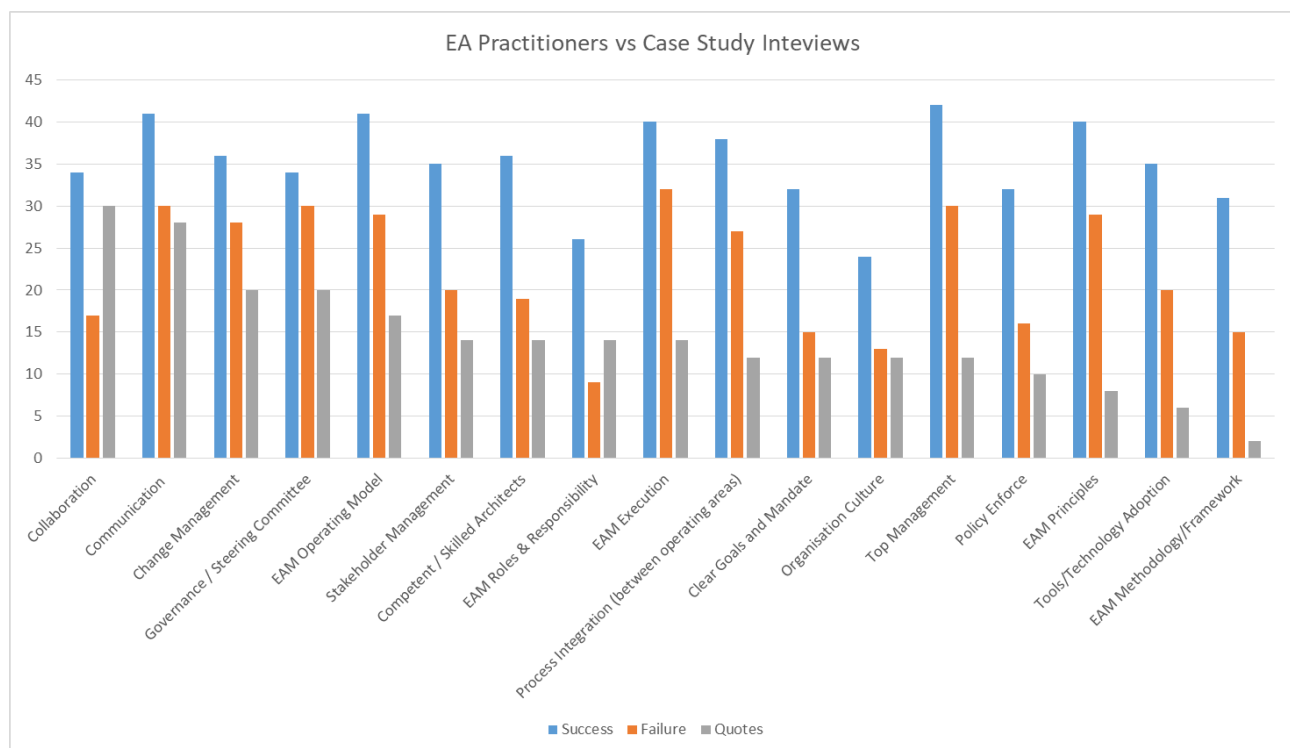


Figure 70: EA Practitioners vs Interview Comparison

After analysing the data from both the survey questionnaires sent out to EA practitioners in the industry and the data from the interviews conducted within the selected case study, there were some synergies with the experiences from both success and failure perspectives. The

view is depicted in Figure 70: EA Practitioners vs Interview Comparison. Collaboration and communication featured very high on the list within the case study interviews. While it also featured very high as a vital success dimension, there is a relation to the practice potentially failing if these dimensions are not adequately satisfied. Change management is a critical dimension for success with no real challenge impeding EA.

This was also visible in the case study which indicated that change management is a crucial dimension but little effort is made in this dimension since many respondents stated that the visibility of the EA practice and its services are poor. Another important dimension had the correct governance or steering committees in place. Without this, standardisation becomes almost impossible to control and manage and will lead to technical debt and increased complexity in the management of technology. Coupled with governance is policy enforcement but there is less focus on this. It may be the result of it being adequately satisfied in its current implementation because the dimension is still seen as critical to success. This was also identified in the case study as having enough controls in place to enforce policies where required.

When it came to human resources, three dimensions stood out, EAM operating model, roles and responsibilities and skills and competencies. A definite gap as identified within the case study. There is a close link between their areas, as not having the right operating model to service the organisation with the correct roles linked to that operating model will create huge pressure with delivery, leading to spreading your resources too thin, which will extend the delivery time for each initiative. Even if you have a full team complement, they must have the right experience and knowledge to complete the role. It's important to be clear on the boundaries of each role to avoid overstepping into other areas within or outside of your team, which may result in conflict. In cases where handovers are required, there must be proper process integration. Organisations are so keen to implement an EA methodology in the organisation that they neglect to integrate it with their existing methodology. This results in the EAM being seen as separate from the organisation.

Process integration is another key dimension for the success of the EAM practice. The expectation that all existing processes or governance in the organisation need to link with the new EAM methodology is incorrect. If buy-in across the entire organisation is expected then the EAM team must demonstrate that the practice is there to increase quality

management and not to hinder the current process. This has an indirect implication on the organisational culture because if the buy-in is successful, then naturally, the organisation's culture will change in favour of the new way of work. Organisational culture within the case study was identified as a vital dimension to ensure EAM success, with many participants saying that it is more of a culture shift than the adoption of technology and processes. This can result in the organisation bypassing EAM whenever they can, as identified in the previous section.

Many recognised stakeholder management as an important dimension, and many have indicated that this is key to success, but if not given enough attention will also easily result in the practice being a failure. A big part of an enterprise architect's role is engagement and how to effectively manage that engagement through communication and managing expectations. If your stakeholder feels in any way that their best interest is not being taken care of, they will lose trust in the services provided by the EA practice. This has a direct impact on execution which was also seen as critical to EA success. The last dimension that did not feature very high in the case study but did feature high in the questionnaire is the use of tools or technology. With EAM moving into the realm of insights-driven decisions, this becomes a critical dimension in assisting those. Maintaining a repository with the ability to dynamically create views and impact assessments becomes a powerful capability within the EAM practice.

5.4 CHAPTER SUMMARY

In this chapter, the researcher presents findings based on the survey questionnaires and interviews for identifying the key dimensions that are required for EAM success. This chapter examined data from two focus groups that are summarised in Figure 71: Survey Questionnaire and Interview Summary. The first focus group included participants that are EAM practitioners in the financial services industry. The analysis of this focus group provided a list of dimensions that are seen as vital from a practice perspective in the financial industry. The second focus group included participants from a selected case study within financial services. It involved interviewing participants to understand key pain points and objectives as well as a survey questionnaire on a list of dimensions as seen through the deliverable of **Chapter 4** and the first focus group data collection. The chapter concluded with an

aggregated list of EAM dimensions that were recognised as vital for success. This was used to conclude the development phase of the DSR approach in **Chapter 7**.



Interview Theme	Quotes
Collaboration	30
Communication	28
Strategic Alignment	18
EA operating model	17
EA resource Capacity	16
Stakeholder Management	14
EA skills	14
Business Architecture	14
Roles and Responsibility	14
Strategic fit	12
EA mandate	12
process integration	12
EA education	11
Change Management	10
Organisation Culture	9
engagement	9
Capacity Constraints	9
EA visibility	8
EAM Importance	8
Lack of EA services understanding	8
Stakeholder Needs satisfaction	7
EA drive	6
Governance	6
Policy enforcement	6
Marketing	5
Unclear EA Mandate	5
EA Advisory	5
lack of business understanding	5
lack of understanding	5
Solution Architecture	4
Lack of prioritisation	4
Standardisation	4
Knowledge Barrier	4
products and services	4
Business and IT alignment	4
EA Value	4
Lack of Roadmaps	4
EA Foundation	4
Solution visibility	4

Figure 71: Survey Questionnaire and Interview Summary

6 SLR: MATURITY FRAMEWORK

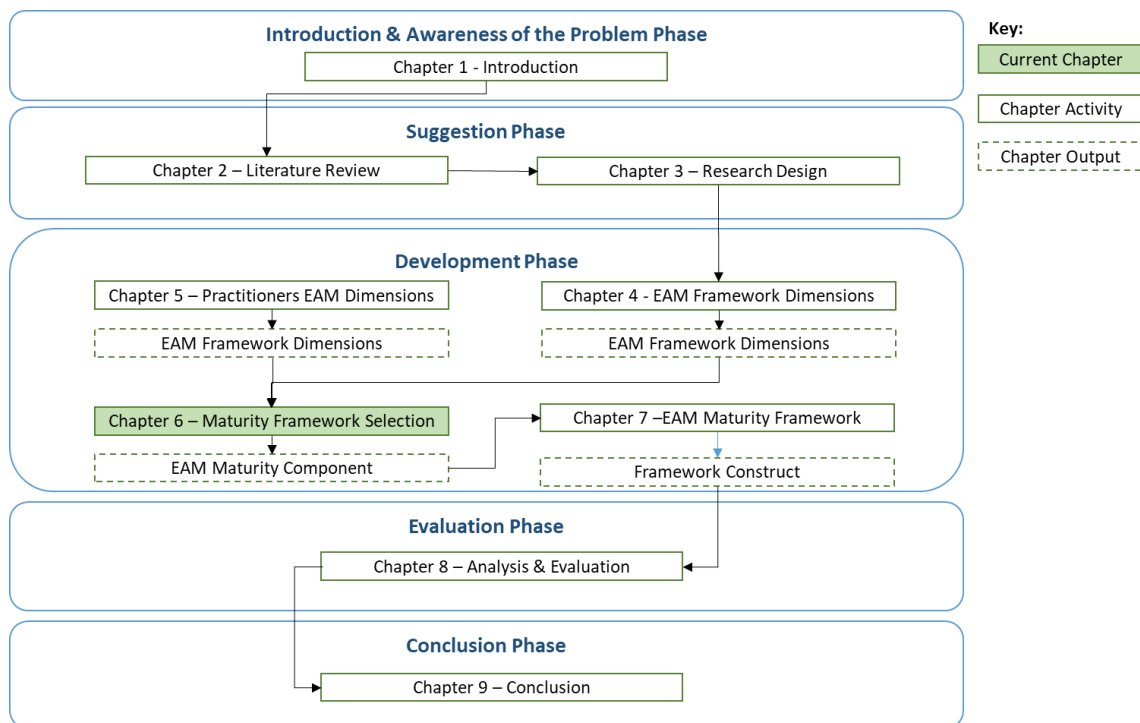


Figure 72: Chapter 6 Thesis Map

6.1 INTRODUCTION

Chapter 5 continued with the second phase of the DSR strategy with a survey questionnaire and interview data collection process, which concluded with a list of EAM dimensions that were identified as key to the success of EA maturity in an organisation, as seen by the practitioners of EA. In **Chapter 6**, the researcher continues with the third development cycle, which is concerned with identifying maturity model components with their associations, executed as a systematic literature review. In this chapter, the researcher described the approach used to collect and analyse data and conclude with the key components required for a maturity assessment framework.

Chapter 6 comprises four parts as depicted in Figure 73: Chapter 6 Map. The first section started with an introduction that argues the research process and the research necessity. Section 2 detailed the data collection process, which includes its planning and execution. In section 3, the researcher analysed the data and identify key findings, and this chapter ended with a summary and a conclusion of the key dimensions. Section 4 describes the data extraction process, ensuring that the research steps can be repeated and replicated. In

Section 5, the execution and analysis are completed and this chapter ends with the conclusion of the findings.

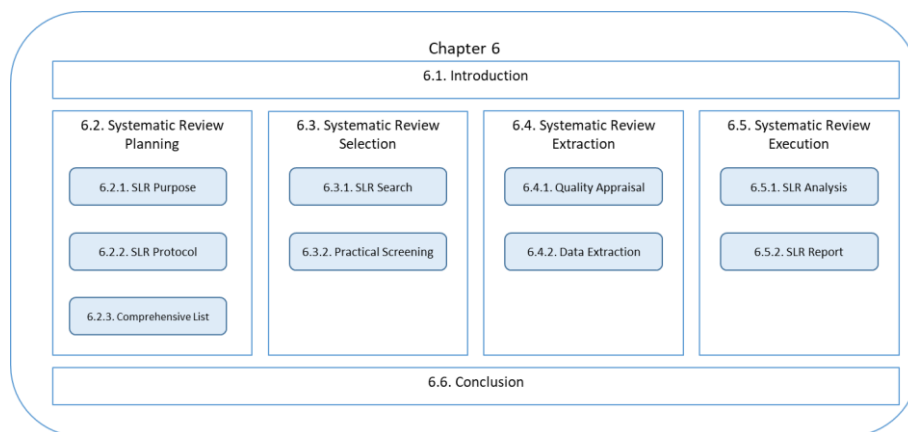


Figure 73: Chapter 6 Map

This SLR continues with the third phase of the iterative development cycle within the DSR strategy and forms the final phase before artefact development. The complete DSR cycle is illustrated in Figure 74: Phase 3 of DSR Strategy, with the corresponding phase, highlighted with the dotted red line.

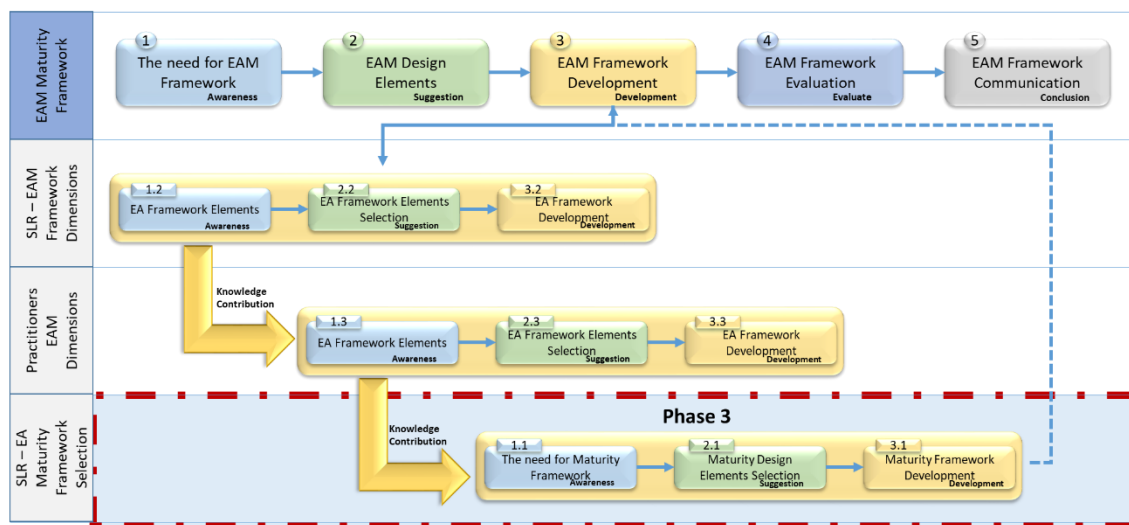


Figure 74: Phase 3 of DSR Strategy

This chapter aims to assist the researcher plan, collect, analyse and conclude a systematic literature review by following the guidelines by Okoli and Schabram (2010). Understanding the maturity models and their benefits discussed and described in Chapter 2 represents the basis from which a maturity framework was developed. The primary motivation for adopting

this SLR is aligned with Kitchenham and Charters's (2007) most common reason for completing a systematic review which is to:

- Summarise existing empirical evidence in literature concerning maturity model components and qualities.
- Identify vital elements in current research.
- Follow a structured and scientific approach to new research on understanding critical components and qualities of maturity models.

6.2 SYSTEMATIC REVIEW PLANNING

6.2.1 Systematic Review Purpose

Before conducting an SLR, it is necessary to outline and understand the intent. To fulfil the larger objective of this research, multiple subobjectives have to be fulfilled. One of the subobjectives is to conduct focused-based research that provided the foundation for these subobjectives to be met. Hence, the need for this SLR was based on the objectives set out in **Chapter 1**. There are many different maturity models, two of which were covered in **Chapter 2**. The consensus is that there is no maturity model to measure EAM in an organisation. When addressing the purpose of an SLR, Okoli and Schabram (2010) described six categories under which the purpose of an SLR can fall:

- To analyse the progress of a stream of research.
- To make recommendations for future research.
- To review the application of models in information systems.
- To review the application of methodological approaches.
- To develop a model or framework.
- To answer s specific research question.

The purpose of this SLR is aligned with the last two categories. Many SLR approaches exist and can be followed (de Almeida Biolchini et al., 2007; Kitchenham, 2004; Okoli & Schabram, 2010). For this research, the phased approach to conducting an SLR as described by Okoli and Schabram (2010), depicted in Figure 75: SLR Approach Okoli and Schabram (2010), was adopted.

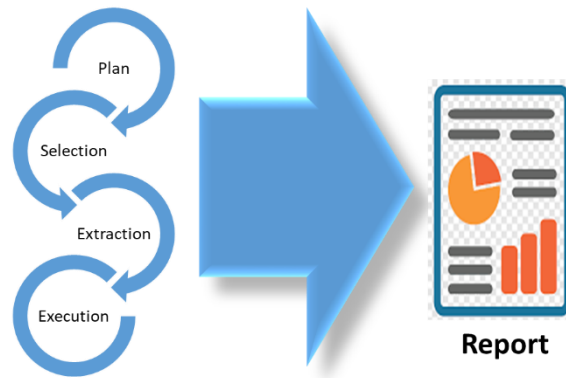


Figure 75: SLR Approach Okoli and Schabram (2010)

As part of the guidelines, the requirement to have more than one researcher on this SLR could not be satisfied since a single researcher completed this research as part of a fulfilment of a doctoral dissertation. The process of the guidelines is depicted in Figure 76: SLR approach and process.

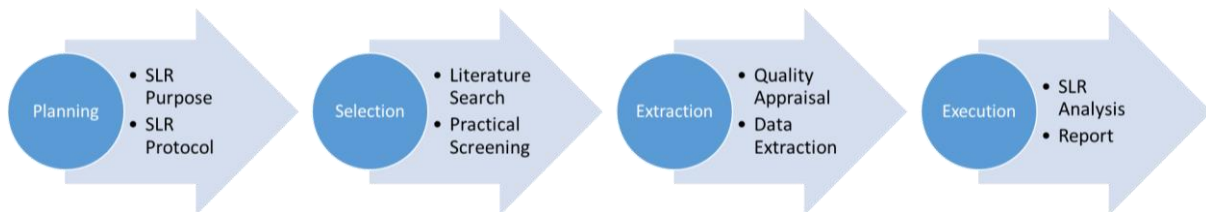


Figure 76: SLR approach and process

6.2.2 Systematic Review Protocol

Following the guidelines set out by Okoli and Schabram (2010), the researcher conducted the SLR using the following steps:

1. Identify the purpose/need for the SLR.
2. Identify and develop the SLR question/s to be answered.
3. Execute a comprehensive and exhaustive search for primary studies.
4. Assess and record the quality.
5. Classify the data.
6. Extract the Data.
7. Summarise and synthesise the data.
8. Analyse the results.
9. Compile the report.

Purpose

This systematic literature review is part of a broader study conducted by the researcher in the development of an EAM maturity framework aimed at assisting organisations to improve and mature their EAM practice. While studies on the value and the importance of EAM are increasing, there is little information on how to measure the maturity of the EAM practice through its existence in an organisation.

While EA and its adoption has increased adoption over the last few decades, many organisations fail with the management of EA afterwards. EAM is recognised as the accepted solution by organisations to assist with strategic transformation in a rapidly changing economic, technical and regulatory environment (Buckl et al., 2010) yet there is no commonly accepted understanding of maturity in EAM (Buckl et al., 2010; Simon et al., 2013). Olsen and Trelsgard (2016) argued that many organisations choose to implement an EA strategy but most fail as a result of the same EA challenges. The literature provides some information on maturity models and levels for EA but little/no information on what to assess and improve in EAM to increase the maturity to support the success.

Maturity models are designed to test specific areas within a topic of interest. Within EAM, people, process and technology are often vital areas to test for maturity in any practice. Currently, there is no combination of maturity testing. To effectively create a maturity model that focuses on these measurement criteria, it is important to identify the vital qualities within the focus areas.

Research question

We examine the SRQ3 set out in **Chapter 1**, *“What are the components with the associated qualities that are vital to test the maturity of people, process and technology in existing maturity models?”* and its suitability for investigation using a systematic review based on Kitchenham's (2007) question types for software engineering although this question type does not align with any software engineering question types in Kitchenham (2007). The research question is more aligned with the medical equivalent question type of “Identifying whether a condition can be predicted”.

While a preliminary investigation suggests that there is very little research in the area of EAM maturity improvements in information systems, we cannot answer the question without understanding existing maturity models with their relevant importance and the implications on people, processes and technology as described in Section 2.4.3 and Section 3.4.6. In order to measure the maturity of a practice, it was important to not only assess the maturity of processes and technology as most maturity models do but also to assess the people dimension which relates to culture, adoption and the change management required for sociotechnological implementations. When the understanding of these maturity areas is known, the questions about what maturity qualities are vital for EAM, what part of existing maturity models can be adopted and how people are relevant to maturity improvements can be asked. To ensure that the researcher does not exclude valuable work, he also looked at components that add to the challenges or failures.

To identify the vital components and associated qualities, the following question must be answered:

SRQ3: *What are the components with the associated qualities that are vital to test the maturity of people, processes and technology in existing maturity models?*

The motivation for SRQ3 is to identify vital components with their qualities and adopt them in the maturity assessment framework to assist with managing the maturity of EAM.

Search Constructs

Using the guidelines recommended by Kitchenham (2004) which focus on three viewpoints, namely the population, intervention and outcomes, the following details formed the basis for the construction of appropriate search terms later in this section.

Population: Enterprise Architects, Business Strategist, IT Architects, Senior Executives

Intervention: Maturity improvement, productivity measurements

Outcomes: Maturity model components with associated qualities

6.3 SYSTEMATIC REVIEW SELECTION

6.3.1 Search Strategy

While an SLR aims to identify as many primary studies relating to the research question using an unbiased approach (Kitchenham, 2004), it is necessary to determine and follow a search strategy to effectively conduct an SLR. Intrinsically, the following steps were adhered to:

1. Develop/obtain major terms from the questions using the population intervention and outcomes.
2. Identify and recognise different spelling alternatives as well as synonyms for these terms.
3. Identify keywords from relevant research papers obtained during the literature review.
4. Where possible in search engines make use of Boolean operators such as "AND" and "OR".

Keyword and Synonyms

Keywords are used in SLRs to search databases within a specific academic realm. These keywords were expanded to include synonyms revolving around the constructs identified for each research question. Table 27: Research question keywords provide a comprehensive list of these keywords used to complete the search activity.

Research keywords	
Enterprise Architecture	Process Maturity
Enterprise Architecture Management	Technology Maturity
Maturity Model	Assessment Models
Maturity	Dimensions
Design Principles	Components
Maturity improvement	Qualities
People Maturity	Design Science Research

Table 27: Research question keywords

Sources / Digital Libraries

The objective of this section is to justify the selection of the sources that were used in this SLR. The source selection criteria included the evaluation of all relevant electronically

available scientific databases. It also included features and functionalities that allowed for the use of keyword searches for abstract, title and citations with advanced searching capabilities that allow for the use of concatenation and truncation functions. All databases used for the searches were required to be in the English language and academic in nature. The summary of the sources is described in Table 28: Source list before evaluation and Table 29: Source list after evaluation.

Database	Link
IEEE Explore	http://www.ieee.org/web/publications/xplore/
ACM Digital library	http://portal.acm.org
Google scholar	scholar.google.com
Inspec	www.iee.org/Publish/INSPEC/
Science Direct	www.sciencedirect.com
ISI Web of Science	http://portal.isiknowledge.com/
Proceedings for the special interest group for computer personnel research	http://www.sigmis.org/
Springer Link	http://www.springerlink.com

Table 28: Source list before evaluation

Database	Evaluation criteria met
IEEE Explore	Yes
ACM Digital library	Yes
Google Scholar	Yes
Inspec	No
Science Direct	Yes
ISI Web of Science	Yes
Proceedings for the special interest group for computer personnel research	No
Springer Link	Yes

Table 29: Source list after evaluation



6.3.2 Practical Screen

Search Strings

SRQ3 – “(Enterprise Architecture AND maturity model assessment OR Process Maturity OR Technology Maturity OR People Maturity OR components).”

Inclusion/ Exclusion Criteria

After executing the search string in a database, there was a large number of articles in the result dataset. It is not practical to analyse every one of these articles and many of these articles were deemed inapplicable to the research question of this review. This step is required to conduct an early-stage separation from articles that may have potential and those that did not contribute to the value of this SLR. This can be achieved by reading through the abstract of the article and applying certain criteria that either favoured proceeding with the article or not, resulting in the article being discarded. Table 30: Inclusion and Exclusion Criteria list provides a summary of these criteria's.

Inclusions	Exclusions
Doctoral Publications and Technical reports	Web Sources (nonvalidated)
Peer-reviewed, full-text academic IS Journals	Non-English versions
Articles from conferences	Content outside ICT driver organisations
Published between 1990-2021	Anything outside direct implication on maturity model and assessments.
Directly answer any one or more of our research questions	Books or book selection
Relate to any practitioner directly involved in maturity models and assessments	Overhead presentations
Focus on success as well as failures regarding maturity models	Non-Full-Text articles
Focus on culture in terms of how IT personnel are motivated	

Table 30: Inclusion and Exclusion Criteria list

6.4 SYSTEMATIC REVIEW EXTRACTION

6.4.1 Quality Appraisal

Assessing Quality

The quality appraisal assessment was completed for all research articles using the assessment criteria shown in the table below. This was applied to all research papers that had satisfied the inclusion and exclusion criteria assessments. Together with the assessment scoring, the inclusion and exclusion criteria provide an aggregated quality criteria, which provided a guide for selecting quality research papers. The score alone has no bearing on the quality of the article itself. Quality was based on the combination of the criteria, the context of the paper and the score and is depicted in Table 31: Quality Assessment Criteria.

Item	Assessment Criteria	Score	Scoring Matrix
1	Does the study report clear, unambiguous findings based on evidence and argument?		– Yes = 1 – No = 0
2	Could you replicate the study?		– Yes = 1 – No = 0
3	Directly answers the research question?		– Yes = 1 – Moderately = .5 – No = 0
4	Does it have some references to the key aspects?		– Yes = 1 – Moderately = .5 – No = 0
5	Relates to any practical case study with the support of strong evidence?		– Yes = 1 – Moderately = .5 – No = 0
6	How well are the components and qualities defined?		– Yes: it either explicitly describes the model or describes qualities of model implementation clearly = 1 – Partially: it only identifies components with no practical use = .5 – No: it neither described nor mentioned components or qualities of maturity models = 0
7	How clearly is the research process established?		– Yes: it explained the process of research clearly – Partially: it mentioned the process but did not explain why

			– No: it did not explain the process
8	How clearly are the work limitations documented?		– Yes: it clearly explained the limitation of EA implementation practices – Partially: it mentioned the limitation but did not explain why – No: it did not mention the limitation

Table 31: Quality Assessment Criteria

Assessment Results Documentation

For all research papers that passed the minimum requirements for both the inclusion and exclusion criteria and had been scored accordingly, the results were abstracted and recorded against the relevant fields as depicted in Table 32: Documentation Template. This does not serve as a description of the article, rather it provides a list of results documented all in one place.

Title of the paper	
Paper ID	
Score	
SRQ3: What are the components with the associated qualities that are vital to test the maturity of people, processes and technology in existing maturity models?	

Table 32: Documentation Template

6.4.2 Data Extraction Procedure

To ensure the reliability and replicability of this research, the following prescriptive steps must be followed as well as the following prescribed data input values and templates must be used. The summary of the data extraction procedure is graphically depicted in Figure 77: Data Extraction process.



Extraction Preparation

Before starting with the data extraction process, some preliminary steps need to be completed. These steps are seen as planning steps and consist of input data, reference data and output data. Once these steps are done, the foundational elements required to start the data extraction process is complete and the process of extraction can begin.

Search Data: The preparation to begin the search requires a list of databases from which studies are found. The URLs for each database used in this study can be found in [Section 6.3.1](#) together with the search terms that must be used to maintain the consistency of the search results. The search terms that were tailored for this study have been detailed in [Section 6.3.1](#)

Reference Data: To ensure that quality is maintained, all studies found through the search exercise within each database must be qualified using key criteria. These criteria are listed below with the section of the study that details the criteria:

- Our research questions can be found in [Section 6.2.2](#).
- Exclusion criteria detail the criteria that should be excluded and are located in [Section 6.3.2](#).
- Inclusion criteria form part of [Section 6.3.2](#).
- Quality appraisal criteria are described further in [Section 6.4.1](#).
- The systematic procedure is detailed in [Section 6.2.2](#).

Output Data: Once all studies had been quality assured, only the studies that passed the minimum score were included in the final study. The results of the appraisal exercise can be found in Table 43: Maturity Model SLR Appraisal Result in appendix C.

Execution procedure

1 Create the electronic folder structures

The extraction procedure begins with the creation of the respective folder structure in your root directory labelled “**Maturity Model SLR**”. Within this folder, add two other folders namely, “Maturity_Models_General sub-folder” which will contain the templates

described in the section above and "EAM_ Maturity-Results" for the storing of the quality appraisal results.

2 Open electronic reference manager *Zotero*

Zotero is the software reference tool used for the capture and management of all study reference data and meta-data. In *Zotero*, start by creating a project and label it "EAM_Dimensions Library" and creating the following folder structure:

- All References
- WIP Papers
- Exclusion Met
- Inclusion Met
- Appraisal Paper
- Accepted Papers.

3 Execute search string

After all folder structures have been created, the search condition must be executed for each database in the database URL list. The references of the search results must be copied into the "All references folder" in *Zotero*.

3.1 Apply practical screening conditions

After all references from the search string execution are complete, you have to capture all required details that are missing from the reference meta-data manually. Once this is complete, begin applying the practical screening conditions, starting with the exclusion criteria defined in the SLR protocol. If the study satisfied the exclusion criteria, it may then be moved into the "Inclusion criteria" folder. If the exclusion criteria were not satisfied, the study was rejected. In a case where the outcome is undecided, the study must be moved in the "WIP" folder and a reason must be captured respectively. The same must be completed for the inclusion criteria conditions before continuing. After all studies in the "All reference" folder have been assessed, it is important to go back to the "WIP" folder and reject or advance the study to the "Appraisal Paper" folder.

3.2 Apply appraisal conditions

Once all practical screen conditions are complete, the quality appraisal can be completed for all studies in the "Appraisal Paper" folder. For each study, the appraisal questions must be applied and scored. Studies with a score above the minimum threshold were advanced to the "Accepted papers" folder and become the primary studies upon which this study is based.

The logical flow described above is depicted in Figure 77: Data Extraction process.

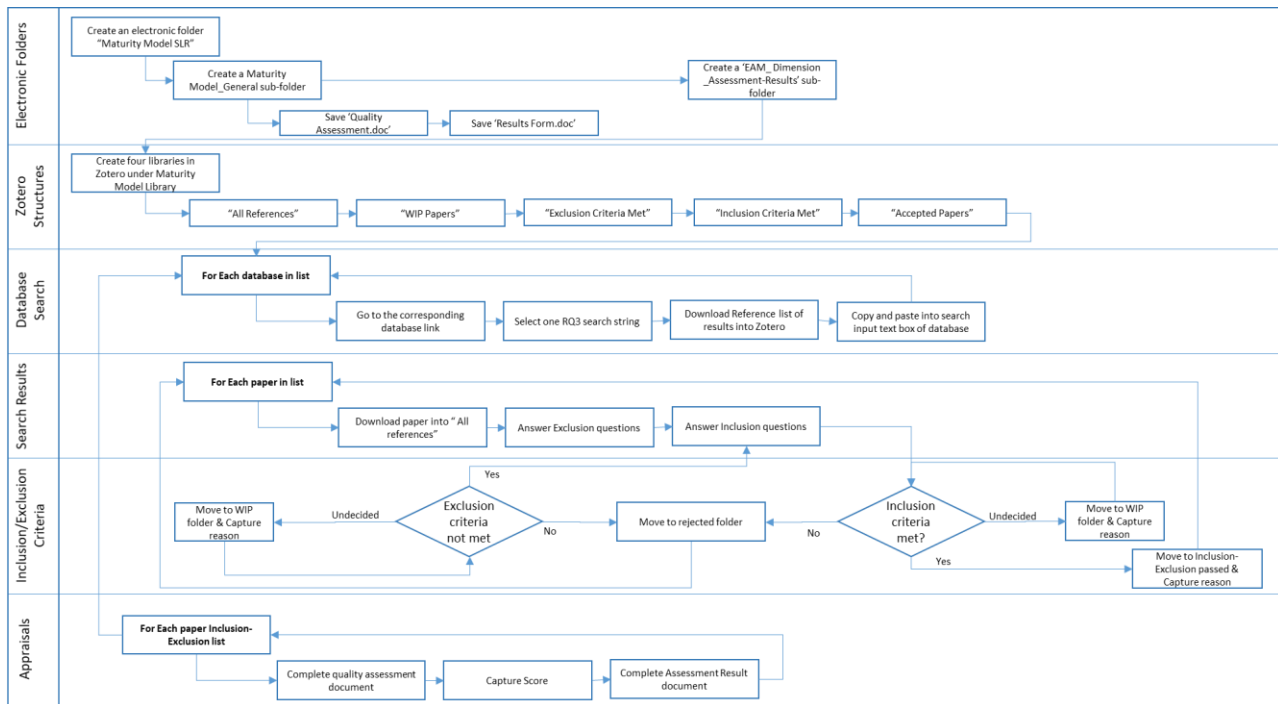


Figure 77: Data Extraction process

6.4.3 Data Synthesis

After following the processes and procedures outlined in the previous section, the result ended with a total of 33 primary studies that were used in answering the research question of this SLR which is to identify elements that are key to the success of EAM. The summary of the execution procedure is depicted in the search string specified in section 6.2.2, which was used within each qualifying search database. In cases where some database engines had limitations in the manner that the search string could be executed, the search string was altered to adhere to the way that database was required to provide a successful result. This was completed in such a way that the altered search string still provided correct and valid results. The results from each database were captured individually against the respective database and then consolidated to provide a combined list of searched results.

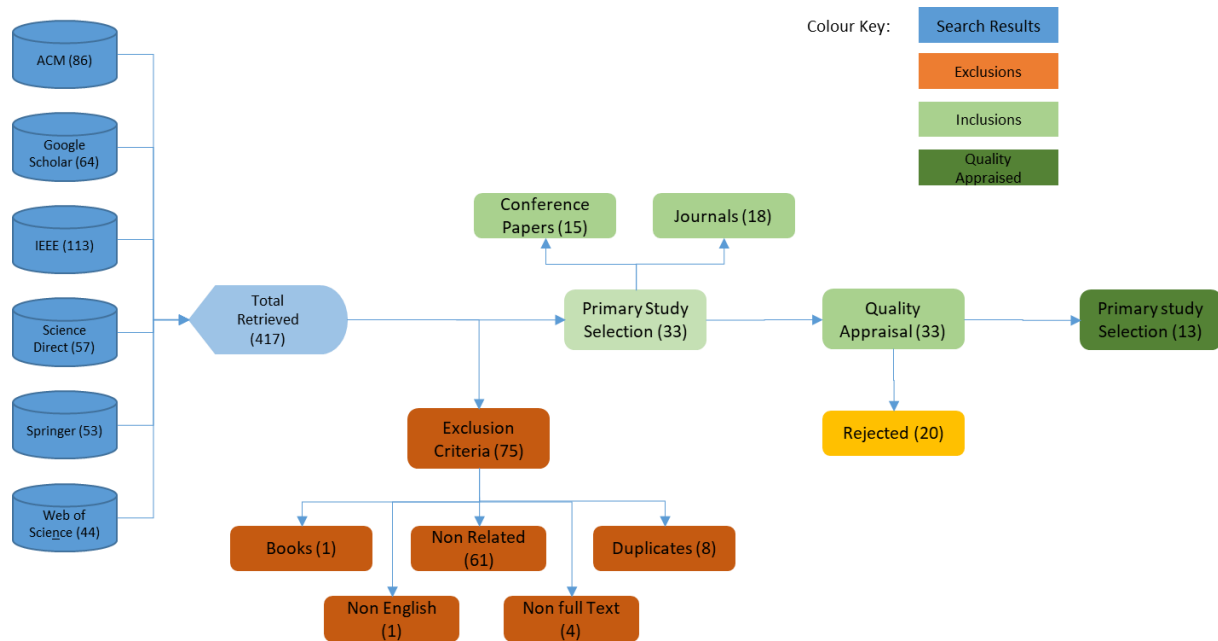


Figure 78: Summary of the execution procedure

Working through the exclusion criteria specified in the section above, all duplications were removed. This was followed by removing any study listed as a book, non-English studies, and non-full text studies based on the review of the studies title, abstract, or conclusion. This brought down the number of primary studies for a full review. The list of primary studies that remained was then evaluated against the inclusion criteria. All studies that did not meet the criteria were put into the exclusion list as nonrelated studies. Using the scoring appraisal specified in section 6.4.1, each study was further evaluated and scored accordingly.

Any successful study was regarded as the selection of the primary studies that were used to answer this SLR's research question through a critical review.

Selection Execution

The selection execution process aims to identify the list of primary studies by executing the SLR strategy to maintain a form of standard and consistency between each of the databases identified for this SLR.

Database / Search Engines

This SLR started with eight online databases/search engines. Two of them were excluded based on not meeting the minimum criteria. For the remaining six databases, the selection strategy was applied, and the results were captured as described in Table 29: Source list after evaluation.

Practical Screening

The practical screening criteria specified in [section 6.3.2](#) were applied to all studies within the search results to verify if the inclusion or exclusion criteria fit. These were then rejected or accepted based on the results.

Quality Appraisal

To ensure that the primary studies were of high quality, each study was scored based on the predefined questions specified in [section 6.4.1](#). Based on the scoring, the researcher then selected only those studies with a score above seven.

Information Extraction

Once the primary set of studies had been identified, the extraction of relevant information began. A selection process that highlighted key elements as identified by the authors of the studies were outlined and captured.

6.5 SYSTEMATIC REVIEW EXECUTION

6.5.1 Analysis of Findings

In this section, a discussion of how the literature in the SLR assisted the researcher to understand the components and qualities required for a maturity model.

The analysis of this SLR aims to present the findings from the 13 selected studies that successfully went through the extraction and qualification phase. The statistical method specified in the previous section was used to analyse and understand the complexity of the relationships between the results. A summary of the results can be found in Table 33: Summary of Maturity Components Citations.



Maturity Component	# Studies	# Quotations	Citations
Maturity Level - Process	8	16	A capability maturity model for knowledge-based decision making A capability maturity model for scientific data management A maturity model for the implementation of software process improvement: an empirical study A measurement framework for assessing the maturity of requirements engineering process A resource-based perspective of value generation through enterprise architecture management A socio-technical approach to improving the systems development process Towards a business process management maturity model Understanding the main phases of developing a maturity assessment model
CMM	8	14	A capability maturity model for knowledge-based decision making A capability maturity model for scientific data management A maturity model for the implementation of software process improvement: an empirical study A maturity model of enterprise business intelligence A socio-technical approach to improving the systems development process Advances in business process management implementation based on a maturity assessment and best practice exchange Understanding the main phases of developing a maturity assessment model
Maturity Model Requirements	3	13	Developing maturity models for IT management Evaluating a process for developing a capability maturity model Methods and techniques for maturity assessment



Level 1	10	11	A capability maturity model for knowledge-based decision making A capability maturity model for scientific data management A maturity model for the implementation of software process improvement: an empirical study A maturity model of enterprise business intelligence Achieving value from enterprise architecture maturity Advances in business process management implementation based on a maturity assessment and best practice exchange Maturity Assessment for Enterprise Architecture Properties that influence business process management maturity and its effect on organisational performance Towards a business process management maturity model Understanding the main phases of developing a maturity assessment model
Maturity Level - People	6	11	A capability maturity model for knowledge-based decision making A resource-based perspective of value generation through enterprise architecture management A socio-technical approach to improving the systems development process Advances in business process management implementation based on a maturity assessment and best practice exchange Towards a business process management maturity model Understanding the main phases of developing a maturity assessment model
Level 3	9	10	A capability maturity model for knowledge-based decision making A capability maturity model for scientific data management A maturity model for the implementation of software process improvement: an empirical study Achieving value from enterprise architecture maturity Advances in business process management implementation based on a maturity assessment and best practice exchange Maturity Assessment for Enterprise Architecture Properties that influence business process management maturity and its effect on organisational performance Towards a business process management maturity model Understanding the main phases of developing a maturity assessment model



Level 2	9	10	A capability maturity model for knowledge-based decision making A capability maturity model for scientific data management A maturity model for the implementation of software process improvement: an empirical study Achieving value from enterprise architecture maturity Advances in business process management implementation based on a maturity assessment and best practice exchange Maturity Assessment for Enterprise Architecture Properties that influence business process management maturity and its effect on organisational performance Towards a business process management maturity model Understanding the main phases of developing a maturity assessment model
Design Principles	2	9	Assessment of Industry 4.0 Maturity Models by Design Principles What makes a useful maturity model?
Maturity Model definition	4	9	A capability maturity model for knowledge-based decision making A maturity model for enterprise interoperability Developing maturity models for IT management Maturity models for information systems-a state of the art
Level 4	8	9	A capability maturity model for knowledge-based decision making A maturity model for the implementation of software process improvement: an empirical study Achieving value from enterprise architecture maturity Advances in business process management implementation based on a maturity assessment and best practice exchange Maturity Assessment for Enterprise Architecture Properties that influence business process management maturity and its effect on organisational performance Towards a business process management maturity model Understanding the main phases of developing a maturity assessment model
Maturity Level - Technology	6	8	A capability maturity model for knowledge-based decision making A resource-based perspective of value generation through enterprise architecture management A socio-technical approach to improving the systems development process Towards a business process management maturity model Understanding the main phases of developing a maturity assessment model



Siemens Process Framework	1	8	Advances in business process management implementation based on a maturity assessment and best practice exchange
Resource Based Theory	1	8	A resource-based perspective of value generation through enterprise architecture management
Level 5	6	7	A capability maturity model for knowledge-based decision making Achieving value from enterprise architecture maturity Maturity Assessment for Enterprise Architecture Properties that influence business process management maturity and its effect on organisational performance Towards a business process management maturity model Understanding the main phases of developing a maturity assessment model
Maturity Levels	5	6	A capability maturity model for knowledge-based decision making A maturity model for enterprise interoperability Developing maturity models for IT management Maturity Assessment for Enterprise Architecture Towards a business process management maturity model
BPMM	4	5	Advances in business process management implementation based on a maturity assessment and best practice exchange Properties that influence business process management maturity and its effect on organisational performance Towards a business process management maturity model Understanding the main phases of developing a maturity assessment model
Management maturity levels	2	5	A capability maturity model for knowledge-based decision making Properties that influence business process management maturity and its effect on organisational performance
Integration maturity level elements	3	5	A capability maturity model for knowledge-based decision making A maturity model for enterprise interoperability A maturity model for the implementation of software process improvement: an empirical study
Areas of maturity	5	5	A capability maturity model for knowledge-based decision making A maturity model for enterprise interoperability Achieving value from enterprise architecture maturity Towards a business process management maturity model Understanding the main phases of developing a maturity assessment model
Generic EAM Maturity Level	1	4	A capability maturity model for knowledge-based decision-making



Assessment types	2	3	A maturity model for enterprise interoperability Properties that influence business process management maturity and its effect on organisational performance
Less popular maturity model	1	3	Developing maturity models for IT management
Challenges	3	3	A maturity model for enterprise interoperability Achieving value from enterprise architecture maturity Advances in business process management implementation based on a maturity assessment and best practice exchange
Maturity Comparisons	2	2	A capability maturity model for knowledge-based decision-making Maturity models for information systems-a state of the art
Maturity Assessment	1	2	Maturity Model Architect: A Tool for Maturity Assessment Support
architecture capability maturity model	2	2	Achieving value from enterprise architecture maturity Understanding the main phases of developing a maturity assessment model
Assessment Methodology	2	2	Maturity Assessment for Enterprise Architecture What makes a useful maturity model?
Maturity Levels- Metrics	1	2	A capability maturity model for knowledge-based decision making
Process Oriented Capability Maturity Models	1	2	A capability maturity model for knowledge-based decision making
Sommerville	1	2	A measurement framework for assessing the maturity of requirements engineering process

Table 33: Summary of Maturity Components Citations

6.5.2 Discussion

An in-depth understanding of maturity model components and qualities was acquired through the execution of this SLR. Many conclusions were extracted through the synthesis of the results. Many maturity models have been developed over the last decade. This was evident in the majority of the articles found being published after 2011, which might indicate that there is currently a growing interest in maturity models. One of the key insights from this study was that besides the maturity levels definition, it was equally important to have your maturity model requirements and design principles developed and aligned to the objectives that are set out. The maturity model level must be linked to the capability that it is intended to measure. Maturity models have been developed in many areas such as process, software financial management (Kaner & Karni, 2004). In this SLR, the capability focus was on people, process and technology centred on the EAM focus area. The focus of many existing maturity models is on process capability improvement with very little emphasis on people and technology capability improvement. These elements are featured in the capability Maturity Model (CMM), Business Process Maturity Model (BPMM) and Architecture Capability Maturity Model but none has all three elements in one maturity assessment.

The paper concludes with the identification of key maturity model components with associated qualities extracted from 13 studies. Figure 79: Summary of Maturity Component Relationship depicts the different components concerning each other. The rationale for selecting each component and its qualities are described in the subsequent section.

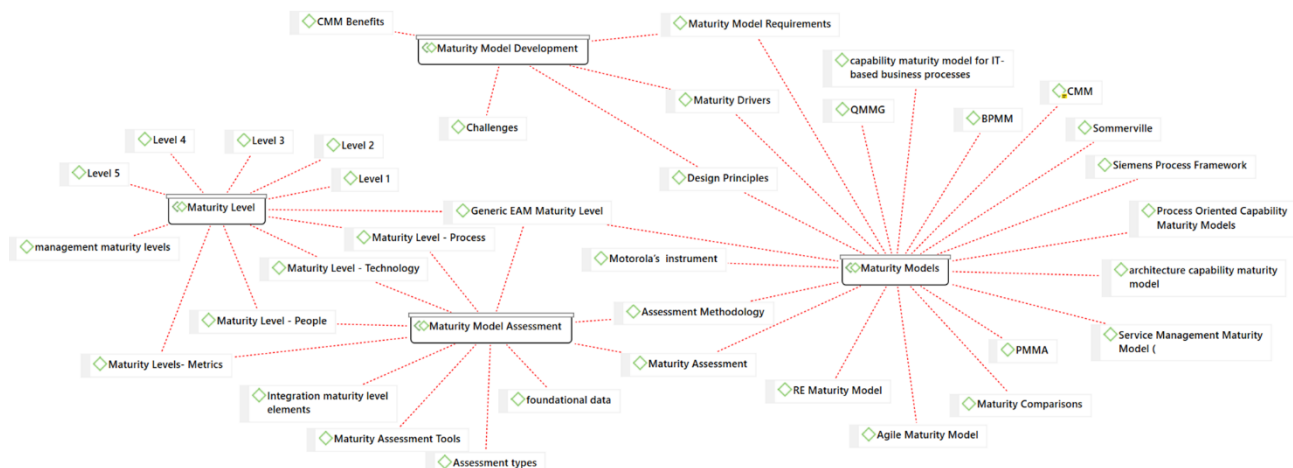


Figure 79: Summary of Maturity Component Relationship

This study explores measuring EAM maturity within three main focus areas: people, process and technology. While many maturity models exist, not all of them are designed to satisfy the needs for maturity within a focus area. Selecting the right model to address your needs is key in understanding the true reflection of your capability assessment. As no maturity model exists to test people, process and technology capabilities, this study focused on selecting the qualities that were vital for assessing maturity in EAM from existing maturity models. The combination of the three capabilities can be rationalised into the following generic definition of maturity as adopted from the Lean Enterprise Self-Assessment Tool (LESAT) viewpoint as depicted in Table 34: LESAT Reference viewpoint (Kaner & Karni, 2004) with the people, process and technology maturity described in Table 35: Maturity Model Level Definition. Using a single-dimensional rating scale became the preferred approach since implementing a two-dimensional scale becomes too complex to measure (Rosemann & de Bruin, 2005).

Level	Definition
Level 1	Some awareness of the EAM practice; random improvement efforts may be undertaken in a few areas; Little/no integration with other capabilities.
Level 2	General awareness of the EAM practice; informal approach implemented in a few areas with an unmanaged level of effectiveness and efficiency; integration with at least one other capability.
Level 3	EAM practice methodology/approach is in place and adopted in varying areas across the organisation; facilitated with good metrics; adequate integration with both capability, as well as some areas of the organisation.
Level 4	EAM practice is well known and integrates well with other areas of the organisation. Ongoing refinement and continuous improvement across the organisation is evident; improvement gains are sustained, acceptable integration with most areas of the organisation.
Level 5	EAM practice is a well-defined innovative approach that is fully deployed across the extended organisation; EAM is recognised as best practice; Continuously improving integration with all areas of the organisation.

Table 34: LESAT Reference viewpoint (Kaner & Karni, 2004)

Maturity Capability	Maturity Level characteristics	Level Description
People	Level 1 – Inconsistent Management	Inconsistent enforcement of the EAM practice; no clear roles and responsibilities defined.
	Level 2 – People Management	Formal roles and responsibilities defined; not clear to everyone; Unclear performance objectives or feedback.

Maturity Capability	Maturity Level characteristics	Level Description
	Level 3 – Competency Management	Formal roles and responsibilities defined; not clear to everyone fairly consistent deliverable across resources; gap analysis conducted to further competency where needed
	Level 4 – Capability Management	Formal competencies maintained; mentoring programmes in place and executed well.
	Level 5 – Change Management	Continuous skills and training development improvement. Well integrated into other capabilities
Process	Level 1 – Initial/Ad hoc	No processes defined; no or little agreement on the performance of the processes.
	Level 2 – Repeatable	Some processes are defined in some areas; processes are not known across the organisation.
	Level 3 – Defined	Processes are defined in some areas; processes are known across parts of the organisation.
	Level 4 – Managed	Processes are defined in all areas; processes are known across the organisation and is widely accepted.
	Level 5 –Optimised	Processes are defined in all areas; processes are known across the organisation and is actively being improved of efficiency and well integrated into other capabilities.
Technology	Level 1 – Initial/Ad hoc	No tools have been identified to assist EAM;
	Level 2 – Repeatable	Tools have been identified but not yet implemented
	Level 3 – Defined	Tools have been implemented but not fully utilised for max benefit.
	Level 4 – Managed	Tools have been implemented and utilised by the internal team with max benefits.
	Level 5 –Optimised	Tools have been implemented and utilised by external teams for additional benefits.

Table 35: Maturity Model Level Definition

6.6 CHAPTER SUMMARY

In this chapter, the researcher presented the findings based on the SLR for identifying the key components with associated qualities that are required for measuring EAM maturity. No maturity model has been published that assesses the maturity of EAM with a focus on

people, processes and technology. By starting to work in this area, this research will help enterprises understand their current states of EAM maturity in the hope of improving areas of low maturity. The approach of analysing published studies allowed the researcher to select good, reliable literature that can be used to identify the necessary components and associated qualities represented through conflicting findings, gaps and commonalities in the research literature.

There has been high interest in maturity models in the past decade with views on the successes and shortcomings of maturity models through the lack of rigour in the development. Many maturity models have very specific assessment objectives which could be one reason why there is an increase in maturity models. While practitioners of maturity assessment and researchers alike have increasingly begun to recognise the understanding of how to assess EAM, very little work that brings together published work in terms of people, process and technology for the successful management of the EA practice has been done. The chapter concludes by identifying and describing the maturity levels required to assess EAM extracted from 13 studies.

7 EAM MATURITY FRAMEWORK DEVELOPMENT

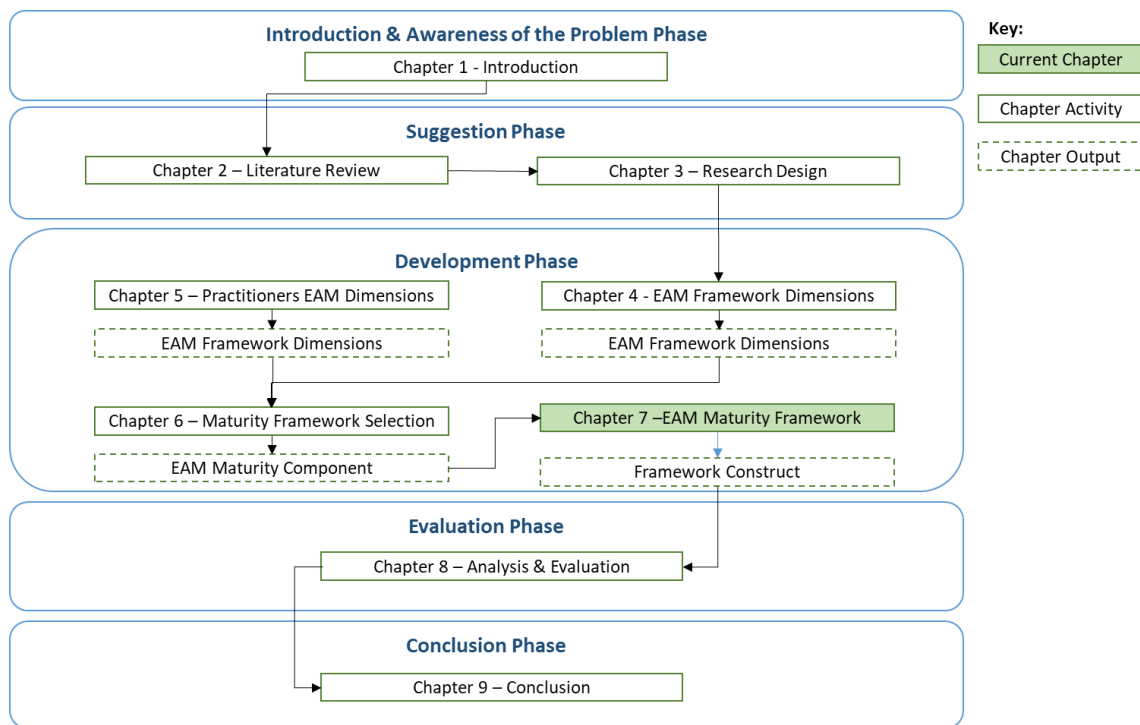


Figure 80: Chapter 7 Thesis Map

7.1 INTRODUCTION

The development cycle of this study was initiated in **Chapter 4** with a Systematic Literature Review (SLR) through the adoption of a DSR strategy. This cycle led to the identification of vital dimensions of EAM as recognised in key EAM case studies and existing EA frameworks. The SLR concluded with a list of dimensions that were seen as key for the success of the EAM practice. **Chapter 5** continued the development cycle by conducting survey questionnaires with EA practitioners within the financial services industry as well as interview questionnaires within the selected case study chosen. Through the cross-referencing of the results of both questionnaires, a similar intention to that in **Chapter 4** was completed for **Chapter 5** but with the view of EA practitioners and senior members of the case study as the differentiating factor. This was to ensure both worlds, i.e., the practitioners' as well the academic worlds were adequately involved. **Chapter 6** followed on with the results of **Chapters 4 and 5** as input for this chapter and was completed using an SLR to identify maturity levels and qualities that could be used to assess people, processes and technology. **Chapter 6** concluded with the components and their associated qualities for people, processes and technology.

The final stage of the development cycle for this study is concerned with the design and development of the artefact as depicted in Figure 81: Chapter 7 Map. The EAM Framework design and development is the main contribution of **Chapter 7**. The chapter starts with the introduction and recap of the research design process and purpose before concluding the section with a summary of the design theory approach and the EAM framework. The section discusses the framework concepts before discussing how the different concepts are grouped to form constructs in Section 3. Section 4 provides a detailed description of the dimensions with the associated maturity level associations and concludes the section with the design of the EAM maturity assessment (eMA) framework and ends with the final section that provides a conclusion.

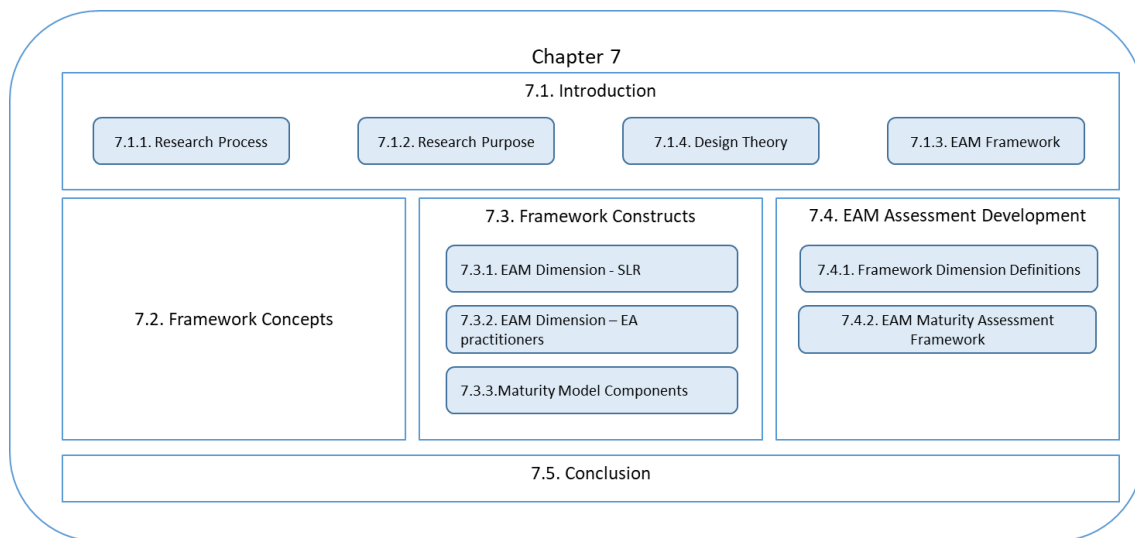


Figure 81: Chapter 7 Map

7.1.1 Research Process

The development phase of the EAM assessment framework is completed as part of the overarching development phase of the DSR approach, as depicted in Figure 82: Development phase of DSR Strategy.

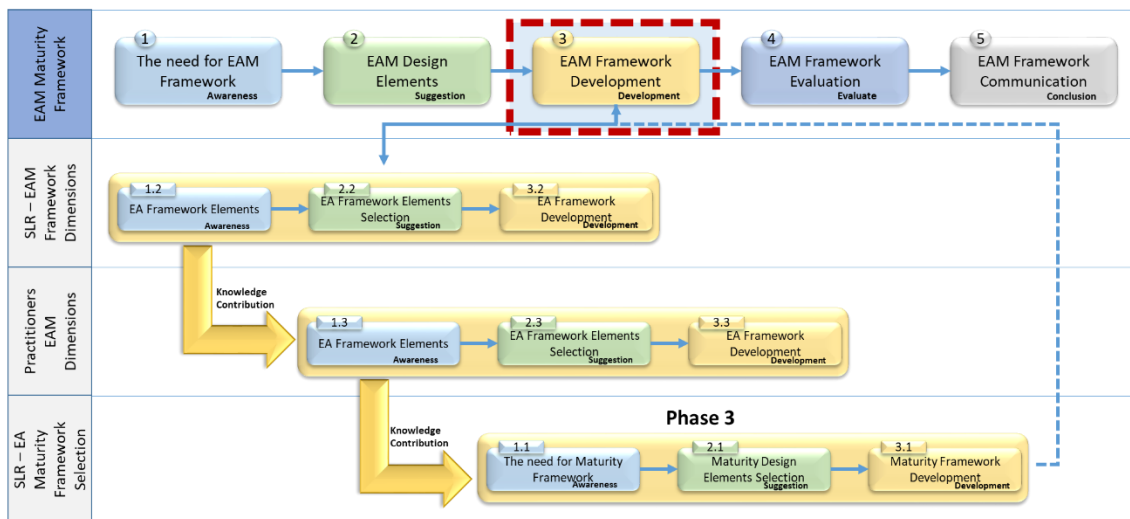


Figure 82: Development phase of DSR Strategy

The main objective of this study is to develop an EAM assessment framework that will measure the maturity of an EAM practice. The identification of EAM dimensions and their associated maturity levels was illustrated as a framework that was developed by organising concepts into coherent themes. The concepts and themes form the foundation of the research constructs (Page & Meyer, 2000).

The research constructs were made up of the building blocks concluded within each of the stages of the development cycle of the DSR strategy. In the first stage, an SLR concluded with a list of EAM dimensions that were seen as vital to the success of the EAM practice. The second stage of the DSR strategy focused on the EA practitioner's view of EAM and concluded with further dimensions that were seen as vital through their experiences. These dimensions were classified into themes. These themes were used as input in the third stage of the development cycle which addressed the need to match corresponding maturity model components with their associated qualities to the dimension. These themes were identified as people, process and technology. In this chapter, the focus was on bringing the data together in the form of a framework.

To ensure that this framework's development is consistent and aligned with the DSR strategy, the EAM assessment framework was created using the approach and guidelines specifically created for framework development as depicted in Figure 83: Framework

Development (de Bruin & Rosemann, 2005). The deployment and maintenance phases of the framework did not form part of this study.

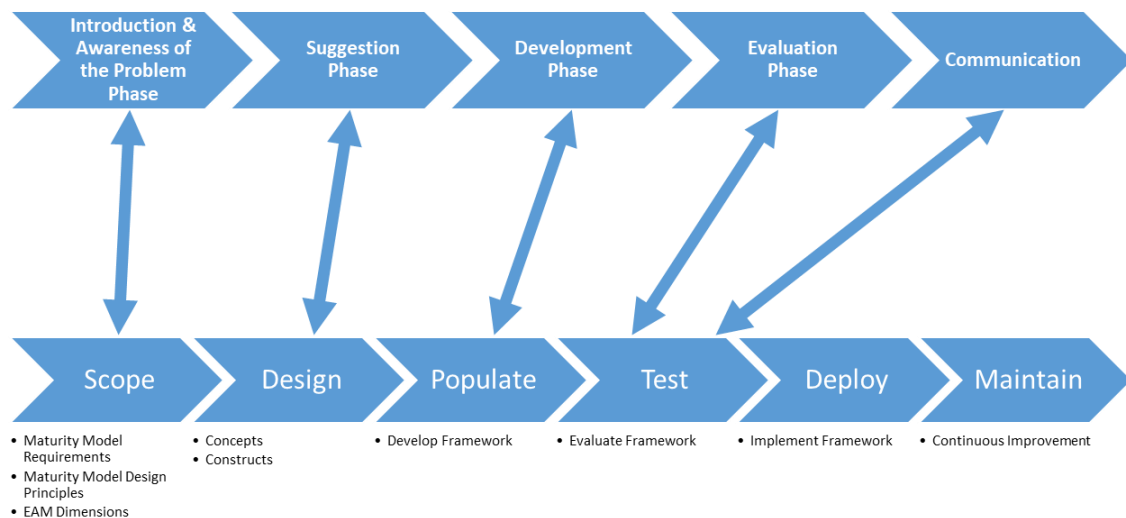


Figure 83: Framework Development Relation to DSR

7.1.2 Research Purpose

The execution of the three development phases of this DSR was instrumental in identifying the concepts required to develop a meaningful artefact. Together, the three phases of development form a holistic view of the world of EAM and how to mature the practice and maintain its success. Studies have provided many guidelines covering all EAM practice elements but no real view of the dimensions or elements to concentrate on once EA is implemented. To cover all elements or dimensions noted in literature becomes virtually impossible to complete and concentrating on the wrong areas ultimately leads to the demise of EAM.

This study combined data collected through the SLR in Phase 1, which looked at identifying vital dimensions as noted in various case studies and existing frameworks and methodologies. There were definite dimensions that stood out stronger than others and understanding and knowing which ones they are would increase the maturity and success of the EAM practice. Through the evolution of EA over the past decades it has brought forward some of the previously overlooked dimensions. Through collecting data in Phase 2, the dimensions that are seen as vital for success were strengthened by identifying

dimensions that EA practitioners found to be extremely important. Combining the two conclusions increases the accuracy of what the vital dimensions for EAM success are so that those dimensions can be assessed and improved over time.

7.1.1 Design Theory

Analysing the problem description and identifying design theory as a suitable theoretical framework is clearly based on the fact that the outcome of this research is to produce an artefact that can be used practically. Design theory offers the guidelines to identify constructs, complete a design and then test the framework iteratively. Design theory is seeing growing interest within information systems (Goldkuhl, 2004). Design theory falls under the fifth type of theory, as described by Gregor (2006). Walls et al. (1992) defined design theory for IS and referred to it as Information Systems Design Theory (ISDT); this was later extended by Gregor and Jones (2007). Table 36: Representation by Gregor and Jones (2007) is a representation of Gregor and Jones's extension of ISDT by Walls et al. (1992).

Component	Description	Study Alignment
Core Components		
1) Purpose and Scope	“What the system is for,” the set of meta-requirements or goals that specifies the type of artefact to which the theory applies and in conjunction also defines the scope, or boundaries, of the theory.	Chapter 1 Chapter 2
2) Constructs	Representations of the entities of interest in the theory.	Chapter 4 Chapter 5 Chapter 6
3) Knowledge of Form and Function	The abstract “blueprint” or architecture describes an IS artefact, either product or method/intervention.	Chapter 7
4) Abstraction and Generalisation	The changes in the state of the artefact are anticipated in theory, that is, what degree of artefact change is encompassed by the theory.	Chapter 4 Chapter 5 Chapter 6 Chapter 7
5) Evaluation and Validation Propositions	Truth statements about the design theory.	Chapter 8
6) Justificatory Knowledge	The underlying knowledge or theory from the natural or social, or design sciences gives a basis and explanation for the design (kernel theories).	Chapter 8

Component	Description	Study Alignment
Core Components		
Additional Components		
7) Principles of Implementation	A description of processes for implementing the theory (either product or method) in specific contexts.	
8) Expository Instantiation	A physical implementation of the artefact can assist in representing the theory both as an expository device and for purposes of testing.	

Table 36: Representation by Gregor and Jones (2007)

The idea of the above table summary by Gregor and Jones (2007) was to describe and simplify the understanding of adopting design theory by describing the eight components and providing examples, as well as providing an alignment to this study by identifying the chapters in which these components are covered. Design theory works well with research that involves creating an artefact.

7.1.2 Enterprise Architecture Management Framework

EAM is recognised by organisations as the accepted solution to assist with strategic transformation in a rapidly changing economic, technical and regulatory environment (Buckl et al., 2010) yet there is no commonly accepted understanding of maturity in EAM (Buckl et al., 2010; Simon et al., 2013). As a result, it is difficult for organisations to identify and agree on the critical components of EAM and the level of maturity that is required to be successful in managing the EA practice.

The intention is to develop an EAM assessment framework that would assist the organisation in better managing its EAM practice while also assisting them to assess their maturity which will allow the organisation to put the required focus on areas that are lacking or need improvement. Adopting the approach depicted in Figure 83, the scope was addressed in **Chapter 2** and **Chapter 3**, where EAM and maturity models were introduced and provided the foundation required for the development of an assessment framework. From the start of **Chapter 4** through to **Chapter 5** and **Chapter 6**, the development process was initiated with the culmination of the results brought together in this chapter to conclude

with an eMA framework. The subsequent chapter addressed the need to test and evaluate the maturity assessment framework. The deployment and maintenance phases of this approach can be regarded as a future development for this study. Figure 84: EA Assessment Model depicts the approach discussed.

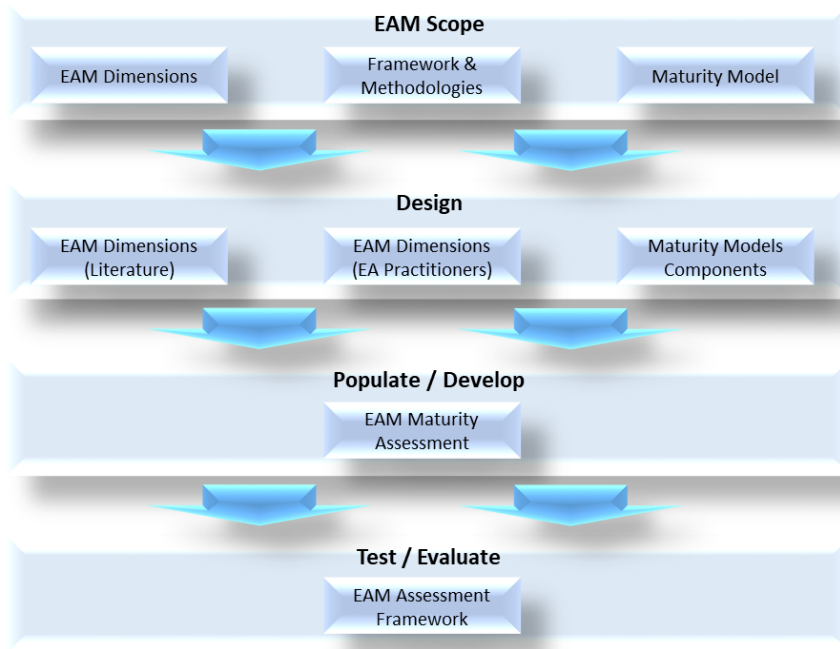


Figure 84: EA Assessment Model

7.2 EAM CONCEPTS

Page and Meyer (2000) define a concept as a representation of objects that have identifiable features. In the execution of **Chapter 4**, many concepts were identified relating to EAM. These concepts were specifically focused on dimensions of EAM. Further analysis on the relevance of each of the concepts was conducted to determine the implication it has for EAM success. **Chapter 4** provided further details on the identification of the dimensions that are seen as vital for EAM success. Two different themes emerged from the data in **Chapter 4** and **Chapter 5**:

1. What are the dimensions that are required as part of the EA life cycle, and
2. What are the dimensions that are requirements of an operating model with implications on people, process and technology?

While many EA frameworks and methodologies exist, they have a strong focus on process and artefact management with very little emphasis on the sociotechnological elements of EAM. While it's important to address the needs of processes and technology to increase the maturity and success of an EA practice, there is also the people element that is generally seen as the softer side that is neglected. This becomes evident in the analysis of **Chapter 4**, where Figure 85: Classification and themes integration depicts the relationships between the EAM life cycle and the required capabilities.

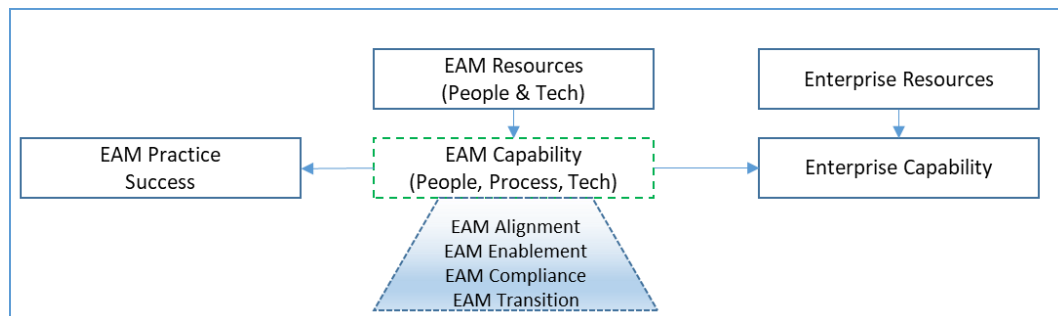


Figure 85: Classification and themes integration

Having identified vital dimensions in **Chapters 4** and **5**, in **Chapter 6**, the focus was identifying maturity model components with their associated quantiles to suit the requirement of measuring current state capabilities within these three areas using the lens of people, process and technology. To understand which maturity models were best suited to these areas, it was important to recognise the type of model to use that will satisfy the objective. Three types of models are key to understand, namely descriptive, prescriptive and reflective, as depicted in Figure 86: Concept relationships.

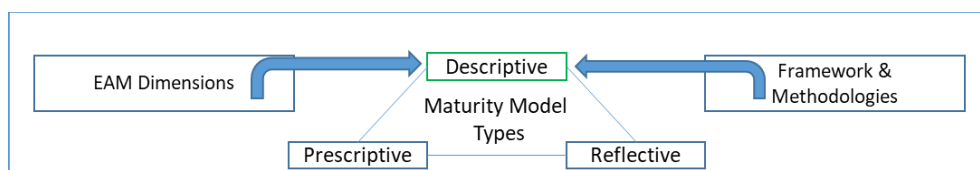


Figure 86: Concept relationships

In executing an SLR in **Chapter 6**, three components were identified as key when developing an assessment framework. These three components are depicted in Figure 87: Maturity Model Components. Similar to the approach used with the EAM dimensions, each component was investigated to find the associated qualities, e.g., the maturity model level component could be represented by using five distinct levels, ranging from Levels 1–5. Many

of the qualities required for the requirement and design principles components have been discussed and addressed in **Chapter 3**.

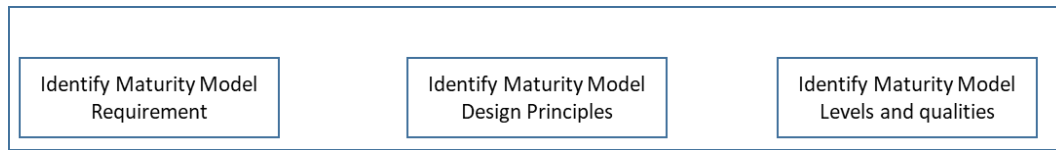


Figure 87: Maturity Model Components

7.3 EAM CONSTRUCTS

Page and Meyer (2000) define a construct as structural components used to group multiple concepts into ideas or theories based on empirical evidence that are not measurable or observable. These constructs identified were executing the data collection process in **Chapter 4**, **Chapter 5** and **Chapter 6**.

7.3.1 EAM dimensions – Literature

The concepts that had been identified through the SLR in **Chapter 4** were classified into four themes to better understand their relation to each other. Each EAM dimension was examined and classified from a life cycle perspective, resulting in four focus areas: EAM alignment, EAM compliance, EAM enablement and EAM transition as depicted in Figure 88: EAM Dimension Classifications.

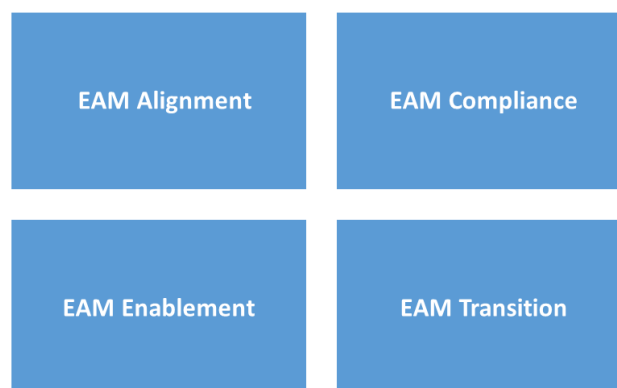


Figure 88: EAM Dimension Classifications

Chapter 4 concluded with a list of EAM dimensions that were identified as vital for the success of an EAM practice. These dimensions resulted from an SLR that included 45 primary studies related to aspects of EAM success and failure factors that influence EAM.

The dimensions resulting from this SLR are depicted in Table 37: List of EAM Dimensions – SLR.

Adoption	Standards	Plan: Develop an EA strategy and metrics
Alignment	Strategic Alignment	Process: Requirement
Artefacts	Tools	Process: Implementation
Benefits	Training	Process: Procedures
Capabilities	Transition approach	Procurement
Challenges	Visibility	Project Office Management
Change Management	Vision	Quality: Actuality
Collaboration	A framework to systematically integrate	Quality: Concerns
Committee	Abstraction level	Quality: definition
Communication	Architecture Layer	Quality: IS
Concern	Balance Score Card	Quality: Service Measurement
Culture	Best EA framework	Quality: Simplicity
Dimension Natural	BSC: Decomposition	Quality: Stability
Dimension success	BSC: Improvement	Reference Model/ Standard
Documentation	budget	Resource based view
Execution	Concept: Alignment	Stakeholder Concerns
Fit for purpose documentation	Concept: Governance	Stakeholder Management
Framework	EA Decomposition	Stakeholder: Engagement Factors
Governance	EA Decomposition: Application Architecture	Stakeholder: Participation
Granularity	EA Decomposition: Business Architecture	Stakeholder: artefacts
Insights analysis	EA Decomposition: Data Architecture	Stakeholder: Definition
Mandate	EA Decomposition: Information Architecture	Stakeholder: Gap
Maturity	EA Decomposition: Technology Architecture	Stakeholder: Hierarchy
Methodology	EA Definition	Stakeholder: Quality
Mission	EA Framework	Strategic Importance of EA
Modelling	EA framework: shortfalls	Strategy Value of EAM
Operating Model	EAM Goals: Alignment	Tools: Auto documentation challenges
People	EAM Goals: Regulatory Compliance	Modelling: Consistency
Planning	EAM Goals: Standardisation	Modelling: Ease of use
Policy Enforcement	EAM Goals: Governance	Outdated data
Practicality	Ease of adoption	Skill
Principles	Existing Maturity Models	Solution Architecture
Process	Framework: Complexities	Stability
Process Integration	Flexibility	Maturity Levels
Products and Services	Interoperability	Repository
Quality	IT Operational Management	

Table 37: List of EAM Dimensions – SLR

The constructs were created by classifying the concepts into themes or ideas that were linked by the construct name. Only the top concepts that had been identified through the

SLR concluded in **Chapter 4** were identified and classified into construct themes. This view is depicted in Figure 89: Concepts classification into Constructs and was compared and validated against the conclusion of **Chapter 5** to increase the accuracy of identifying vital dimensions that increase the success of EAM.

EAM Agenda	EAM Compliance	EAM Enablement	EAM Transition
• Application Architecture • Business Architecture • Mandate • Mission • Artefacts • Solution Architecture • Principles • Data Architecture • Standards • Information Architecture • EA Framework • Skill • Technology Architecture • EA Definition • Framework • Vision • Methodology • Planning • Execution • Products & Services	• Balance Score Card • Business/IT Alignment • Strategic Alignment • Goals Alignment • Governance • A framework to systematically integrate • Regulatory Compliance • Committee • Develop an EA strategy and metrics • Policy Enforcement • Quality Assurance	• Tools • Standardisation • Modelling • Visibility • Insights analysis • Maturity Models • Process Integration • Documentation • Interoperability • Outdated data • Stability • Fit for purpose documentation • Repository • Modelling: Consistency • Granularity	• Capabilities • Maturity • Operating Model • Ease of adoption • Stakeholder Management • Practicality • Change Management • Collaboration • People • Concern • Communication • Culture • Flexibility • Modelling: Ease of use • Adoption • Training • Transition approach • IT Operational Management • Maturity Levels

Figure 89: Concepts classification into Constructs

7.3.2 EAM dimensions – EA Practitioners Case Study

Chapter 5 formed the second stage of the development cycle and the identification of the concepts from practitioners' views with the results similar to the concepts obtained in **Chapter 4**. The concepts that were identified as a result of the survey questionnaires and interviews conducted within the selected case study in **Chapter 5** were classified into four themes to better understand their relation to each other. While the result of **Chapter 4** is based on the analysis of the SLR, **Chapter 5** identified dimensions that were seen as vital by EA practitioners as well as the senior resources of the selected case study. Each EAM dimension was examined and classified from a life cycle perspective, resulting in the four focus areas: EAM alignment, EAM compliance, EAM enablement, and EAM transition as depicted in the section above.

Chapter 5 concluded with a list of EAM dimensions that were identified as vital for the success of an EAM practice. These dimensions resulted from a survey questionnaire administered electronically and the execution of survey interviews conducted with senior resources of a financial services institution. The dimensions that resulted from **Chapter 5** is depicted in Table 38: List of EAM Dimensions - EA Practitioners.

Business and IT alignment	EA Value	Policy enforcement
Business Architecture	EA Visibility	Process integration
Capacity Constraints	EAM Importance	Products and services
Change Management	Engagement	Roles and Responsibility
Collaboration	Governance	Solution Architecture
Communication	Knowledge Barrier	Solution visibility
EA Advisory	Lack of business understanding	Stakeholder Management
EA Education	Lack of EA services understanding	Stakeholder Needs satisfaction
EA Foundation	Lack of prioritisation	Standardisation
EA Mandate	Lack of Roadmaps	Strategic Alignment
EA Operating model	Lack of understanding	Strategic fit
EA resource Capacity	Marketing	Unclear EA Mandate
EA Skills	Organisation Culture	

Table 38: List of EAM Dimensions - EA Practitioners

The constructs were created by classifying the concepts into themes or ideas that were linked by the construct name. Only the top concepts that had been identified through the results concluded in **Chapter 5** were used. This view is depicted in Figure 90: Chapter 5 concept classification into constructs and was compared and validated against the conclusion of **Chapter 4** to increase the accuracy of identifying vital dimensions that increase the success of EAM.

EAM Alignment	EAM Compliance	EAM Enablement	EAM Transition
• Business Architecture • EA Advisory • EA Foundation • EA Mandate • EA Operating model • EA Skills • EA Value • EAM Importance • Lack of business understanding • Roles and Responsibility • Solution Architecture • Stakeholder Needs satisfaction • Unclear EA Mandate	• Business and IT alignment • Governance • Policy enforcement • Strategic Alignment • Strategic fit	• Capacity Constraints • EA resource Capacity • Lack of EA services understanding • Lack of prioritisation • Process integration • Standardisation	• Collaboration • Change Management • Communication • EA Education • EA Visibility • engagement • Knowledge Barrier • Lack of Roadmaps • lack of understanding • Marketing • Organisation Culture • Products and services • Solution visibility • Stakeholder Management

Figure 90: Chapter 5 concept classification into constructs

After analysing the results in **Chapters 4 and 5**, only a small percentage of change was identified. Regarding the EAM alignment theme, the practitioners focused a lot on business-related dimensions like business architecture foundational elements not adequately documented or known, and poor understanding of the business and their needs and not having an effective engagement plan. EAM compliance in **Chapter 4** seemed to focus on the EA practice and obtaining alignment from within while in **Chapter 5**, it was more focused on aligning the EAM practice into the rest of the organisation with a specific focus on strategic alignment and similar to the previous theme, the alignment between business and IT. In the third theme, capacity constraints and a lack of understanding in terms of the EAM services were the differentiators. Having these dimensions running in isolation was a major concern, making process integration something vital for success. The last theme saw many similarities between **Chapters 4 and 5**, but there was a sense of this entire theme lacking as it was seen as something that would be developed naturally and did not need any special attention.

7.3.3 Maturity Model Components

Chapter 6 reports on the third stage of the development cycle. This chapter executed an SLR that concluded with the identification of the components and their associated qualities. Many of the dimensions identified in **Chapter 4** and **Chapter 5** had strong relevance to people. Besides assessing the capabilities regarding process and technology was the

assessment of qualities that tested people capability as well. Each maturity model component was examined and classified into three focus areas: people, process and technology, as depicted in Figure 91: EAM Capability Construct.

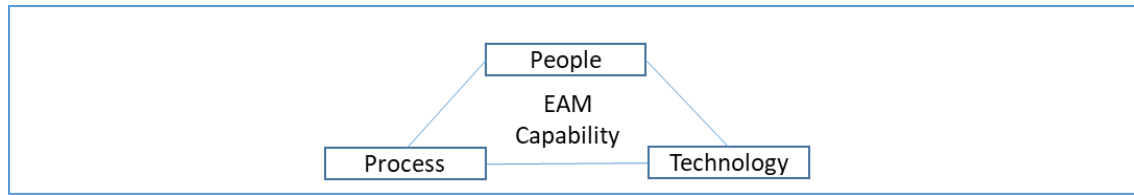


Figure 91: EAM Capability Construct

Chapter 6 concluded with the maturity levels that were identified as key for the successful measuring of each EAM dimension that fitted into the capabilities identified above. These maturity levels resulted from an SLR that included 13 primary studies and were related to aspects of EAM maturity levels that influence EAM. The maturity levels that resulted from this SLR is depicted in Figure 92: Maturity level definition.

People	Process	Technology
• Level 1 – Ad hoc • Level 2 – Repeatable • Level 3 – Defined • Level 4 – Managed • Level 5 – Optimised	• Level 1 – Initial/Ad hoc • Level 2 – Repeatable • Level 3 – Defined • Level 4 – Managed • Level 5 – Optimised	• Level 1 – Initial/Ad hoc • Level 2 – Repeatable • Level 3 – Defined • Level 4 – Managed • Level 5 – Optimised

Figure 92: Maturity level definition

Many existing EA maturity models focus on two of these capabilities within EAM. When we examine the dimensions identified in **Chapters 4** and **5** we see that the three capabilities above are equally important and impacted when you address the needs of the EAM practice. Focusing on process and technology alone is not enough to increase the success of the EAM practice. Having the best processes and technology does not mean much if the people who are adopting them do not have the skills or competencies. The sociotechnology factors play a vital role in increasing success. The combination of people, process and technology has become essential and is required to measure the maturity of EAM in order to ensure improvement which may result in a more successful EAM practice.

7.4 EAM ASSESSMENT DEVELOPMENT

The design and analysis of the EAM assessment framework formed the final stage of the development cycle. The final development was completed in alignment with MRQ1 and its objective. The eMA framework can be used to assess the as-is state in the maturity of the EAM practice within an organisation. The approach that was used in this study for the development of the assessment framework is depicted in Figure 93: eMA Framework Development and is made up of the culmination from **Chapters 4, 5 and 6**.

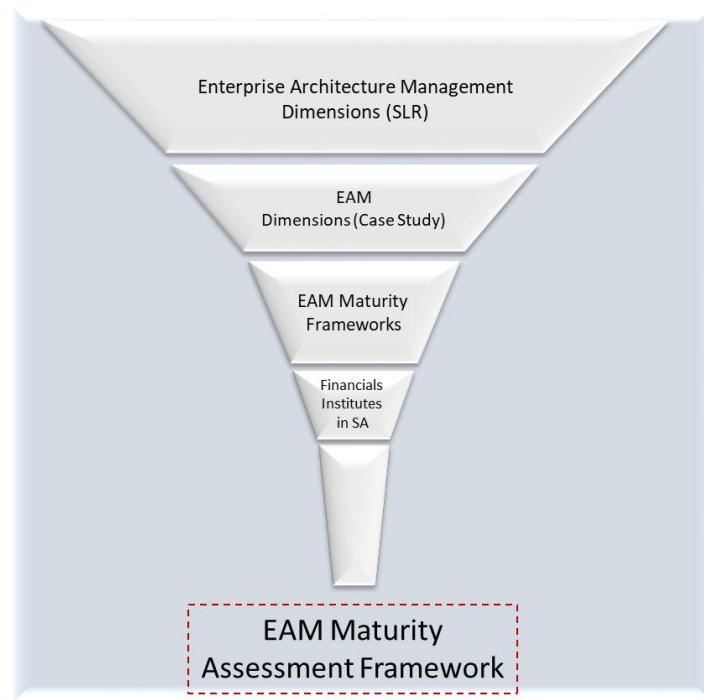


Figure 93: eMA Framework Development

Through the analysis of the data in **Chapters 4, 5 and 6**, the study was able to identify vital dimensions of EAM in support of a more successful practice. The identified dimensions become the foundation from which the EAM assessment framework is built for these dimensions to provide meaningful insights for improvement. The dimensions described in Section 7.2 as concepts were further classified into constructs or themes as discussed in Section 7.3. Each dimension was classified into its relevant themes and extended to provide a description and rationale for their importance. Every dimension also required for the maturity level associated with it as determined through the conclusion of **Chapter 6** to be given a score for the measurement of its maturity. In the subsequent section, the complete

details are described and will be used to calculate the maturity level in **Chapter 8**, which addresses the testing and validation of this assessment framework. The scoring matrix used is similar to standard scoring matrix methods and is as follows,

- Level 1 is equivalent to a score of one
- Level 2 is equivalent to a score of two
- Level 3 is equivalent to a score of three
- Level 4 is equivalent to a score of four
- Level 5 is equivalent to a score of five.

7.4.1 Framework Dimension Definition

In this section, the dimensions that are suggested as part of the maturity framework are discussed. Each dimension consists of the dimension name, rationale, benefit, classification, framework component, questions and scoring guidelines as described in Table 39: Dimension Metadata Description.

Name	Description
Dimension Name	Identifies the name of the dimension
Rationale	Provides the reason for the importance of the dimension
Benefit	Identifies key benefits of having a high maturity of this dimension
Classification	Alignment of the dimensions to the maturity assessment classification type
EAM relation	Alignment of the dimension to the theme/construct
Question	The question that is linked to the dimension to administer the online assessment
Scoring guidelines	Based on the answer of the question, each answer has an associated score which will be used when calculating the maturity score during the assessment.

Table 39: Dimension Metadata Description

In Section 7.4.2, more information is provided on how to measure each dimension that is linked to a question.



1

Dimension Name:	Organisation Culture
Description:	The culture of an organisation is important for the successful adoption of any practice.
Rationale:	Organisational culture is defined by the values of an organisation and provides the guidelines for the expected behaviour in an organisation. Having a culture of learning and willingness to change for the better increases the success of the organisation.
Benefits:	• Increased productivity • Happy human resources • Increased morale
Classification:	☒ People ☐ Process ☐ Technology
Related Framework Component:	☐ Alignment ☐ Enablement ☐ Compliance ☒ Transition
Question:	How will you describe the culture within your EAM practice?
Scoring Criteria	
Level 1: Unintended	Your EAM practice ignores/accepts any type of culture with no plans in place to set or monitor a directional outcome.
Level 2: Idealised	Your EAM practice has a set of values/principles and has basic policies to align with the values. However, it is not accepted or practised.
Level 3: Defined	Formal cultural values are defined and consistently accepted. Cultural awareness exists but is not monitored.
Level 4: Managed	Formal cultural values are defined and consistently accepted. Cultural awareness exists, and active programs are in place to improve or create awareness.
Level 5: Optimised	EAM practice culture is well defined and accepted. Culture is embedded into everything the organisation and practice does.

2



Dimension Name:	Stakeholder Management		
Description:	The process of ensuring that your stakeholder needs are satisfied, thus strengthening the relationship.		
Rationale:	The service you deliver must provide the required value. Communicating the right information at the right time is vital in validating and manages expectations.		
Benefits:	• Manages expectations • Strengthens relationships • Builds reputation/credibility		
Classification:	☒ People	☐ Process	☐ Technology
Related Framework	☒ Alignment	☐ Enablement	
Component:	☐ Compliance	☐ Transition	
Question:	How will you describe stakeholder management in your EAM practice?		
Scoring Criteria			
Level 1: Inconsistent	Inconsistent enforcement of stakeholder management within the EAM practice.		
Level 2: Repeatable	Some stakeholders are known and engagements occur frequently, but no formal process is in place to ensure consistency.		
Level 3: Defined	Formal processes are defined and are fairly consistent across the EA practice; stakeholder hierarchy is documented but some gaps exist with room for improvement.		
Level 4: Managed	Formal processes are defined and are consistent across the EA practice with little/no gaps exist. There is a consistent experience and expectation by most stakeholder management.		
Level 5: Optimised	Formal processes are defined and are consistent across the EA practice; gaps are addressed immediately through a seamless change management process.		

Dimension Name:	EA Operating Model		
Description:	The EAM operating model describes how the organisation will deliver value to its stakeholders, and these services must be available when needed.		
Rationale:	The EAM operating illustrates how human resources and processes are used to provide a service. A great EAM team can only be designed and maintained with resources that cover all elements of EAM.		
Benefits:	• Improved business performance • A clear understanding of roles		
Classification:	☒ People	☐ Process	☐ Technology
Related Framework	☒ Alignment	☐ Enablement	
Component:	☐ Compliance	☐ Transition	
Question:	How well is your organisation EAM operating model aligned to EA best practices?		
Scoring Criteria			
Level 1: Inconsistent	Not alignment		
Level 2: Repeatable	Partial alignment as a result of not fully understanding EA best practice or misinterpretation thereof.		
Level 3: Defined	Partial coverage in the EAM operating model with EA best practice. Plans are in place to be fully resourced.		
Level 4: Managed	Full coverage in the EAM operating model with EA best practice. There is a consistent experience and expectation of the EAM practice. Changes to the operating model are difficult.		
Level 5: Optimised	Full coverage in the EAM operating model with EA best practice. There is a consistent experience and expectation of the EAM practice, and it is fully integrated with the EAM mandate and vision. The operating model easily changes/adapts to evolutions of the EA best practices.		



Dimension Name:	Communication		
Description:	Communication in EAM refers to those activities that aid in the understanding of certain dimensions. This can be in the form of verbal or nonverbal communication, such as illustrations in the form of diagrams.		
Rationale:	Having good communication capability is vital to building a productive and efficient organisation and to realise and showcase the intended value of EAM.		
Benefits:	• Builds trust • Early detection of misalignment • Improves productivity		
Classification:	☒ People	☐ Process	☐ Technology
Related Framework Component:	☐ Alignment	☐ Enablement	
	☐ Compliance	☒ Transition	
Question:	How would you rate your EAM practice communication strategy?		
Scoring Criteria			
Level 1: Inconsistent	Inconsistent communication strategy within the EAM practice.		
Level 2: Repeatable	Communications frequently occur with no formal process in place to ensure consistency. Many gaps exist and are not widely known or visible across the EAM practice.		
Level 3: Defined	A formal communication strategy is defined and is fairly consistent across the EAM practice but some gaps exist with room for improvement. Execution of the EAM communication strategy has a limited reach in the organisation.		
Level 4: Managed	A formal communication strategy is defined and is consistent across the EA practice. The EAM practice communication strategy is understood in most parts of the organisation. There is a consistent experience and expectation by most stakeholders. Nonverbal communication follows a consistent standard.		
Level 5: Optimised	A formal communication strategy is defined and is consistent across the EA practice, and gaps are		

addressed immediately. There is a consistent experience and expectation by all stakeholders. EAM practice communication strategy is understood adequately across the organisation and is well integrated with the EAM capabilities.

5

Dimension Name:	EA Skills		
Description:	EA skills consist of a broad range of capabilities and ranges from technology, application, and integration to modelling. Having the right combination of skills is vital to be able to deliver on the responsibilities of the role.		
Rationale:	EA skills are acquired through experience and more formal training. It is difficult to assess the experience gained from various skills developed. Selecting people with the right skills and the right levels of experience is key to success.		
Benefits:	• This leads to a more successful EA practice • Confidence in the ability of the practice to delivery • Increase credibility through quality outputs		
Classification:	☒ People	☐ Process	☐ Technology
Related Framework Component:	☒ Alignment	☐ Enablement	
	☐ Compliance	☐ Transition	
Question:	How would you rate the skills in your EAM practice?		
Scoring Criteria			
Level 1:Inconsistent	Most of the team skills are lacking and therefore value is not gained from the EAM practice.		
Level 2: Repeatable	EAM skills exist but are not defined with no consistency across the EA team. Not adequately linked to the operating model.		
Level 3: Defined	EAM skills are well defined and linked to the existing operating model, but current competencies are lacking in		



	some individuals. No training development plan is in place.
Level 4: Managed	EA skills are well defined and linked to existing operating models with the assessment of appropriateness in the current environment. Formal training development plans are in place to fill the gap. Formal competencies are maintained, and mentoring programmes are in place and executed well.
Level 5: Optimised	EA skills are well defined and linked to the existing operating model and are continuously assessed for suitability. Continuous skills and training development improvement are well integrated into other capabilities.

6

Dimension Name:	EA resource Capacity		
Description:	Having the right resource capacity to satisfy the needs of the entire organisation is vital. Being under-resourced leads to poor quality of deliverables and work overloading.		
Rationale:	EA consists of many dimensions, and it is difficult to find one resource that specialises in multiple areas. Having the right mix of skills in the correct number of resources is vital.		
Benefits:	• Even distribution of workload • Increased stakeholder satisfaction through quality deliverable • Improved productivity		
Classification:	☒ People	☐ Process	☐ Technology
Related Framework	☐ Alignment	☒ Enablement	
Component:	☐ Compliance	☐ Transition	
Question:	How would you rate your EAM practice current capacity management?		
Scoring Criteria			

Level 1: Inconsistent	EAM practice is seriously under capacitated. No plans to increase resource capacity in the short term.
Level 2: Repeatable	EAM practice is under capacitated but plans to increase resource capacity in the medium term exist, or current coverage of the organisation is equal to or less than 1/3.
Level 3: Defined	EAM practice is under capacitated but plans to increase resource capacity in the short term, or current coverage of the organisation is 2/3.
Level 4: Managed	EAM practice is correctly capacitated with active plans to increase resource capacity in the long term to manage future expectations.
Level 5: Optimised	EAM practice correctly capacitated with active plans to increase resource capacity in specialist areas based on industry needs, i.e., innovation specialist.

7

Dimension Name:	Balance Score Card / Objectives and Key Results (OKR)		
Description:	Measuring the quality and velocity of your deliverables is vital to understanding how you are improving or identifying where you are lacking.		
Rationale:	It assists in getting you to the desired state and creates visibility to all concerning your intentions.		
Benefits:			
Classification:	☒ People	☐ Process	☐ Technology
Related Framework Component:	☐ Alignment	☐ Enablement	
	☒ Compliance	☐ Transition	
Question:	How is success/improvements managed in your EAM practice?		
Scoring Criteria			
Level 1:Inconsistent	No measurement criteria exist.		
Level 2: Repeatable	Measurement criteria defined but is only adopted by a few.		
Level 3: Defined	Measurement criteria are defined and are only adopted but are not improved or adapted.		



Level 4: Managed	Measurement criteria are defined, monitored, adopted and are used to identify improvement areas or gaps.
Level 5: Optimised	Measurement criteria are defined, monitored and adapted to continuously improve and is well integrated into the change management process.

8

Dimension Name:	EAM Awareness/Education		
Description:	EA awareness is extremely important to help the organisation to be aware of the practice and the implication and expectations.		
Rationale:	Not knowing or celebrating successes that are linked to the mandate of the EAM practice makes it difficult for the organisation to have the confidence to make use of the services.		
Benefits:	• Creates visibility of the practice • Builds credibility and trust • Increases the value gain from EAM		
Classification:	☒ People	☐ Process	☐ Technology
Related Framework	☐ Alignment	☐ Enablement	
Component:	☐ Compliance	☒ Transition	
Question:	What is the perception of awareness with regard to your EAM practices and the products and services they provide in your organisation?		
Scoring Criteria			
Level 1:Inconsistent	Very few employees know/understand that the organisation has an EAM practice.		
Level 2: Repeatable	EAM practice exists, but only employees with a direct working relationship understand part of their role based on the requirement at hand.		
Level 3: Defined	EAM practice is well defined with certain dimensions, and information can be found on a portal or interface.		

	However, not all areas are covered or explained sufficiently.
Level 4: Managed	EAM practice is well defined, and information can be found on a portal or interface. Regular roadshows that educates employees on the services and successes exist.
Level 5: Optimised	EAM practice is well understood and utilised with all information available online with self-service functionality to make use of any services.

9

Dimension Name:	Training		
Description:	Technology is progressing at an extremely fast pace, and it is often not realistic to be trained on everything available. Having a training plan for items that are relevant to your organisation is vital to stay current and competitive.		
Rationale:	To be the most effective in a role, additional training may be required.		
Benefits:	• Increased job satisfaction • Increased productivity • Increased efficiency		
Classification:	☒ People	☐ Process	☐ Technology
Related Framework	☐ Alignment	☐ Enablement	
Component:	☐ Compliance	☒ Transition	
Question:	How would you rate the EAM training programme for new skills/technology development?		
Scoring Criteria			
Level 1:Inconsistent	Nonexistent. Employees are expected to self-learn popularly used technologies/trends with no formal training plan.		
Level 2: Repeatable	The programme exists for commonly used technologies. However, these are for a selected few and requires high motivation.		



Level 3: Defined	Programmes exist for commonly used technologies for all EAM resources, but it is up to the individuals to plan and manage their training path.
Level 4: Managed	Programmes exist for commonly used technologies for all EAM resources and include training that is seen as a niche with motivation. Proactive plans are built into the individual's personal development plans and are managed. Not all EAM resources have been trained and certified in a minimum prescribe training qualification.
Level 5: Optimised	All EAM resources have been trained and certified in a minimum prescribed training qualification, all relevant to the job at hand. Continuous skills and training development improvement. Well, they are integrated into other capabilities.

10

Dimension Name:	EAM Adoption		
Description:	No service is deemed successful if it is not adopted and utilised. Adoption results in the willingness to apply a process or procedure with the necessary buy-in that value will be received.		
Rationale:	Adoption is easily done if something is not complicated and it is easy to understand and use.		
Benefits:	• Practice success • Increase productivity • Increased efficiency		
Classification:	☒ People	☐ Process	☐ Technology
Related Framework	☐ Alignment	☐ Enablement	
Component:	☐ Compliance	☒ Transition	
Question:	How will you rate the willingness to adopt EAM in your organisation?		
Scoring Criteria			
Level 1:Inconsistent	Employees are reluctant to adopt EAM.		



Level 2: Repeatable	Adoption can only be seen in certain areas of the organisation.
Level 3: Defined	Many employees see the value in EAM and adopted some elements, but buy-in across the organisation is still required.
Level 4: Managed	Many employees see the value in EAM and adopted EAM, but buy-in across the organisation is still required. Proactive measures are being taken into account to increase the adoption level.
Level 5: Optimised	EAM is fully adopted in the organisation.

11

Dimension Name:	Roles and Responsibility		
Description:	A role refers to the position you hold and responsibilities refer to the duties that role possesses. Understanding the roles and responsibilities is vital in that everyone is clear on what is required of them without breaching anyone’s boundaries.		
Rationale:	Understanding exactly what you are required to achieve is vital. Working within someone else’s boundaries is counterproductive and introduces inefficiencies.		
Benefits:	• Improved productivity • Increased efficiency		
Classification:	☒ People	☐ Process	☐ Technology
Related Framework Component:	☒ Alignment	☐ Enablement	
	☐ Compliance	☐ Transition	
Question:	How would you describe the EAM roles and responsibilities in the EAM practice?		
Scoring Criteria			
Level 1:Inconsistent	Inconsistent enforcement with no clear roles and responsibilities defined.		
Level 2: Repeatable	Formal roles and responsibilities are defined but not clear to everyone.		



Level 3: Defined	Formal roles and responsibilities are defined. Although not clear to everyone, there is fairly consistent delivery across resources. Some gap analysis is required to further competencies.
Level 4: Managed	Formal competencies maintained. Mentoring programmes are in place and executed well.
Level 5: Optimised	Continuous skills and training development improvement. Well integrated into other capabilities

12

Dimension Name:	Collaboration
Description:	Collaboration refers to the ability to work together in producing a deliverable. This can be the form of two people or many people as part of a project.
Rationale:	Collaboration enables individuals to work together to deliver a common outcome.
Benefits:	• Practice success • Increase productivity • Increased efficiency
Classification:	☒ People ☐ Process ☐ Technology
Related Framework Component:	☐ Alignment ☐ Enablement ☐ Compliance ☒ Transition
Question:	How will you rate the collaboration capability of the EAM practice?

Scoring Criteria

Level 1: Inconsistent	Little/no collaboration mechanisms in place.
Level 2: Repeatable	Collaboration processes are not defined, but it completed at an individual level based on his/her experience.
Level 3: Defined	Collaboration processes between departments/ individuals are defined and follow a consistent way across the organisation. Stricter enforcement is required.
Level 4: Managed	Collaboration processes between departments/ individuals are defined and followed across the

organisation. Technological tools have been implemented to enable and facilitate collaboration.

Level 5: Optimised

Technological tools have been implemented to enable and facilitate collaboration. Process and technology work well to produce a seamless integration.

13

Dimension Name:	Committee Compliance		
Description:	Compliance addresses the need to ensure adherence to guidelines and policies. Without it, there is no means of regulating how decisions are made or actions are taken.		
Rationale:	Enforcing compliance ensures a level of standard and that policies associated with the EAM are adhered to.		
Benefits:	• Strengthen credibility • Maintains a level of standards across the organisation		
Classification:	☒ People	☐ Process	☐ Technology
Related Framework	☐ Alignment	☐ Enablement	
Component:	☒ Compliance	☐ Transition	
Question:	How is compliance enforced within your EAM Practice?		
Scoring Criteria			
Level 1: Inconsistent	Little/no compliance is enforced		
Level 2: Repeatable	A compliance committee exists but terms of reference/expectation are not clear with very little benefit realised.		
Level 3: Defined	Compliance committees exist and terms of reference/expectations are clearly defined. Most organisations subscribe to the rules and policies.		
Level 4: Managed	Compliance committees exist and terms of reference/expectations are clearly defined. Compliance committees are inherent in the delivery cycle of the organisation.		



Level 5: Optimised	Technological tools have been implemented to enable and facilitate compliance committees. Process and technology work well to produce a seamless integration.

14

Dimension Name:	Methodology		
Description:	The methodology provides the guidelines/steps required to deliver on EAM outcomes.		
Rationale:	Following a methodology provides a consistent experience to delivering EAM outcomes.		
Benefits:	• Standardise approach • Increase productivity • Improved efficiency		
Classification:	☐ People	☒ Process	☐ Technology
Related Framework Component:	☒ Alignment	☐ Enablement	
	☐ Compliance	☐ Transition	
Question:	To what level is an EAM methodology implemented and followed within your EAM practice?		
Scoring Criteria			
Level 1:Inconsistent	More than one methodology is in place based on the resources experience.		
Level 2: Repeatable	A standard methodology is in place and followed; however, the methodology is not widely understood in the rest of the organisation.		
Level 3: Defined	A standard methodology is in place and followed. The methodology is widely understood, but some gaps exist which impede certain employees of the organisation from adopting them.		
Level 4: Managed	A standard methodology is in place and is controlled and executed accordingly. The methodology is widely understood. It is well adopted, but improvements in implementation are still required.		



Level 5: Optimised	The methodology is well adopted throughout the organisation and is continuously assessed for suitability.

15

Dimension Name:	EA Value
Description:	EA improves an organisation through gain productivity, improved efficiencies and quicker time to market, amongst others. These values are gained over time and it's important to identify what is important to the organisation.
Rationale:	There is a broad set of values that can be received from EA. Every organisation must identify what is vital to them and make the necessary strides to achieve those values. All employees must agree on the anticipated value gain from EA.
Benefits:	• Standardised approach • Informed decision-making • Improved efficiency
Classification:	☐ People ☒ Process ☐ Technology
Related Framework Component:	☒ Alignment ☐ Enablement
	☐ Compliance ☐ Transition
Question:	Is the anticipated value from EA understood and agreed upon across the enterprise?
Scoring Criteria	
Level 1: Inconsistent	No agreement on the anticipated EA value exists.
Level 2: Repeatable	Different expectations from EA value existing in the organisation.
Level 3: Defined	The EA value is defined and agreed upon. The values are still to be accepted by the rest of the organisation.
Level 4: Managed	The EA value is defined and agreed upon. The values are accepted by the rest of the organisation. However, there is room for improvement.
Level 5: Optimised	The EA value is optimised and implemented through the change management capability seamlessly.



16

Dimension Name:	Policy Enforcement		
Description:	Policy enforcement refers to the process of ensuring that policies and governance are adhered to.		
Rationale:	Having policies that are not enforced is as good as not having the policy.		
Benefits:	• Improved efficiency • Strengthen credibility • Maintains a level of standards across the organisation		
Classification:	☐ People	☒ Process	☐ Technology
Related Framework Component:	☐ Alignment	☐ Enablement	
	☒ Compliance	☐ Transition	
Question:	What level of policy enforcement do you have in your EAM practice?		
Scoring Criteria			
Level 1:Inconsistent	Policies exist, but enforcement of policies are managed.		
Level 2: Repeatable	Policies are enforced internally within a team.		
Level 3: Defined	Policies are enforced internally and externally by the team.		
Level 4: Managed	Policies are enforced internally and externally of the team, as well as they are also enforced through the different project governance committees.		
Level 5: Optimised	Policies are enforced internally and externally by the team. They are also enforced through the different governance committees all the way to executive steering committees.		

17

Dimension Name:	EA Framework
Description:	EA framework refers to the building blocks required to develop and implement EA.



Rationale:	It defines how to create and use the dimensions that are the building blocks of the framework.		
Benefits:	• Standardised approach • Increased productivity • Improved efficiency		
Classification:	☐ People	☒ Process	☐ Technology
Related Framework Component:	☒ Alignment	☐ Enablement	
	☐ Compliance	☐ Transition	
Question:	To what level is an EA framework implemented and followed within your EAM practice?		
Scoring Criteria			
Level 1:Inconsistent	More than one EA framework is in place based on the resources experience.		
Level 2: Repeatable	A standard EA framework is in place and followed; however, the EA framework is not widely understood in the rest of the EAM practice.		
Level 3: Defined	A standard EA framework is in place and followed. The EA framework is widely understood, but there are some gaps which impede certain employees of the EAM practice from adopting them.		
Level 4: Managed	A standard EA framework is in place and followed. The EA framework is widely understood. It is well adopted, but improvements in implementation are still required.		
Level 5: Optimised	The EA framework is well adopted throughout the organisation.		

18

Dimension Name:	Standardisation
Description:	Standardisation refers to making something conform based on an agreement.
Rationale:	The purpose of standardisation is to enforce a level of consistency.
Benefits:	• Standardised approach



- Increased productivity
- Improved efficiency

Classification:	☐ People	☒ Process	☐ Technology
Related Framework	☒ Alignment	☐ Enablement	
Component:	☐ Compliance	☐ Transition	
Question:	To what level is standardisation implemented and followed within your EAM practice?		

Scoring Criteria

Level 1: Inconsistent	No/little standardisation is in place.
Level 2: Repeatable	Standardisation is in place and followed but is not widely used / agreed upon in the rest of the EAM practice.
Level 3: Defined	Standardisation is in place and followed within the EAM practice. Standardisation is widely understood, but there are some gaps which impede certain employees of the organisation from adopting them.
Level 4: Managed	Standardisation is in place and followed throughout the organisation. The standardisation is widely understood. It is well adopted but improvements in implementation are still required.
Level 5: Optimised	Standardisation is well adopted throughout the organisation. The organisation process for adding new standards is seamless integration to the change management process.

19

Dimension Name:	Process Integration
Description:	Process integration refers to how EAM practice integrates with the rest of the organisation departments.
Rationale:	Success in one area does not equate to success in EAM if it cannot seamlessly integrate with other areas of the organisation.
Benefits:	• Standardised approach • Increased productivity



- Improved efficiency

Classification:	☐ People	☒ Process	☐ Technology
Related Framework Component:	☐ Alignment	☒ Enablement	
	☐ Compliance	☐ Transition	
Question:	To what level is process integration implemented and followed within your EAM practice?		
Scoring Criteria			
Level 1: Inconsistent	No or little agreement on the implementation of process integration between departments/teams exist.		
Level 2: Repeatable	Some process integration definitions are defined in areas within the EAM practice.		
Level 3: Defined	Full process integration definitions are defined in areas within the EAM practice, and some process integration is defined between areas within IT.		
Level 4: Managed	Full process integration definitions are defined in areas within the EAM practice and IT, while some process integration is defined with business and strategic teams.		
Level 5: Optimised	Processes are defined in all areas. Processes are known across the organisation and are actively being improved and well integrated into other capabilities such as change management.		

20

Dimension Name:	Demand Management
Description:	Demand management refers to the planning and management process of new delivery items following the framework and methodology.
Rationale:	Demand management assists with identifying vital outcomes from the trivial deliverables by prioritising deliverables as they are received.
Benefits:	• Improved efficiency • Improved productivity • Effective delivery through prioritisation



Classification:	☐ People	☒ Process	☐ Technology
Related Framework Component:	☐ Alignment	☒ Enablement	
	☐ Compliance	☐ Transition	
Question:	To what level is demand management implemented and followed within your EAM practice?		
Scoring Criteria			
Level 1: Inconsistent	No demand management processes are defined—no or little no agreement on the management of new demand.		
Level 2: Repeatable	Some demand management processes and governance are defined. Demand management processes are not known across the organisation.		
Level 3: Defined	Demand management processes are well defined but not adequately controlled. Processes are known across selected parts of the organisation.		
Level 4: Managed	Demand management is well defined in all areas; processes are known across the organisation and is widely accepted.		
Level 5: Optimised	Demand management processes are defined in all areas; processes are known across the organisation and is actively being improved of efficiency. Well integrated into other capabilities and controlled accordingly.		

21

Dimension Name:	Documentation
Description:	Documentation refers to the documented artefacts that are created as a result of the adoption of EAM.
Rationale:	Having documentation readily available that describes the as-is state save time in having to do it whenever required.
Benefits:	• Improved productivity • Increased efficiency • Quicker time to delivery
Classification:	☐ People ☒ Process ☐ Technology
Related Framework	☐ Alignment ☒ Enablement



Component:	☐ Compliance ☐ Transition
Question:	To what level is documentation created, managed and followed within your EAM practice?
Scoring Criteria	
Level 1: Inconsistent	Some document management processes and templates are defined in some areas but are not known/controlled across the EAM practice.
Level 2: Repeatable	Document management processes and templates are defined. Processes are known across parts of the EAM practice. Quality management for the deliverable exists but is not adequately enforced.
Level 3: Defined	Document management processes and templates are defined. Processes are known across the EAM practice and are widely accepted. Most templates for each deliverable is available, and quality management is enforced.
Level 4: Managed	Processes are known across the organisation and are widely accepted. All templates for each deliverable is available, and quality management is controlled and makes use of integrated technology for the management thereof.
Level 5: Optimised	Seamless integration between the creation and management of documentation using technology as a central repository with continuous improvement to templates implemented seamlessly through change management.

22

Dimension Name:	Principles
Description:	Principles refer to the beliefs in which a system must operate. It acts as a guideline that you must stay within.
Rationale:	Adopting principles assist with the standardisation and efficient operation of your daily tasks.
Benefits:	• Improved productivity



- Increased efficiency
- Quicker time to delivery

Classification:	☐ People	☒ Process	☐ Technology
Related Framework	☒ Alignment	☐ Enablement	
Component:	☐ Compliance	☐ Transition	
Question:	To what level is the EA Principles implemented and followed within your EAM practice?		
Scoring Criteria			
Level 1: Inconsistent	Little/no subscription to EA principles.		
Level 2: Repeatable	Principles are in place and followed; however, the EA Principles is not widely understood or approved by the rest of the organisation.		
Level 3: Defined	Principles are in place and followed locally in the EAM practice. The EA principles are widely understood and are used to validate EAM artefacts. Some gaps exist in identifying and relating some of the principles.		
Level 4: Managed	All principles are in place and controlled and executed by the broader governance committees. The EA Principles are widely understood and adopted.		
Level 5: Optimised	Principles are well adopted throughout the organisation and are continuously assessed for suitability. The organisation process for adding new processes is seamlessly integrated with the change management process.		

Dimension Name:	Visibility/Online information
Description:	Visibility refers to actively communicating what the organisation regards as products, services and successes.
Rationale:	EA is a fairly new concept. Repetition on the education of the EAM practice instils confidence and increase adoption.

Benefits:	• Improved efficiency • Improved productivity • Increased credibility
Classification:	☐ People ☒ Process ☐ Technology
Related Framework	☐ Alignment ☒ Enablement
Component:	☐ Compliance ☒ Transition
Question:	How easy is it to find products, services and EAM related information in your organisation?
Scoring Criteria	
Level 1: Inconsistent	It is achieved through engaging directly with resources of the EAM practice, i.e., a very manual process.
Level 2: Repeatable	Online portals exist but limited information, which is not very helpful to stakeholders.
Level 3: Defined	Online portals exist with limited valuable information; however, not many employees are aware of the portal site.
Level 4: Managed	An online portal exists with full information regarding the EAM practice. Most employees across the organisation are aware of the portal site. They are consistently updating the site with relevant information.
Level 5: Optimised	EAM practice is well understood and utilised with all information available online with self-service functionality to make use of any services.
24	
Dimension Name:	Maturity Assessment
Description:	Maturity assessment refers to the ability to assess your current state through measurement criteria. This provides a view of the maturity of the practice.
Rationale:	Understanding the current state assists with identifying gaps in the EAM practice, thus allowing you to focus on the areas of improvement.
Benefits:	• Improved efficiency • Improved productivity



- Increased credibility

Classification:	☐ People	☒ Process	☐ Technology
Related Framework	☐ Alignment	☒ Enablement	
Component:	☒ Compliance	☐ Transition	
Question:	How often is the state of the EAM practice assessed and improved?		
Scoring Criteria			
Level 1: Inconsistent	The last assessment was done more than five years ago.		
Level 2: Repeatable	The assessment was done less than five years ago.		
Level 3: Defined	Assessment is done every two years.		
Level 4: Managed	Assessment is done every year.		
Level 5: Optimised	Assessment is done continuously, and improvement is implemented through the change management process.		

25

Dimension Name:	Roadmap Definitions		
Description:	Roadmap definition refers to both the business and technology long-term planning/vision. A successful EAM practice always has a long term plan that worked towards.		
Rationale:	A roadmap defines the vision or the desired outcome.		
Benefits:	• Improved efficiency • Improved productivity • Increased credibility		
Classification:	☐ People	☒ Process	☐ Technology
Related Framework	☐ Alignment	☐ Enablement	
Component:	☐ Compliance	☒ Transition	
Question:	How often are roadmaps created and managed in the EAM practice?		
Scoring Criteria			
Level 1: Inconsistent	Little/no use EA roadmaps.		
Level 2: Repeatable	Roadmap definitions are done in isolated occurrences.		



Level 3: Defined	Roadmaps are created at a project level for a large project only.
Level 4: Managed	Roadmaps are created at a programme/department level and are used for decision making at an EAM practice level.
Level 5: Optimised	Roadmaps are created at a department level with good integration in other department roadmaps and are used for the decision making at an executive level.

26

Dimension Name:	Application Architecture		
Description:	Application architecture refers to how well the application architecture artefacts are documented and managed.		
Rationale:	Having documentation that describes the as-is state readily available saves time in having to do it whenever required.		
Benefits:	• Improved productivity • Increased efficiency • Quicker time to delivery		
Classification:	☒ People	☐ Process	☐ Technology
Related Framework	☒ Alignment	☐ Enablement	
Component:	☐ Compliance	☐ Transition	
Question:	To what level is application architecture artefacts created, managed and adopted within your EAM practice?		
Scoring Criteria			
Level 1:Inconsistent	Application architecture definition processes and templates are defined but are not known across the EAM practice.		
Level 2: Repeatable	Application architecture artefacts for the current landscape is well documented and is available for use.		
Level 3: Defined	Application architecture artefacts for the target state is well documented and is available for use.		



Level 4: Managed	Application architecture artefacts for the roadmaps is well documented and is available for use.
Level 5: Optimised	Seamless integration into the other architectural domains using technology as a central repository with continuous improvements through change management.

27

Dimension Name:	Business/IT Alignment		
Description:	Business/IT alignment refers to the agreed alignment between the business needs and technical needs of an organisation.		
Rationale:	It is vital for the business to understand the implication of their needs to the technical teams and vice versa. This ensures that the organisation is working towards the same vision.		
Benefits:	• Improved productivity • Increased efficiency		
Classification:	☐ People	☒ Process	☐ Technology
Related Framework	☒ Alignment	☐ Enablement	
Component:	☐ Compliance	☐ Transition	
Question:	To what level is business/IT alignment maintained and adopted within your EAM practice?		
Scoring Criteria			
Level 1:Inconsistent	Little/no business/IT alignment is enforced		
Level 2: Repeatable	Business/IT alignment exists but terms of reference/expectation are not clear and very little benefit realised.		
Level 3: Defined	Business/IT alignment exists, and terms of reference/expectations are clearly defined. Most of the organisation subscribe to the rules and policies.		
Level 4: Managed	Business/IT alignment exists, and terms of reference/expectations are clearly defined. Business/IT alignment is inherent in the delivery cycle of the organisation.		



Level 5: Optimised	N/A
28	
Dimension Name:	EAM Vision
Description:	EA vision describes what the end goal for EA will look like and speak to where you want to be in the future with EAM practice.
Rationale:	It's not possible to reach any destination if you do not understand where you want to go. Understanding where the organisation wants EAM to be is vital for the success of the practice.
Benefits:	• Improved productivity • Increased efficiency • Builds credibility
Classification:	☐ People ☒ Process ☐ Technology
Related Framework Component:	☒ Alignment ☐ Enablement
	☐ Compliance ☐ Transition
Question:	How would you describe the development and execution of the EAM vision within the practice?
Scoring Criteria	
Level 1: Inconsistent	No EAM vision definition is defined or approved.
Level 2: Repeatable	EAM Vision definition is defined but not aligned to organisation strategy. Plans are being put in place to address the concern with an approved vision.
Level 3: Defined	EAM Vision definition is defined and improved with aligned business goals, baseline and target state architecture.
Level 4: Managed	EAM Vision definition is defined and improved with approved principles and KPIs.
Level 5: Optimised	EAM Vision definition is defined and adopted through the organisation.



Dimension Name:	Goals Alignment		
Description:	Goals alignment refers to the goals set within the very dimensions of the EAM practice, i.e., business architecture deliverable must ultimately align with all other architectural domains.		
Rationale:	Meeting the individual goals might not satisfy the objectives of realising the EAM vision.		
Benefits:	• Improved productivity • Increased efficiency		
Classification:	☐ People	☒ Process	☐ Technology
Related Framework	☒ Alignment	☐ Enablement	
Component:	☐ Compliance	☐ Transition	
Question:	To what level goals alignment created and maintained within your EAM practice?		
Scoring Criteria			
Level 1:Inconsistent	Little/no goals alignment is enforced		
Level 2: Repeatable	Partial goals alignment exist but within one or two other architectural domains.		
Level 3: Defined	Partial goals alignment exist between all architectural domains, however, some gaps exist and there is a proactive measure in place to meet alignment expectations.		
Level 4: Managed	The majority of the goals are aligned between all architectural domains, and there is a proactive measure in place to meet alignment expectations.		
Level 5: Optimised	Full goals alignment is evident.		

Dimension Name:	EAM Capabilities
Description:	EAM capabilities refer to the capabilities required for successful EAM practice. An organisation must satisfy

	their current needs while still growing its capabilities for future needs.
Rationale:	Technology trends are growing at a fast pace, while not all technologies make it into the mainstream of an organisation. The organisation must be able to adopt and support new technologies when required.
Benefits:	• Improved productivity • Increased efficiency
Classification:	☐ People ☒ Process ☐ Technology
Related Framework Component:	☐ Alignment ☐ Enablement ☐ Compliance ☒ Transition
Question:	To what level are EA capabilities adopted and managed within your EAM practice?
Scoring Criteria	
Level 1: Inconsistent	Limited EA capabilities are defined.
Level 2: Repeatable	Formal EA capabilities are defined but are not clear to everyone.
Level 3: Defined	EA capabilities are defined and there is a fairly consistent understanding of the capabilities, however, gap analysis is required for further improvements.
Level 4: Managed	EA capabilities are defined with proactive plans in place to improve all areas of the capabilities.
Level 5: Optimised	EA capabilities are at an optimal level for EAM success.

31

Dimension Name:	Business Architecture
Description:	Business architecture refers to how well the business architecture artefacts are documented and managed.
Rationale:	Having documentation readily available that describes the as-is state saves time in having to do it whenever required.
Benefits:	• Improved productivity • Increased efficiency • Quicker time to delivery



Classification:	☐ People	☒ Process	☐ Technology
Related Framework	☒ Alignment ☐ Enablement		
Component:	☐ Compliance ☐ Transition		
Question:	To what level are business architecture artefacts created, managed and adopted within your EAM practice?		
Scoring Criteria			
Level 1: Inconsistent	Business architecture definition processes and templates are defined, but processes are not known across the organisation.		
Level 2: Repeatable	Business architecture artefacts for the current landscape are well documented and are available for use.		
Level 3: Defined	Business architecture artefacts for the target state are well documented and are available for use.		
Level 4: Managed	Business architecture artefacts for the roadmaps are well documented and are available for use.		
Level 5: Optimised	Seamless integration into the other architectural domains using technology as a central repository with continuous improvements through change management.		

32

Dimension Name:	Change Management		
Description:	Change management refers to the approach to prepare, deliver and support changes introduced in the area of concern.		
Rationale:	Any change that occurs which requires it to be adopted needs controls in place to minimise disruption.		
Benefits:	• Improved productivity • Increased efficiency		
Classification:	☐ People	☒ Process	☐ Technology
Related Framework	☐ Alignment ☐ Enablement		
Component:	☐ Compliance ☒ Transition		
Question:	To what level is change management processes created and maintained within your EAM practice?		



Scoring Criteria	
Level 1: Inconsistent	No or little agreement on the execution of the change management processes.
Level 2: Repeatable	Some change management processes are defined and are managed by a governance process within the EAM governance.
Level 3: Defined	Change management processes are defined. EAM change management influences business projects to gain value from the EAM practice.
Level 4: Managed	Change management processes are defined. EAM change management influences the organisation to gain value from the EAM practice. Makes recommendations to change management processes to meet targets.
Level 5: Optimised	Change management processes are defined in all areas; processes are known across the organisation and is actively being improved of efficiency and well integrated into other capabilities.

33

Dimension Name:	Modelling		
Description:	Modelling refers to the representation of the elements that make an architectural viewpoint.		
Rationale:	Modelling provides a standard method for depicting a particular view.		
Benefits:	• Improved productivity • Increased efficiency		
Classification:	☐ People	☒ Process	☐ Technology
Related Framework	☐ Alignment	☒ Enablement	
Component:	☐ Compliance	☐ Transition	
Question:	To what level are the modelling standards implemented and followed within your EAM practice?		
Scoring Criteria			
Level 1:Inconsistent	Little/no subscription to modelling standards.		



Level 2: Repeatable	Modelling standards are in place and followed, however, the EAM Modelling standards are not widely understood or approved by the rest of the organisation.
Level 3: Defined	Modelling standards are in place and followed locally within the EAM practice. The EAM Modelling standards are widely understood and are used to validate EAM artefact with some gaps existing.
Level 4: Managed	Modelling standards are in place and followed by the broader governance committees. The EAM Modelling standards are widely understood.
Level 5: Optimised	Modelling standards are well adopted throughout the organisation. The organisation's process for adding new processes is seamless integration with the change management process.

34

Dimension Name:	Standards
Description:	The EA standard defines the level of quality or set the level of normal practice.
Rationale:	Standards provide an organisation with the basis for mutual understanding.
Benefits:	• Improved productivity • Increased efficiency
Classification:	☐ People ☒ Process ☐ Technology
Related Framework Component:	☐ Alignment ☒ Enablement ☐ Compliance ☐ Transition
Question:	To what level is the EA standards implemented and followed within your EAM practice?
Scoring Criteria	
Level 1: Inconsistent	Little/no subscription to EA standards.
Level 2: Repeatable	Standards are in place and followed, however, the EAM standards are not widely understood or approved by the rest of the organisation.



Level 3: Defined	Standards are in place and followed locally within EAM practice. The EAM standards are widely understood and are used to validate EAM artefacts.
Level 4: Managed	Standards are in place and followed by the broader governance committees. The EAM standards are widely understood.
Level 5: Optimised	Standards are well adopted throughout the organisation. The organisation's process for adding new processes is seamless integration into the change management process.

35

Dimension Name:	Strategic Alignment
Description:	Strategic alignment is a process that ensures an organisation's structure supports achieving a strategic outcome.
Rationale:	Not having strategic alignment results in failure to meet the organisation's objectives.
Benefits:	• Improved productivity • Increased efficiency
Classification:	☐ People ☒ Process ☐ Technology
Related Framework Component:	☒ Alignment ☐ Enablement
	☐ Compliance ☐ Transition
Question:	To what level is strategic alignment created and maintained within your EAM practice?

Scoring Criteria

Level 1: Inconsistent	Little/no strategic alignment is enforced
Level 2: Repeatable	Partial strategic alignment exists but within one or two other architectural domains.
Level 3: Defined	Partial strategic alignment exists between all architectural domains, however, some gaps exist and there is a proactive measure in place to meet alignment expectations.



Level 4: Managed	Strategic alignment exists between all architectural domains, and there is a proactive measure in place to meet alignment expectations.
Level 5: Optimised	Full goals alignment is evident.

36

Dimension Name:	Execution
Description:	Execution refers to the performing task or set of tasks to achieve a course of action.
Rationale:	Nothing can be achieved if it is not executed correctly or not executed at all.
Benefits:	• Improved productivity • Increased efficiency
Classification:	☐ People ☒ Process ☐ Technology
Related Framework Component:	☐ Alignment ☐ Enablement ☐ Compliance ☒ Transition
Question:	To what level is execution management monitored and maintained within your EAM practice?
Scoring Criteria	
Level 1: Inconsistent	No or little agreement on execution management within EAM.
Level 2: Repeatable	Some execution management controls are defined, but execution management controls are not known across the organisation.
Level 3: Defined	Execution management controls are defined and controls are known across parts of the organisation.
Level 4: Managed	Execution management controls are defined in all areas, and controls are known across the organisation and are widely accepted.
Level 5: Optimised	Execution management controls are defined, processes are known across the organisation and are actively being improved in efficiency and well integrated into other capabilities.



Dimension Name:	Products and Services		
Description:	Products and services refer to the capabilities that are made available to your stakeholders both internally and externally.		
Rationale:	Products and services are the reason for your existence. Without them satisfying specific business needs and outcomes, you will fail.		
Benefits:	• Improved productivity • Increased efficiency		
Classification:	☒ People	☐ Process	☐ Technology
Related Framework Component:	☒ Alignment	☐ Enablement	
	☐ Compliance	☐ Transition	
Question:	How well are the products and services aligned with the EAM capabilities and organisation’s needs?		
Scoring Criteria			
Level 1: Inconsistent	No alignment		
Level 2: Repeatable	Partial alignment as a result of not fully understanding EAM best practice or misinterpretation thereof.		
Level 3: Defined	EAM products and services are defined but are not known to the organisation. Plans are in place for social products and services.		
Level 4: Managed	EA products and services are well known, formally defined and communicated with little/no gaps. There is a consistent experience and expectation of the EAM product and services.		
Level 5: Optimised	EA products and services are well known, formally defined and there is a consistent experience and expectation of the EA practice. Product and services changes are well managed through the change management process.		



Dimension Name:	Solution Architecture		
Description:	Refers to the different components of an IT solution with reference to business, application, data, information and technology architecture.		
Rationale:	Solution architecture ensures that any new solution designed complies with the standards and principles set out by the organisation.		
Benefits:	• Improved productivity • Increased efficiency		
Classification:	☐ People	☒ Process	☐ Technology
Related Framework	☒ Alignment	☐ Enablement	
Component:	☐ Compliance	☐ Transition	
Question:	To what level are solution architecture artefacts created, managed and adopted within your EAM practice?		
Scoring Criteria			
Level 1:Inconsistent	No/little solution architecture definition processes and templates are defined. Deliverables are based on an individual's experience.		
Level 2: Repeatable	Some solution architecture definition processes and templates are defined and are known and adopted within the EAM practice.		
Level 3: Defined	Solution architecture definition processes and templates are defined and are known and adopted within the EAM practice. Some gaps exist, but proactive plans are in place to fill the gaps.		
Level 4: Managed	Solution architecture definition processes and templates are defined and are known and adopted throughout the organisation. All artefacts are managed through the use of technology/software.		
Level 5: Optimised	Seamless integration into the other architectural domains using technology as a central repository with continuous improvements through change management.		



Dimension Name:	Data Architecture
Description:	Data architecture refers to vital data architecture deliverables required to make informed decisions. These include data schemes, integration and storage blueprints that provide a viewpoint of current and target state architectures.
Rationale:	Data architecture ensures that any new data solutions are designed to comply with the standards and principles set out by the organisation.
Benefits:	• Improved productivity • Increased efficiency
Classification:	☐ People ☒ Process ☐ Technology
Related Framework Component:	☒ Alignment ☐ Enablement ☐ Compliance ☐ Transition
Question:	To what level are data architecture artefacts created, managed and adopted within your EAM practice?
Scoring Criteria	
Level 1: Inconsistent	Data architecture definition processes and templates are defined but processes are not controlled/consistent across the EAM practice.
Level 2: Repeatable	Data architecture artefacts for the current landscape are well documented and are available for use.
Level 3: Defined	Data architecture artefacts for the target state are well documented and are available for use.
Level 4: Managed	Data architecture artefacts for the roadmaps are well documented and are available for use.
Level 5: Optimised	Seamless integration into the other architectural domains using technology as a central repository with continuous improvements through change management.

Dimension Name:	Quality Assurance



Description:	Quality assurance refers to maintaining a level of quality in the deliverables that are produced, thus maintaining a level of expectation and standard with the stakeholders.		
Rationale:	Deliverables that do not meet a consistent expectation take away credibility and trust from the team that produces them.		
Benefits:	• Improved productivity • Increased efficiency		
Classification:	☐ People	☒ Process	☐ Technology
Related Framework Component:	☐ Alignment	☐ Enablement	
	☒ Compliance	☐ Transition	
Question:	To what level are quality assurance processes created and maintained within your EAM practice?		
Scoring Criteria			
Level 1: Inconsistent	No quality assurance processes are defined—no or little agreement on the execution of the quality assurance processes.		
Level 2: Repeatable	Some quality assurance processes are defined in some areas. Quality assurance processes are not known across the EAM practice.		
Level 3: Defined	Quality assurance processes are defined in some areas, and processes are known and controlled across the EAM practice.		
Level 4: Managed	Quality assurance is defined in all areas, processes are known across the organisation and are widely accepted.		
Level 5: Optimised	Quality assurance processes are defined in all areas, and processes are known across the organisation and are actively being improved of efficiency and well integrated into other capabilities.		
41			
Dimension Name:	Information Architecture		



Description:	Information architecture refers to the vital information architecture deliverables required to make informed decisions. These include shared information environments that provide a viewpoint of current and target state architectures.		
Rationale:	Information architecture ensures that any new data solutions that are designed comply with the standards and principles set out by the organisation.		
Benefits:	• Improved productivity • Increased efficiency		
Classification:	☐ People	☒ Process	☐ Technology
Related Framework	☒ Alignment ☐ Enablement		
Component:	☐ Compliance ☐ Transition		
Question:	To what level are information architecture artefacts created, managed and adopted within your EAM practice?		
Scoring Criteria			
Level 1: Inconsistent	Information architecture definition processes and templates are defined but are not known across the organisation.		
Level 2: Repeatable	Information architecture artefacts for the current landscape are well documented and are available for use.		
Level 3: Defined	Information architecture artefacts for the target state are well documented and are available for use.		
Level 4: Managed	Information architecture artefacts for the roadmaps are well documented and are available for use.		
Level 5: Optimised	Seamless integration with the other architectural domains using technology as a central repository with continuous improvements through change management.		
42			
Dimension Name:	EA Mandate		



Description:	The EA mandate refers to the expectation from the EA practice and describes the duties and power of authority the practice has to execute its duties.		
Rationale:	Without an EA mandate, executing the functions of the EAM practice becomes challenging to enforce or govern.		
Benefits:	• Improved productivity • Increased efficiency		
Classification:	☐ People	☒ Process	☐ Technology
Related Framework	☒ Alignment	☐ Enablement	
Component:	☐ Compliance	☐ Transition	
Question:	How would you describe the development and execution of the EAM mandate within the practice?		
Scoring Criteria			
Level 1:Inconsistent	The EAM mandate exists but knowledge of the mandate is limited to the EAM practice.		
Level 2: Repeatable	EAM mandate exists but knowledge of the mandate is limited to the IT division.		
Level 3: Defined	EAM Mandate exists and knowledge of the mandate is across the organisation.		
Level 4: Managed	EAM mandate exists and knowledge of the mandate is across the organisation. The EAM Mandate is enforced internally and externally by the team. They are also enforced through the different governance committees.		
Level 5: Optimised	EAM Mandate is enforced throughout the organisation. They are also enforced through the different governance committees all the way to executive steering committees.		

Dimension Name:	IT Operations Engagement
Description:	The process of ensuring that your IT Operations needs are satisfied, thus strengthening the relationship.
Rationale:	The service you provide must provide the required value. Communicating the right information at the right time is

vital in validating what we deliver and manages expectations.

Benefits:	• Manages expectations • Strengthens relationships • Builds reputation/credibility
Classification:	☒ People ☐ Process ☐ Technology
Related Framework Component:	☐ Alignment ☐ Enablement ☐ Compliance ☒ Transition
Question:	How will you describe IT Operations engagement in your organisation?
Scoring Criteria	
Level 1: Inconsistent	Inconsistent enforcement of stakeholder management within the EAM practice.
Level 2: Repeatable	Some stakeholders are known and engagements frequently occur with no formal process in place to ensure consistency.
Level 3: Defined	Formal processes are defined and are fairly consistent across the EA practice. Stakeholder hierarchy is documented, but some gaps exist with room for improvement.
Level 4: Managed	Formal processes are defined and are consistent across the EA practice with little/no gaps. There is a consistent experience and expectation by most stakeholder management.
Level 5: Optimised	Formal processes are defined and are consistent across the EA practice, with gaps being immediately addressed. There is a consistent experience and expectation by all stakeholder management.

Dimension Name:	Technology Architecture
Description:	Technology architecture refers to vital technology architecture deliverables required to make informed

	decisions. These include technology, platforms and infrastructure blueprints that provide a viewpoint of current and target state architectures.
Rationale:	Technology architecture ensures that any new data solutions are designed to comply with the standards and principles set out by the organisation.
Benefits:	• Improved productivity • Increased efficiency
Classification:	☐ People ☒ Process ☐ Technology
Related Framework Component:	☒ Alignment ☐ Enablement
	☐ Compliance ☐ Transition
Question:	To what level are technology architecture artefacts created, managed and adopted within your EAM practice?
Scoring Criteria	
Level 1: Inconsistent	Technology architecture definition processes and templates are defined but are not known across the organisation.
Level 2: Repeatable	Technology architecture artefacts for the current landscape are well documented and are available for use.
Level 3: Defined	Technology architecture artefacts for the target state are well documented and are available for use.
Level 4: Managed	Technology architecture artefacts for the roadmaps are well documented and are available for use.
Level 5: Optimised	Seamless integration into the other architectural domains using technology as a central repository with continuous improvements through change management.

45

Dimension Name:	Artefacts Management (Meta-model management)
Description:	Artefact management refers to the continuous management of artefacts after they have been created.
Rationale:	Keeping outdated artefacts is pointless as no informed decision can be made from them.



Benefits:	• Improved credibility • Improved trust • Willingness to make use of the artefacts.
Classification:	☐ People ☒ Process ☐ Technology
Related Framework Component:	☒ Alignment ☐ Enablement
	☐ Compliance ☐ Transition
Question:	How effective are EAM artefacts created and managed in your organisation?
Scoring Criteria	
Level 1: Inconsistent	Artefact management is based on each individual's experience.
Level 2: Repeatable	Artefact management processes have been defined and standardised but no control/enforcement of the standards.
Level 3: Defined	Artefact management processes have been defined and standardised and controlled/enforced within the EAM practice.
Level 4: Managed	Artefact management has been standardised and controlled/enforced across the organisation.
Level 5: Optimised	Artefact management has been standardised and controlled/enforced across the organisation with new tools easily adopted in the organisation seamlessly through the change management process.

46

Dimension Name:	Insights analysis
Description:	Insights refer to the discovering of information that is not immediately visible but through some analysis, value is gained.
Rationale:	To maintain some sort of competitive edge, gaining insights is a vital strategy in making decisions
Benefits:	• Improved credibility • Improved trust
Classification:	☐ People ☐ Process ☒ Technology



Related Framework	☐ Alignment	☒ Enablement
Component:	☐ Compliance	☐ Transition
Question:	How would you rate your EAM's practice in producing insight analysis from data in their repository?	
Scoring Criteria		
Level 1: Inconsistent	The EAM practice is unable to produce any insight because data is not centralised.	
Level 2: Repeatable	The EAM practice can provide basic level insights based on raw data in the repository.	
Level 3: Defined	The EAM practice can provide some level insights based on the metadata captured in the repository.	
Level 4: Managed	The EAM practice can provide advanced insights based on the relevant management of metadata captured for all artefacts.	
Level 5: Optimised	The organisation can create advanced insights based on predictive and prescriptive tools and technologies in place.	
47		
Dimension Name:	Interoperability	
Description:	Interoperability refers to the ease with which different tools/software share and exchange information to create something that no one tool can do on its own.	
Rationale:	With the many tools that assist with architecture definition and storage it is important to ensure that these systems integrate well to avoid duplication of effort and to get added value.	
Benefits:	- Improved productivity - Increased efficiency	
Classification:	☐ People	☐ Process ☒ Technology
Related Framework	☐ Alignment	☒ Enablement
Component:	☐ Compliance	☐ Transition



Question: To what level is interoperability experienced in your EAM practice?

Scoring Criteria

Level 1: Inconsistent	No interoperability exists. All tools are used in isolation from each other.
Level 2: Repeatable	Partial interoperability through the use of some guidelines that describe how interoperability will occur.
Level 3: Defined	Interoperability processes and frameworks are defined with shared goals in place.
Level 4: Managed	Interoperability through the use of industry standards and frameworks within the EAM practice.
Level 5: Optimised	Interoperability exists throughout the organisation on an ongoing basis. Interoperability running at the optimal level.

48

Dimension Name:	Tools
Description:	Refers to the tools that enable the creation and management of artefacts for EAM.
Rationale:	Ensure efficient and effective use of time while creating artefacts used in EAM.
Benefits:	• Improved productivity • Increased efficiency
Classification:	☐ People ☐ Process ☒ Technology
Related Framework Component:	☐ Alignment ☒ Enablement ☐ Compliance ☐ Transition
Question:	How would you rate the use of tools within the EAM practice?

Scoring Criteria

Level 1: Inconsistent	Tools are utilised based on each individual's needs.
Level 2: Repeatable	Tools have been standardised but have no control/enforcement of the standards.
Level 3: Defined	Tools have been standardised and implemented within the EAM practice but show limited performance impact.



Level 4: Managed	Tools have been standardised and implemented within the EAM practice and show moderate performance impact.
Level 5: Optimised	Tools have been standardised and implemented across the organisation, with new tools easily adopted in the organisation seamlessly through the change management process. Maximum performance impact is gained.

49

Dimension Name:	EAM Repository		
Description:	EAM repository refers to a single location to which artefact and insights modelling can occur.		
Rationale:	Maintaining a single point of management is effective and efficient.		
Benefits:	• Improved productivity • Increased efficiency		
Classification:	☐ People	☐ Process	☒ Technology
Related Framework	☐ Alignment	☒ Enablement	
Component:	☐ Compliance	☐ Transition	
Question:	How effective is the EAM practice repository?		
Scoring Criteria			
Level 1:Inconsistent	Repository maintained on each individual workstation.		
Level 2: Repeatable	Repository maintained in multiple central/shared locations and is not kept updated with changes or no version control in place.		
Level 3: Defined	Repository maintained in a central location with no control over updating artefacts.		
Level 4: Managed	Repository maintained in a central location with strict control over updating artefacts through governance committees within the EAM practice.		
Level 5: Optimised	Repository maintained in a central location with strict control over updating artefacts through governance committees throughout the organisation.		

50

Dimension Name:	Modelling: Ease of use		
Description:	Modelling ease of use refers to the complexities around using a modelling standard to create and maintain consistency in artefacts.		
Rationale:	Adopting more than modelling standard increases complexity and decreases the adoption of the tools resulting in the failure to develop, use and maintain artefacts.		
Benefits:	• Improved productivity • Increased efficiency		
Classification:	☐ People	☐ Process	☒ Technology
Related Framework	☐ Alignment	☐ Enablement	
Component:	☐ Compliance	☒ Transition	
Question:	How would you rate the modelling ease of use across the EAM practice?		
Scoring Criteria			
Level 1: Inconsistent	Modelling use is based on the individual's experience. Hence many modelling standards are in existence.		
Level 2: Repeatable	Modelling standards are defined but only a few subscribe to them.		
Level 3: Defined	Modelling standards are defined with only the EAM practice adopting them.		
Level 4: Managed	Modelling standards are defined and are adopted by the entire organisation.		
Level 5: Optimised	Modelling standards are defined and are continuously assessed and adapted for optimal benefit. Changes are managed through the change management process.		

51

Dimension Name:	EAM Practicality

Description:	Refers to the practicality of the execution and maintenance of EAM in the organisation.		
Rationale:	Often organisations have a little of everything running in the organisation but bringing them together does not make practical sense. Anything not practical leads to the failure to adopt.		
Benefits:	• Improved productivity • Increased efficiency		
Classification:	☐ People	☐ Process	☒ Technology
Related Framework Component:	☐ Alignment	☐ Enablement	
	☐ Compliance	☒ Transition	
Question:	How practical are the chosen capabilities and artefact definitions for achieving the EAM vision?		
Scoring Criteria			
Level 1: Inconsistent	Practically understood and adopted by a few within the EAM practice.		
Level 2: Repeatable	Practically understood and adopted by many within the EAM practice.		
Level 3: Defined	Practically understood and adopted by a few within the organisation.		
Level 4: Managed	Practically understood and adopted by many within the organisation.		
Level 5: Optimised	Practically understood and adopted by all within the organisation.		

7.4.2 EAM Maturity Assessment (eMA) Methodology

The eMA framework is an instrument that can be used by EAM practitioners or organisations that want to determine the current state maturity of their EAM practice. In the previous section, all relevant dimensions were described, classified and linked to a question.

Each question was designed into an online assessment tool for ease of administration and management of result as depicted in Figure 94: Assessment Design Process. The assessment tool begins with a short message describing the assessment and a few rules on how to take the assessment as depicted in Figure 95: eMA Assessment start page

Q2	• Please select the operating area you reside in. ☐ Business ☐ BSTD ☐ Solution Delivery ☐ Strategy
Q3	• 1. How would you describe the culture within your EAM practice? ☐ Your EAM practice ignores/accepts any type of culture with no plans in place to set or monitor a directional outcome. ☐ Your EAM practice has a set of values/principles and has basic policies to align to the values. Although it is not accepted or practiced. ☐ Formal cultural values are defined and fairly consistently accepted. Cultural awareness exist but is not monitored. ☐ Formal cultural values are defined and fairly consistently accepted. Cultural awareness exist and active programs are in place to improve or create awareness. ☐ EAM practice culture is well defined and accepted. Culture is embedded into everything the organisation and practice does.
Q4	• 2. How would you describe stakeholder management in your EAM practice? ☐ Inconsistent enforcement of stakeholder management within the EAM practice. ☐ Some stakeholders are known and engagements occur on a frequent basis but no formal process is in place to ensure consistency. ☐ Formal processes defined and is fairly consistent across the EA practice. Stakeholder hierarchy is documented but some gaps exist with room for improvements.

Figure 94: Assessment Design Process

eMA Assessment

EAM Maturity Assessment Questionnaire

Dear Respondent,

Thank you for choosing to be a part of this Enterprise Architecture Management (EAM) maturity assessment. The purpose of this assessment is to provide an as-is state EAM maturity view of your EA practice. The survey will take you about 45 minutes. This assessment can help determine your EA practice's current level of maturity and assist with identifying improvement areas. The survey is free and forms part of a PhD study, and the information collected will not be shared with third parties. Thank you very much for your time and support.

This questionnaire consist of multiple choice questions. Each question has 5 possible answers, please pick the one that is most appropriate to you based on your perception.

Please start with the survey now by clicking on the **Continue** button below.

[Start](#)

Powered by QuestionPro
Report Abuse

[Create Your First Online Survey](#)
[Create a Survey](#)
[Remove this section](#)

Figure 95: eMA Assessment start page

To execute this assessment the organisation or EAM practice must identify key stakeholders or participants that are impacted by EAM. Each participant is requested to answer a predefined set of questions administered through an online interface. Each question is linked

to an EAM dimension and there are a total of 51 questions that must be answered in order to calculate the average score of each question, answered by each participant of the assessment. Every question is given a score based on the perception of the current state as understood by the participant. The score has a direct relation to the option selected as depicted in Figure 96: Assessment Question Example.

* 2. How would you describe stakeholder management in your EAM practice?

- ☐ Inconsistent enforcement of stakeholder management within the EAM practice.
- ☐ Some stakeholders are known and engagements occur on a frequent basis but no formal process is in place to ensure consistency.
- ☐ Formal processes defined and is fairly consistent across the EA practice. Stakeholder hierarchy is documented but some gaps exist with room for improvements.
- ☐ Formal processes defined and is consistent across the EA practice with little/no gaps exist. There is a consistent experience and expectation by most stakeholder management.
- ☐ Formal processes defined and is consistent across the EA practice and gaps are addressed immediately through a seamless change management process.

Figure 96: Assessment Question Example

The average of all scores collected for each dimension is then summed up to give an overall score per dimension as well as per classification. These classifications can be seen in Figure 97: EAM Assessment Framework and Figure 98: EAM assessment Framework – Dimension Classification and consists of the following areas: foundational, compliance, enablement, transitional within the main framework classification and people, process and technology within the organisation classification. By creating these classification themes, the organisation can then identify the individual's dimensions that require improvement within the framework and identify the large related themes/classifications that are impacted.

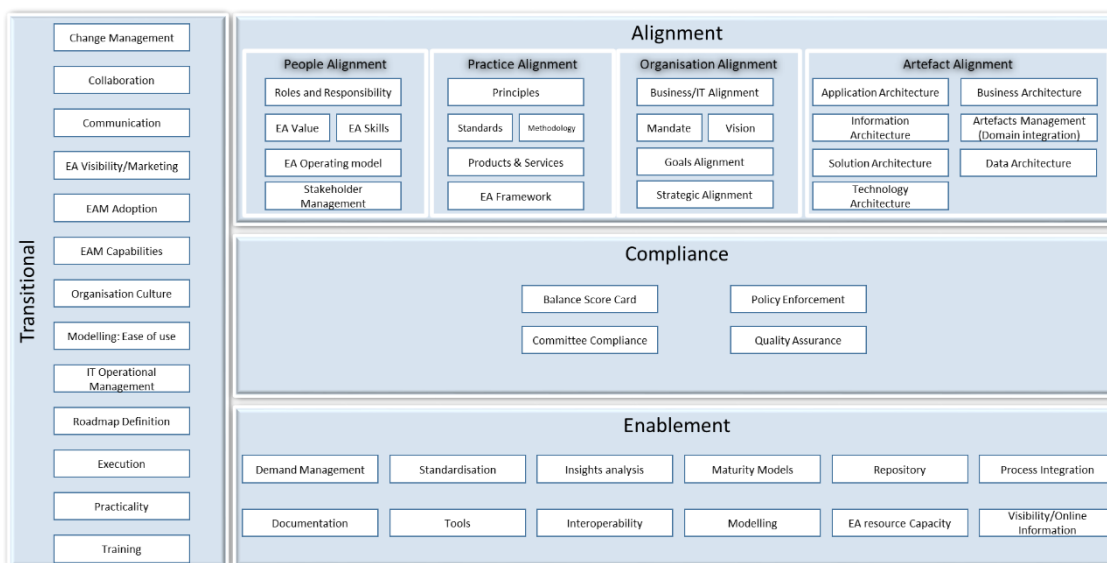


Figure 97: EAM Assessment Framework (electronic view)

By identifying areas that require improvements, organisations or the EAM practice can implement plans that will remediate those areas that are lacking or require improvements. In the subsequent chapter the tool with examples are detailed to illustrate how the framework will be administered and high level recommendations that the organisation could focus on.

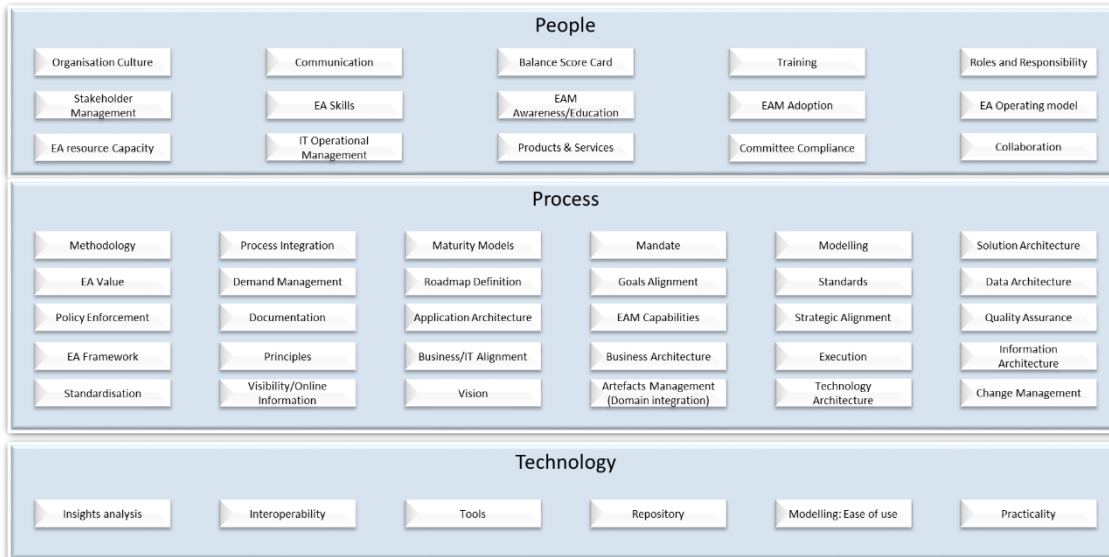


Figure 98: EAM assessment Framework – Dimension Classification

7.5 CHAPTER SUMMARY

This chapter provided the results from the design and analysis of the EAM assessment framework. The chapter explained the relation of the concepts to the constructs and how they were used to create the framework. It also provided a summary of the results from the development subphases before providing a description of the dimension with the questions associated with assisting how to identify the current state maturity level.

Chapter 7 concludes with a pictorial depiction of the framework, describing two viewpoints. These viewpoints provide a view both individually as well as theme related. In Chapter 8, this framework was applied and evaluated before concluding with the final results.

8 ANALYSIS AND EVALUATION

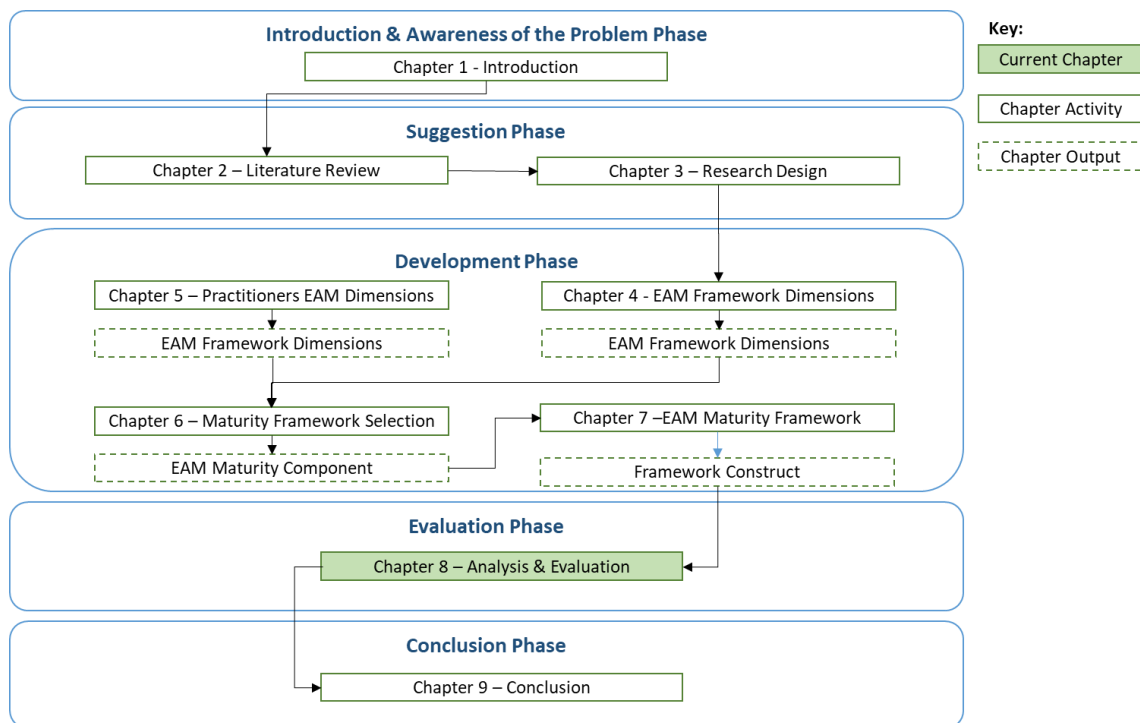


Figure 99: Chapter 8 Thesis Map

8.1 INTRODUCTION

This research started in **Chapter 1** with an introduction and awareness of the problem phase and continued with its relation to the research area, the justification, the deficiency and the purpose for this study. The next phase highlighted suggestions for the problem by providing background and context of the research area in **Chapter 2** as well as the intended research strategy that was followed to execute the research process in **Chapter 3**. In the third phase, the development of the artefact was initiated and was completed in three subphases and documented in **Chapters 4, 5 and 6** and concluded with the design and building of an artefact in **Chapter 7**.

This phase of the study is related to the evaluation of the designed and built artefact which is a framework to assess the maturity of an EAM practice as depicted in Figure 100: Chapter 8 Map. In this chapter, Section 1 introduces the implications of the research process, the need for the study and the research purpose, and concludes the introduction with an understanding of the FEDS framework. Section 2 describes the FEDS process in more detail, addressing the needs within the 4-step process that explores the goals, strategy to

follow, determining the evaluation properties, and designing the episodes. In Section 3, each goal is explored further, and the guidelines from the FEDS framework are adopted and discussed. Section 4 continues with a discussion of the results of the assessment before concluding in the last chapter.

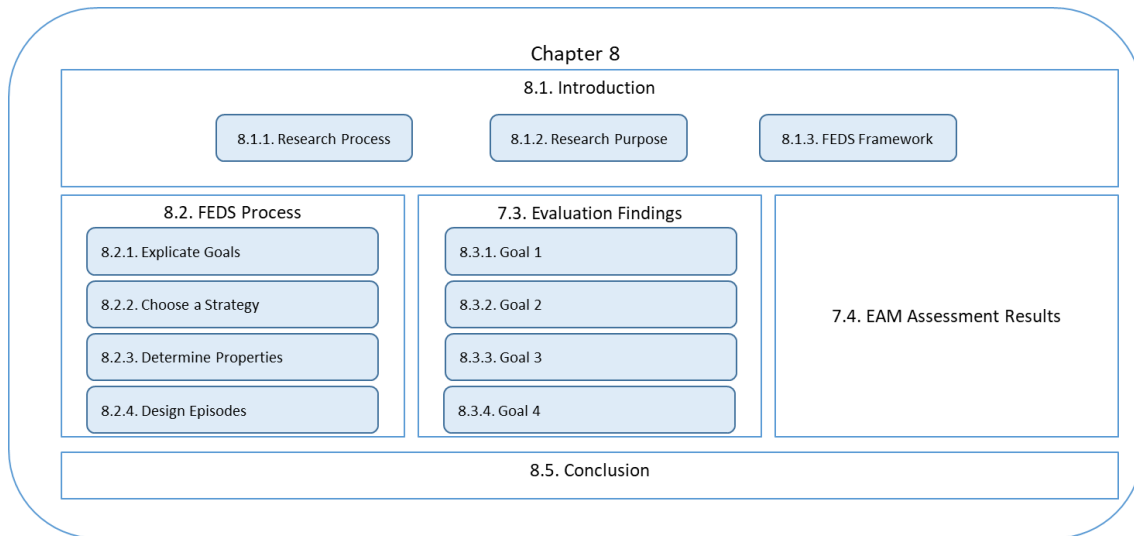


Figure 100: Chapter 8 Map

8.1.1 Research Process

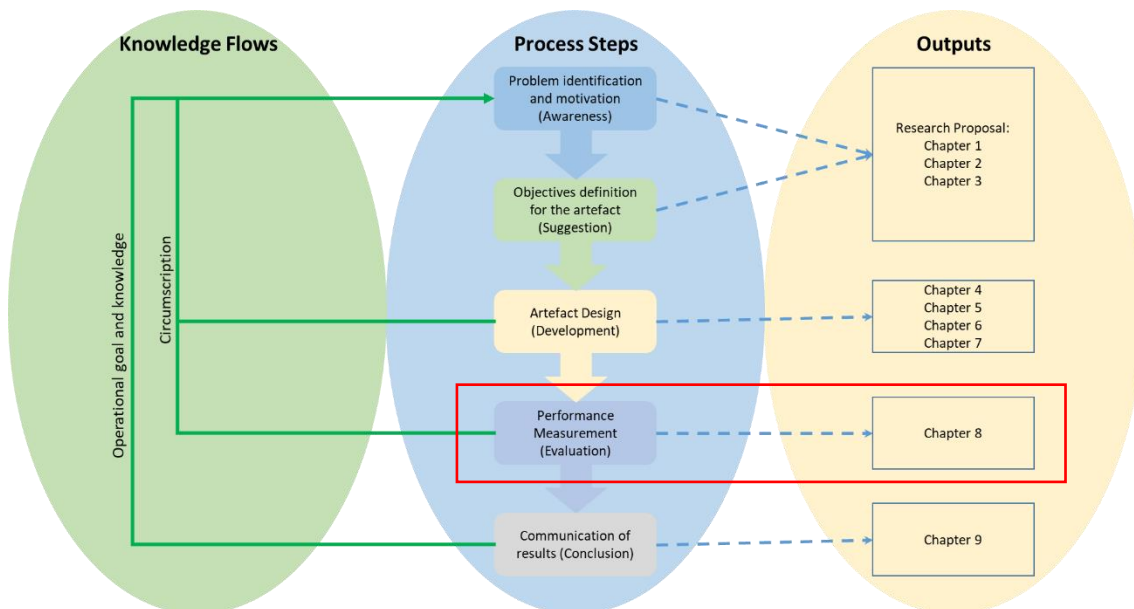


Figure 101: EAM Framework Research Approach

The objective of this study was to develop and evaluate a framework for the assessment of the maturity in an EAM practice, including the evaluation of the framework within an

organisation in the financial services industry using DSR as depicted in the diagram above. The fourth phase of the DSR process involves the evaluation of the EAM Maturity assessment (eMA) developed in Phase 3. The method used to evaluate the artefact was a qualitative approach. The evaluation of the overall EAM maturity assessment was based on the Framework for Evaluation of the Design science research (FEDS) (Venable et al., 2016) and is depicted in Figure 101: EAM Framework Research Approach. A case study in the financial services industry was selected for the evaluation of episodes to execute and evaluate the eMA framework identified using the FEDS process illustrated in Figure 102: FEDS process. Results from the assessment were used to determine the overall maturity level of the EAM practice.

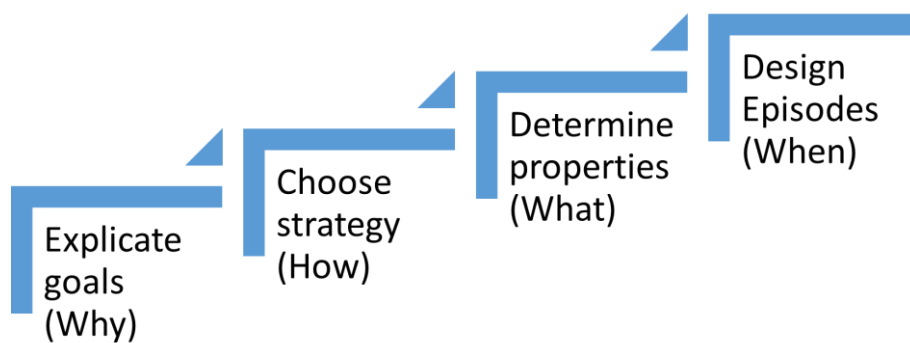


Figure 102: FEDS process

8.1.2 Research Purpose

This study aimed to develop an eMA framework to allow the EAM practice of organisations to better understand the current state of maturity of their EAM practice, to solve the research problem of how to succeed with EA after implementation. Based on the research problem, the main research question is:

“What are the critical components in EAM that can be used to measure its maturity in a financial institute in support of an EAM practice?”

To answer MRQ1 adequately, a set of subquestions needed to be answered. These subquestions directly related to the evaluation goals and consist of the following:

SRQ 1: What are the most critical components within the existing EAM framework that can be used in a maturity framework?

SRQ 2: What are the most critical components of EAM as seen by EAM practitioners in financial institutions?

SRQ 3: What are the components with the associated qualities that are vital to test the maturity of people, processes and technology in existing maturity models?

SRQ 4: How can the newly constructed maturity framework be validated within the selected case study?

To answer the research questions, the DSR strategy was followed and during the development phase of the DSR, subcycle phases were executed aligning to the subquestions listed above. The culmination of the three development cycles resulted in the design and building of the eMA framework. The eMA framework consists of many dimensions that were seen as vital for success during the development phase of this DSR. While each of these dimensions is important individually, the strength of this framework lies in the grouping/classification of the dimensions that influence key aspects of an EAM practice. The eMA framework consists of an assessment questionnaire, EAM dimensions and classifications (based on practice areas) that should assist the organisation to determine their maturity level. Although this framework can be administered in a paper-based format, administering it using technology that exists was used to reduce administrative overheads.

8.1.3 FEDS Framework

The evaluation of design artefacts is a crucial part of the DSR process as it ensures rigour and feedback for future development (Venable et al., 2016). Venable et al. (2016) identified many approaches for the evaluation of design artefacts and outlined a four-step process to guide researchers in developing their evaluation strategy.

It is important to identify the categories that are vital for the evaluation of the design artefact; some of the most used categories are (1) formative vs summative and (2) *ex-ante* vs *ex-post* (Remenyi & Sherwood-Smith, 2012). Each category aligns with intended goals, which are linked to the objectives of the evaluation process, thereby creating a link between evaluation goals and the evaluation strategy (Venable et al., 2016). The FEDS framework was developed based on two dimensions (1) the functional purpose (formative or

summative) and (2) the paradigm of the evaluation (artificial or naturalistic) which is depicted in Figure 103: FEDS evaluation strategies.

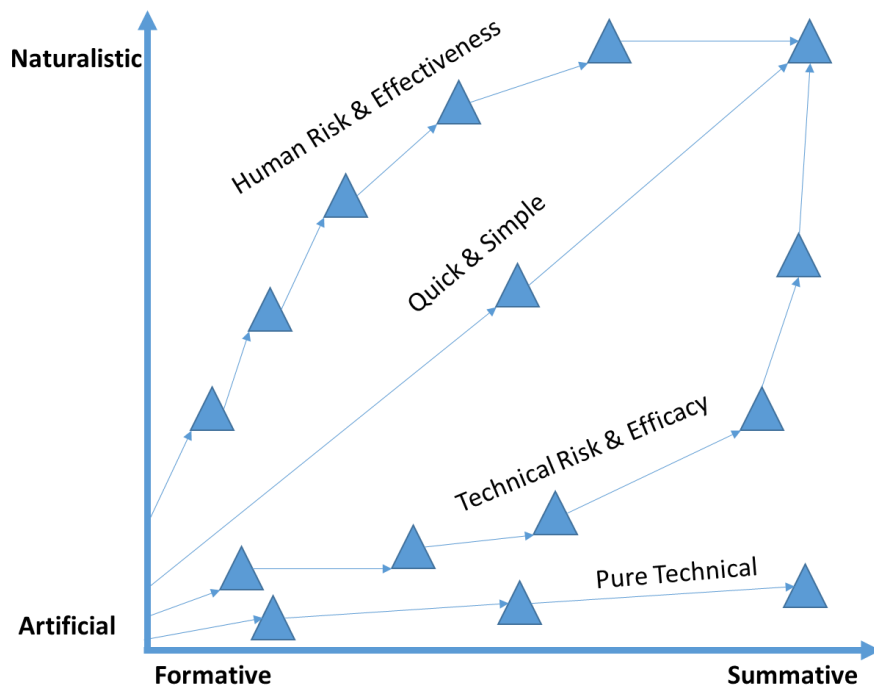


Figure 103: FEDS evaluation strategies

Based on the selected strategy, the pathway to be followed in the DSR project is guided by when to evaluate, for what purpose and how. Venable et al. (2016) argue that each of the four strategies has its own relevance depending on the goals of the evaluation and describes the circumstances of when each strategy is most appropriate. These are summarised as:

- **Quick and simple** – If a small and simple construction with low social and technical risk and uncertainty.
- **Human risk and effectiveness** – If the major design risk is social and user-orientated **and/or** it is relatively cheap to evaluate with real users in their real context **and/or** a critical goal of the evaluation is to rigorously establish that the utility/benefit will continue in the real situation and over the long run.
- **Technical risk and efficacy** – If the major design risk is technically oriented **and/or** it is prohibitively expensive to evaluate with real users and real systems in the real setting **and/or** a critical goal of the evaluation is to rigorously establish that the utility/benefit is due to the artefact, not something else.

- **Purely technical** - If the artefact is purely technical (no social aspects) or artefact use was well in the future, not the present.

Using the FEDS framework as a guideline for an evaluation strategy, the four-step process recommended by Venable et al. (2016) was adopted and is described in Figure 104: FEDS 4-step process.

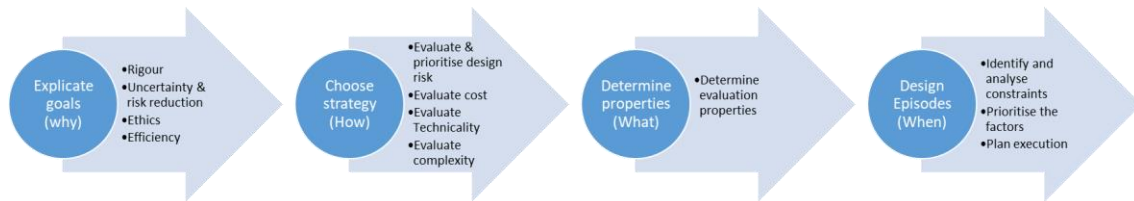


Figure 104: FEDS 4-step process

8.2 FEDS PROCESS

8.2.1 Explicate Goals

The first step in the process addresses the needs of competing goals. There are four possibilities for competing goals and some goals are more relevant at different stages of the project (Venable et al., 2016). These goals address needs to be associated with rigour, uncertainty and risk, ethics and efficiency.

Rigour has two rationales: The first is that the artefact causes an observed outcome that addresses the efficacy and the second is that the artefact works in a real-life situation that addresses effectiveness (Venable et al., 2016). Addressing design **uncertainties** early in the process is crucial in limiting risk later on in the process. Formative evaluation is key when needing to reduce design risk in a project and should be conducted as early as practically possible. **Ethics** are especially important in the evaluation of safety, critical systems and technologies where potential risks to people, animals and organisations are concerned. Depending on the risk profile, a more rigorous evaluation may be required. **Efficiency**

balances the related goals with the time of the resources needed and the cost of evaluating the design artefact.

8.2.2 Choosing a Strategy

Depending on the goals identified, single or multiple strategies may be adopted in the evaluation of the goal. Each of the evaluation strategies implies decisions of the why, how, when and what to be evaluated. When choosing an appropriate strategy, the FEDS framework suggests that we consider evaluating and prioritising the design risks, evaluating the cost, evaluating whether it is purely technical and evaluating the construction.

It is important to understand and **prioritise design risks** that can be seen as potential problems that may be encountered with the artefact. If the majority of the problems are related to a social or user-oriented concern, then the most appropriate strategy is human risk and effectiveness. The **cost** of the evaluation is a crucial element to consider as it may have huge implications on the evaluation process. The cost consideration revolves around three elements: time, money and human resources. If the evaluation is relatively cheap to evaluate in a real setting, i.e., resources are available to evaluate, then a *human risk and effectiveness* strategy can be adopted (Venable et al., 2016). If there is limited access to development resources, it may be that a cheap prototype could be used first and a *quick and simple* strategy is best suited. A purely **technical evaluation** strategy is used when there are no human resources being evaluated, or the implementation of the artefact is far in the future. When evaluating the **construction** of the design artefact, the considerations are small and simple or large and complex. If it is relatively small and simple, then Venable et al. (2016) suggest that you use the quick and simple strategy.

8.2.3 Determine Properties

The third step in the process is to identify the properties for the evaluation and requires choosing criteria's, goals and requirements of the artefact (Venable et al., 2016). These properties have to be unique to the artefact and its purpose. Venable et al., (2016) describe four generic examples that can be used. If the developed artefact was an application system, the Sun and Kantor (2006) evaluation model would be best suited. If the artefact is a methodology or framework, the Stufflebeam (2000) evaluation model would be best suited,

and likewise, any software related artefact would use the adaption of the ISO 9126 with Mathiassen (2000) and for the evaluation of information systems the framework for the evaluation for this type of artefact would be Smithson and Hirschheim (1998).

8.2.4 Design Episodes

The final step in the process is to design the evaluation process by identifying the episodes that are represented by the triangles in the evaluation design. To do so, the following criteria were addressed (Venable et al., 2016).

1. Identify and analyse constraints.
2. Prioritise the factors.
3. Decide a plan to coordinate the execution of the episodes.

8.3 EVALUATION FINDINGS

Based on step 1 on the FEDS process, Table 40: Explicated Goals identifies and describes the goals for the evaluation of this artefact's design and development.

Goal #	Goal Description
Goal 1	To examine the existing EAM framework and identify the appropriate components to be reused.
Goal 2	To identify critical components of EAM through EAM practitioners in financial institutions.
Goal 3	To examine existing maturity frameworks and identify the most appropriate components to be reused.
Goal 4	To validate the newly constructed maturity framework with the selected case study.

Table 40: Explicated Goals

8.3.1 Goal 1

Goal 1 in the development of the artefact was to identify dimensions of EAM that were considered crucial through the use of a systematic literature review. This was achieved by the first cycle of the DSR and was detailed in **Chapter 4** of this study. The contribution from

this cycle was developed to be rigorous in addressing the needs of both efficacy and effectiveness by providing insights into what literature via recorded case studies and research studies on the dimensions either contribute to the success or the failure of the EAM practice. This was completed using a protocol that was developed and aligned to Okoli and Schabram's (2010) guidelines for concluding an SLR. In following these guidelines, the elements of rigour, risk, ethics and effectiveness were adequately covered. The completion of this artefact made up Episode 1 of the evaluation design and followed the human risk and effectiveness strategy as depicted in Figure 105: Goal 1 - Evaluation Design.

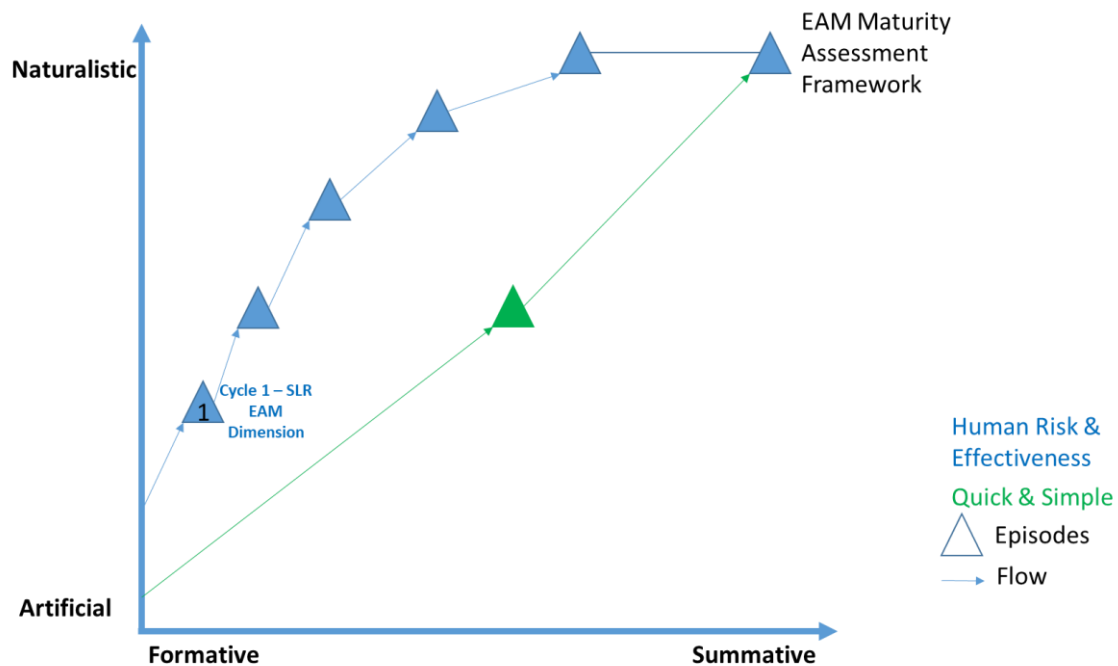


Figure 105: Goal 1 - Evaluation Design

8.3.2 Goal 2

Goal 2 in the development of the artefact was to identify dimensions of EAM that were considered crucial through the use of a survey questionnaire as well as interviews conducted as the selected case study. This was achieved by the second cycle of the DSR and was detailed in **Chapter 5** of this study. The contribution from this cycle was developed to be rigorous in addressing the needs of both efficacy and effectiveness by providing insights into what EAM practitioners believe are the dimensions that either contribute to the success or the failure of the EAM practice. This was followed by interviews that were conducted within the selected case study and compared and aggregated to form a list of dimensions that are vital (from a practice perspective) within the financial services industry. In following the

guidelines as discussed in **Chapter 3**, the elements of rigour, risk, ethic and effectiveness were adequately covered. The completion of this artefact made up Episode 2 and continued the evaluation design using the human risk and effectiveness strategy as depicted in Figure 106: Goal 2 - Evaluation Episode.

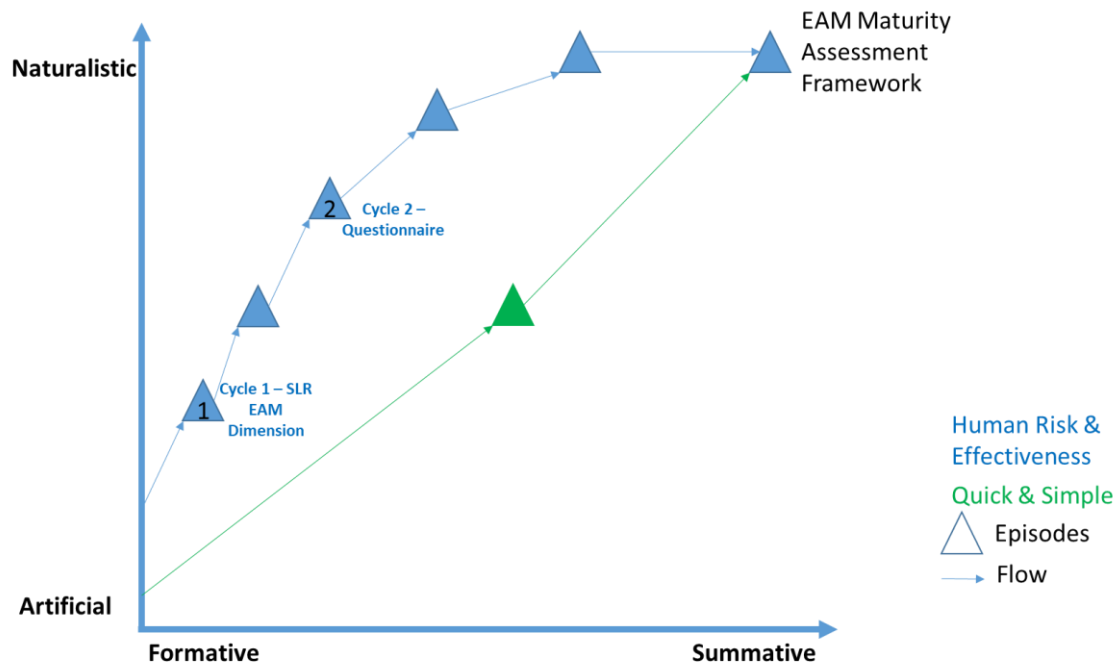


Figure 106: Goal 2 - Evaluation Episode

8.3.3 Goal 3

Goal 3 in the development of the artefact was to identify components and associated qualities of maturity models that are vital for the assessment of EAM through the use of a systematic literature review. This was achieved by the third cycle of the DSR and was detailed in **Chapter 6** of this study. The contribution from this cycle was developed to be rigorous in addressing the needs of both efficacy and effectiveness by providing insights into what literature via recorded case studies and research studies on the dimensions either contribute to the success or the failure of the EAM practice. This was completed using a protocol that was developed and aligned to Okoli and Schabram's (2010) guidelines for concluding an SLR. In following these guidelines, the elements of rigour, risk, ethics and effectiveness were adequately covered. The completion of this artefact made up Episode 3 of the evaluation design and followed the Human Risk and Effectiveness strategy as depicted in Figure 107: Goal 3 - Evaluation Episode.

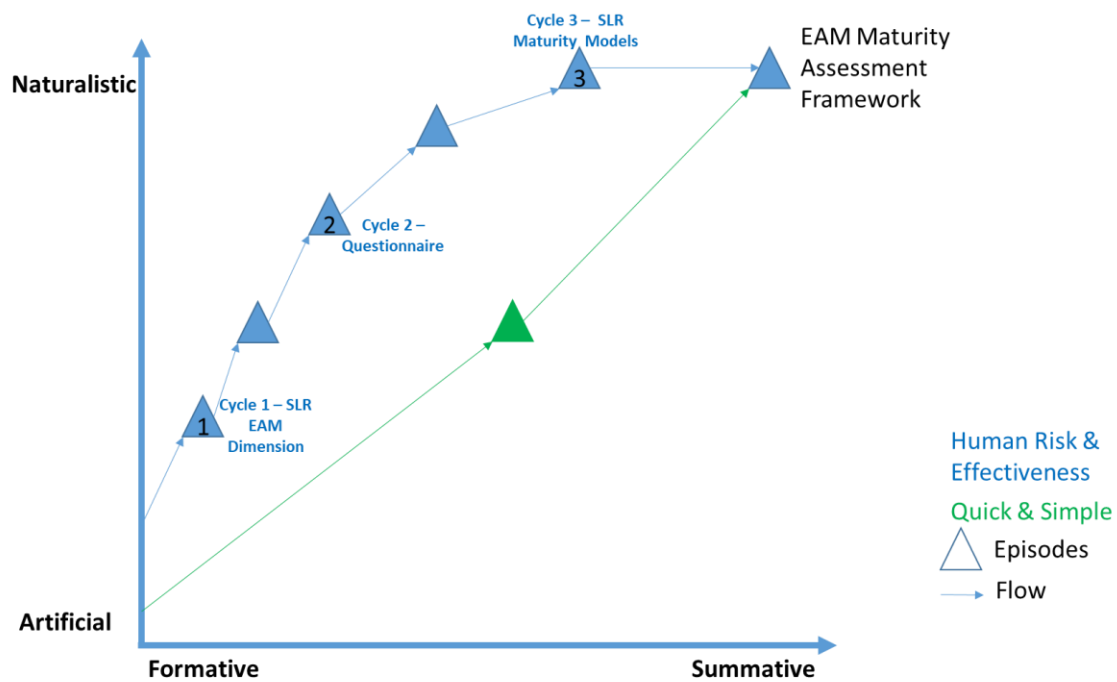


Figure 107: Goal 3 - Evaluation Episode

8.3.1 Goal 4

Goal 4 in the development of the artefact dealt with the building of the design artefact. This was achieved by aggregating all data collected during the development subcycles of the DSR and was detailed in **Chapter 7** of this study. The eMA framework was developed to be rigorous in addressing the needs of both efficacy and effectiveness by providing insights into the current state maturity level assessment and being used in a real-life situation within a case study evaluation. The eMA framework addressed the needs of uncertainty and risk during the development cycle of the DSR, triangulating vital dimensions from a systematic literature review, EA practitioner questionnaire and case study questionnaire.

The eMA framework had a very low-risk rating as it is effective only in a small area of an organisation's operating model. As such, the use of the assessment survey was limited to senior resources within the organisation. The evaluation of the eMA framework was tested in a selected case study with the survey assessment satisfying the time required for completing the survey as well as the cost associated with administering the survey using free software that caters for the basic needs.

The potential social risks for the eMA framework are classified as low because the evaluation audience is seen as the senior member of the organisation who has had exposure to assessment surveys and is very familiar with how they function and are used. This survey was also only administered to a member who had an understanding of EAM and therefore, already had a foundation to work on. The technical risk is also rated very low as a result of the participants being familiar with the technology used for the assessment data collection. Based on this classification, the best-suited strategy to follow would be *quick and simple*.

After evaluating the cost for the evaluation of the EAM assessment framework, the following was established:

Money: No cost was incurred as a result of administering the assessment survey using free online tools. This came with certain limitations in using the tool, such as dynamic dashboards used to calculate the result, but this was resolved by manually ingesting the data and providing the necessary view and results. The cost element is rated low as very little/no cost was incurred.

Time: There was no limitation on time based on this research being part of a PhD study that was evaluated against a case study. However, the survey was administered to different groups with time allocations per group as a cut-off mechanism as well as to manage the administration in smaller groups for ease. The time element was rated as low because there was no time limitation set but consciously applied.

Human Resources: As this was part of a case study evaluation, the human resources used as part of the selected organisation was limited to only senior members of the organisation who are directly involved with the EA services was used in the administering of the survey.

As the EAM assessment framework was developed and evaluated using human resources, this strategy cannot be considered and is rated very low as a result. The EAM assessment framework used free software available to build the assessment survey, which made the construction align with the small and simple considerations. Based on this, it was determined that the *quick and simple* strategy was selected. The completion of this artefact made up episode 4 of the evaluation design and followed the Quick and Simple strategy as depicted in Figure 108: Goal 4 - Evaluation Episode.

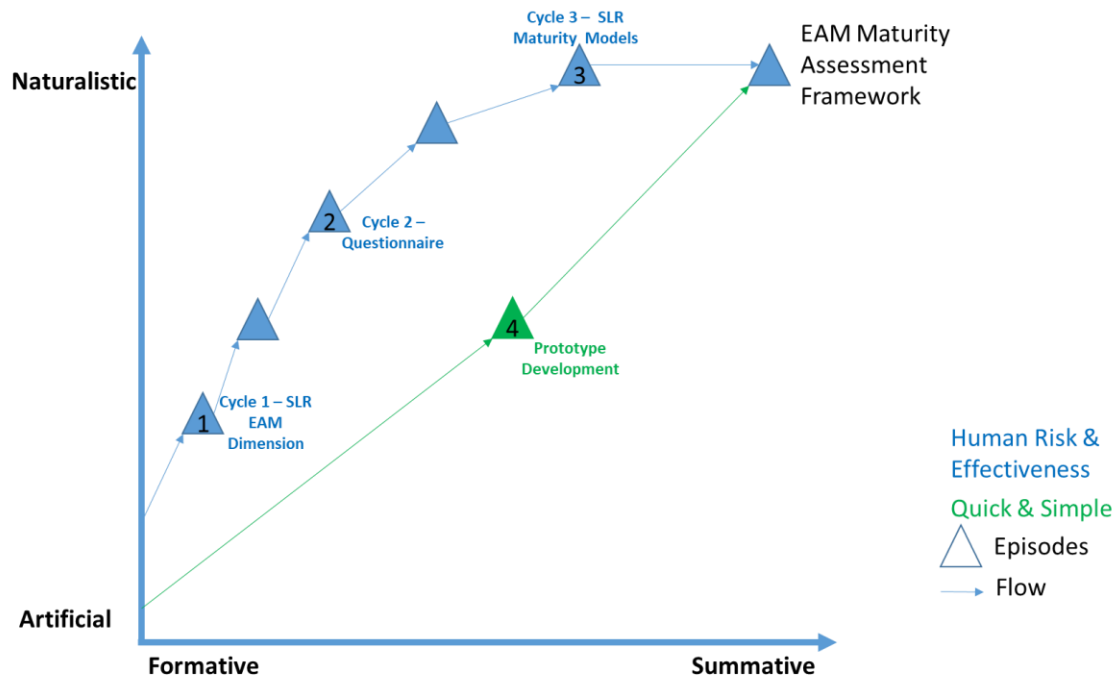


Figure 108: Goal 4 - Evaluation Episode

8.4 EAM ASSESSMENT FRAMEWORK RESULTS

In the previous section, the evaluation goals were set out. Using the FEDS framework, the 4-step process was adopted in identifying the evaluation strategy, properties and episodes. The chapter also provided a summary of the findings for each goal based on the relevant execution of the data collection and analysis process. The final step of the evaluation process was to validate and test the developed artefact within the selected case study. The testing process was administered in three phases to manage the minimum threshold set within each phase. The threshold was set to 50% of the participants to whom the assessment survey went out. Phase 1 was administered to the EAM practice and was sent out to 20 people. The phase ran for a total of three weeks before the survey was closed. Phase 2 was then extended to the greater information technology department and was sent out to 20 senior resources, which included participants of the case study interview conducted in **Chapter 5**. These phases ran for a total of two weeks. The final phase was sent out to the senior business manager and the strategy office. There were limited participants in the third phase as a result of the selected three business areas. Therefore the survey went out to six participants. An executive summary of the total participants' involvement is depicted

in Figure 109: EAM assessment dashboard. Overall the survey satisfied the set minimum threshold with a completion rate of 68.75%.

EAM Maturity Assessment Questionnaire - Dashboard



Figure 109: EAM assessment dashboard

After the assessment survey was completed, the data was captured and averaged to provide an overall maturity level score. This score was based on the total completion split between Business and IT of 14% and 86% respectively. While it was very important to understand and test the maturity level with the representation of IT, there was a need to test the maturity level as seen from outside of IT. This becomes more important when the organisation maturity level objectives are set to achieving a Level 4 or 5 maturity. The maturity level score in this case study was 2.1, and when we analyse deeper, the information and insights provide a view into what should be the areas that the organisation needs to pay special attention to. This can be used as a baseline from which further improvement can be measured against as depicted in Figure 110: Overall Maturity Level. Based on the overall maturity level rating, the explanation of what this means was identified in **Chapter 7** and can be summarised as:

- There is a general awareness of the EAM practice
- An informal approach is implemented in a few areas with an unmanaged level of effectiveness and efficiency
- There is integration with at least one of the other capability

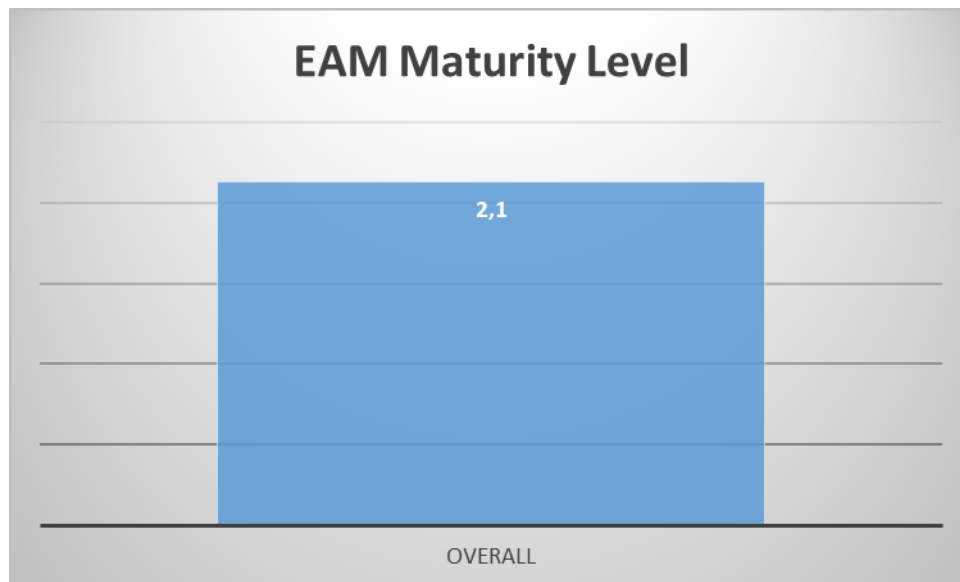


Figure 110: Overall Maturity Level

Part of understanding the overall maturity level score is the understanding of the implication with regards to people, processes and technology. This classification was conducted as part of the development phases of the DSR strategy and is detailed in **Chapters 4, 5 and 7**. By doing so, the researcher can focus on where the problem areas exist, and this can be used to identify potential initiatives to improve those areas, which will increase the overall score. This view is depicted in Figure 111: Maturity Level – Classification and was explored further to identify some of the dimensions that scored poorly.

People: The dimensions of this classification scored a 2.5, and this score can be summarised as:

- There are formal roles and responsibilities defined, but they are not clear to everyone.
- No formal training and development path has been established.

Within this element, some of the high scoring dimensions were the culture of the team, the willingness to adopt or try something new, the alignment of the EA operating model to existing EA best practices, the skills of the team and the compliance with enforcement within the EAM division with all of these scoring 2.7. On the other side of the scoring was stakeholder management, managing the capacity of the team and the awareness of the EAM products and services, with all of these scoring an average of 2.2.

Process: The dimensions of this classification scored a 2.1, and this score can be summarised as:

- Some processes are defined in some areas.
- Processes are not known across the organisation.

The dimensions within this classification that scored the highest included the establishing of EAM principles, the management of new demands and the assessment and improvement of the EAM practice. All of these areas scored between 2.6 and 2.8. The areas that scored poorly and should be focused on including the management of data architecture artefacts, the management of business architecture artefacts, the management of information architecture, the overall management and across relations of artefacts and application architecture artefacts. These dimensions scored below 1.5 as a rating.

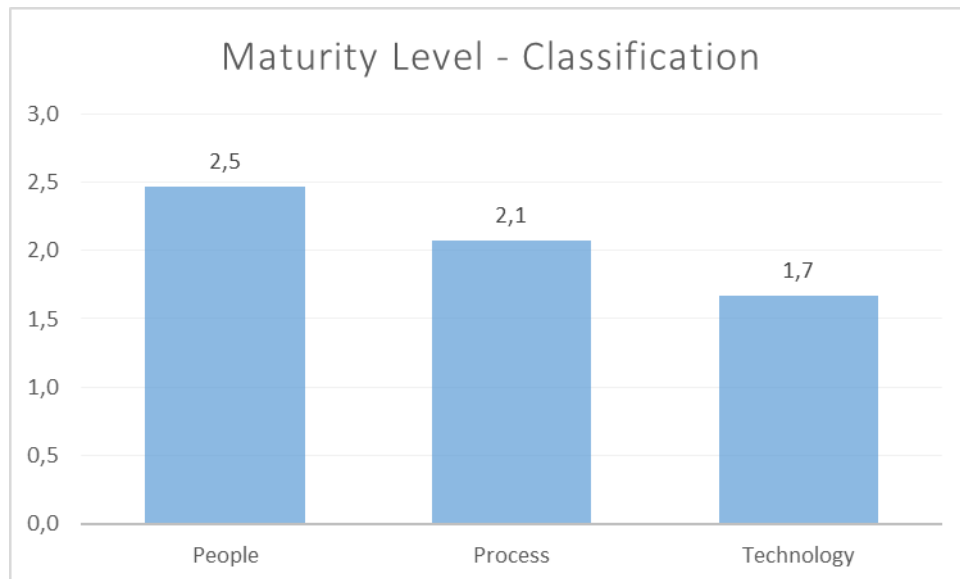


Figure 111: Maturity Level – Classification

Technology: The dimensions of this classification scored a 1.7 and this score can be summarised as:

1. Tools have been identified but have not yet been implemented.

While the technology classification makes up the smallest size in terms of total dimensions with a total of six dimensions, they all scored very poorly, with their scores ranging from 1.6 to 1.8. This would suggest that there should be a strong focus on trying and increasing this classification.

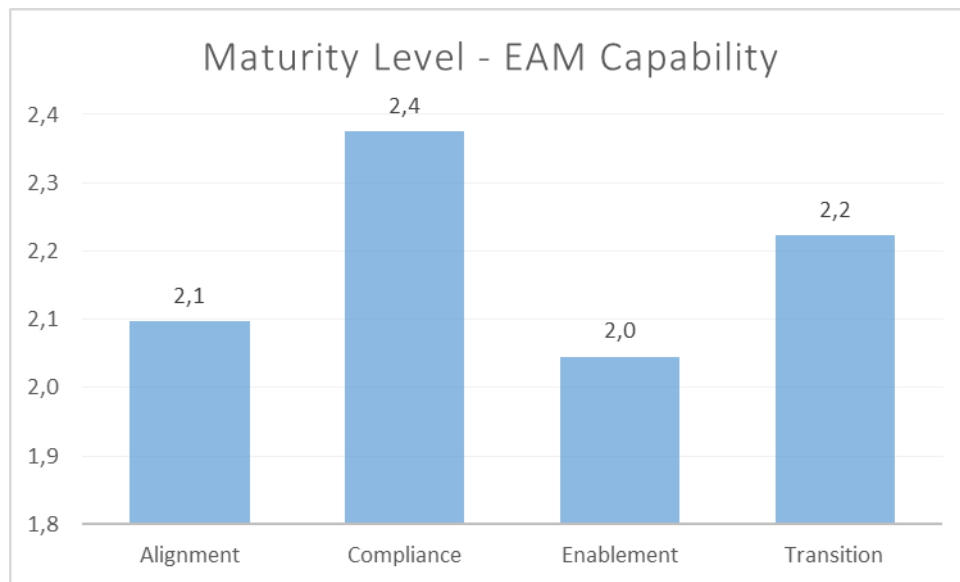


Figure 112: Maturity Level - EAM Capability

Further to the classification identified and scored above are the components of EAM, which was defined with the development phase of the DSR strategy. These components consist of alignment, compliance, enablement and transition as depicted in Figure 112: Maturity Level - EAM Capability. Each dimension could have multiple links to the classifications discussed in the previous section. However, it provides a different view of the framework and allows you to prioritise improvement initiatives based on the organisation objectives. For example, the view in Figure 112: Maturity Level - EAM Capability provides insights into compliance and the fact that it scored higher means that it is more mature. However, the enablement capabilities scored the lowest, which suggests that the enablement capabilities are lacking and requires more focus. Based on the assessment, a few dimensions score low in having the necessary foundational artefacts relating to data architecture, integration architecture and general artefact management, and these should be the areas that the organisation focuses on to increase their overall maturity rating.

8.5 ASSESSMENT RECOMMENDATIONS

After executing and testing the assessment framework in the selected case study, key findings emerged that could be used in future improvement plans to increase maturity. The maturity scores must be read in alignment with the expectation of your maturity levels. In the case of a reasonably new EAM practice, this could mean having an overall maturity score of 1.5 or even 2.0 in EAM practices that have been in existence for a few years. It may be the case that you score very high in one dimension and very low in another, which will bring your overall score down, providing an excellent opportunity to concentrate on those first to strengthen your overall score.

This was the rationale behind this recommendation, as all improvement areas will focus on the lowest scoring dimensions. At the top of this list was data architecture artefact management which scored 1.3. The majority of the participants have given this a maturity level 1, which indicates that the data architecture processes and templates are inconsistent. This could be an excellent area to transform first by developing templates and processes for data artefact management.

The same is the case for business architecture artefact management, which scored 1.4. Similar results to data architecture artefact management were obtained here, with the same recommendations can be made. However, business architecture was highlighted during the interview session as one of the more problematic areas. As a result, the EAM team lacking in understanding the details within each business area. An engagement session that focuses on knowledge exchange between the EAM team and the related business unit could remedy this.

Application architecture artefact management was another area that scored low, with an average score of 1.5. While there may be a problem with creating these artefacts, such as skills required or competency, this could result from not having a defined process for artefact management or just making artefacts available for use. This could be linked to using a tool or technology to manage artefacts as this was one of the top 10 poorly scored dimensions, also scoring below two with a score of 1.6. Having a repository in place is vital for making artefacts assessable to all that requires it and extending it further by providing insights based on the artefacts' metadata. The next four low scoring dimensions are related to technology,

with a scoring average of 1.6. Technology related dimensions also have a link to enablement. This means that not satisfying this dimension translates to the enablement capability of EAM is also not being adequately satisfied. Having the right technology or tools is vital and selecting one that integrates well with other tools such as modelling tools is critical for interoperability. This low score suggests that the current tool is not adequate or there is not one being used. It would assist your maturity rating to introduce such technology and increase standardisation and adoption.

The adoption and awareness of the EAM standards and services scored low. This can easily be corrected by involving change management to address needs such as roadshow and marketing or promoting successes when they are achieved. The organisation must believe in the services and capabilities of EAM to increase adoption, so building trust becomes a critical element. Roadshows and awareness programmes are great ways to increase visibility that can assist with adoption.

8.6 CHAPTER SUMMARY

This chapter started with a description of the FEDS process and followed by a description of the evaluation design and the evaluation results. The evaluation phases formed part of the DSR process and were used to validate and test the eMA framework built out of the development phase of the DSR. The final evaluation episode followed the quick and simple strategy out of the four identified strategies discussed in the FEDS framework. This strategy was chosen because the evaluation human risk factor and the technical factor was both determined to be very low. The final artefact was validated against the selected case study, and the result was summarised in a report that indicated the maturity level at which the EAM practice is operating. The result provides insights into areas of improvement by highlighting poorly performed dimensions within the EAM practice, which were seen as data architecture was business architecture

9 CONCLUSION

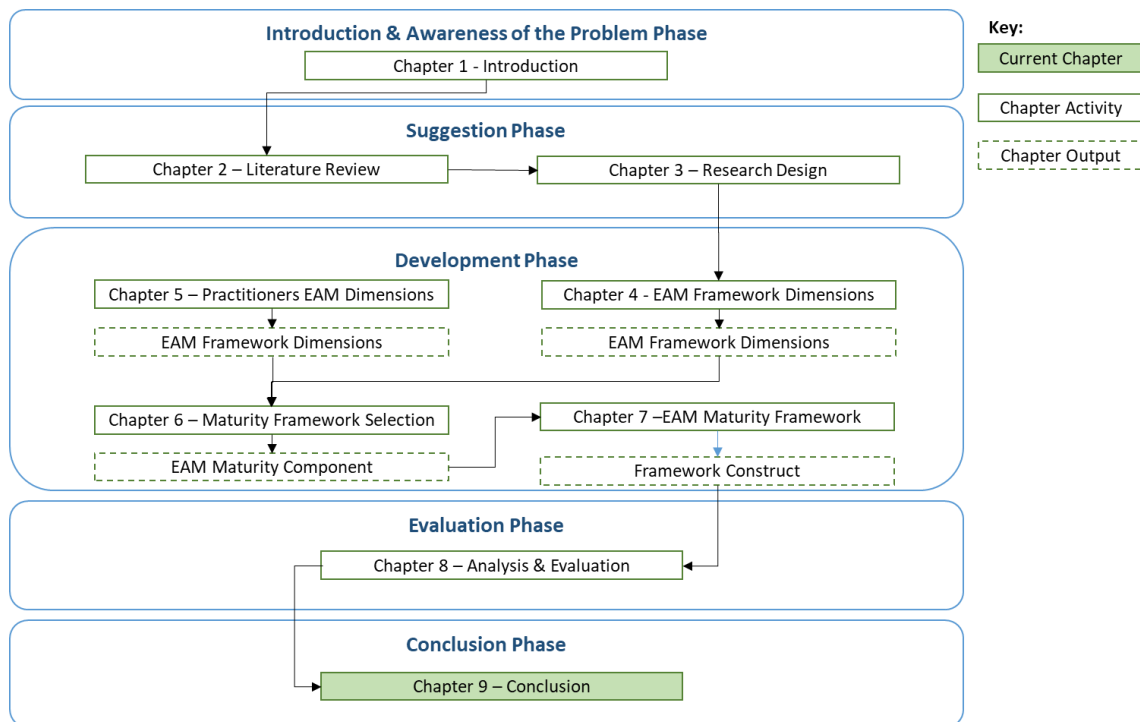


Figure 113: Chapter 9 Thesis Map

9.1 INTRODUCTION

EA as a practice was created so that organisations can minimise their technical debt and maximise the use of their technology assets whilst aligning to both business and IT strategies that are set out. This can be a huge task to accomplish as a result of the fast-paced changes that are experienced with most organisations and as well as the evolution of what EA has become. While many organisations invest heavily in understanding their EA, it is not a once off duty or initiative. What makes things even more complicated is that EA is so broad that knowing which dimensions are vital for each organisation or industry is very difficult. As a result, many organisations fail to continue with EAM once implemented.

This thesis started with the introduction and awareness of the problem and the need to understand which dimensions of EAM is vital for the success of the practice. The second phase of this thesis highlighted the suggestion in the solution of the problem as well as providing background and context into EAM. This phase also described the

research strategy and methodology that was followed. During the third phase, the development of the artefact was initiated and was concluded with the three subcycles in the development phase. In the fifth phase, the evaluation of the artefact began, and the designed artefact was tested within a case study.

The final phase of the thesis was concerned with the reflection and the communication of the development artefact as depicted in Figure 114: Chapter 9 Map. The chapter starts with the introduction providing a view into the research process and research contribution. It follows on with the summary of the studies, which provides an overview of each chapter before discussing the purpose and the lesson learnt during the execution of this study. In the subsequent section, a summary of the contributions that were made through this research was discussed, covering the areas of the research topic and the problem, the methodological reflection, followed by the scientific reflection. The recommendation section provided a view on the policy and practice of the EAM maturity assessment (eMA) framework and discussed some of the limitations and potential future research of this study. Lastly, the chapter concluded with some final remarks.

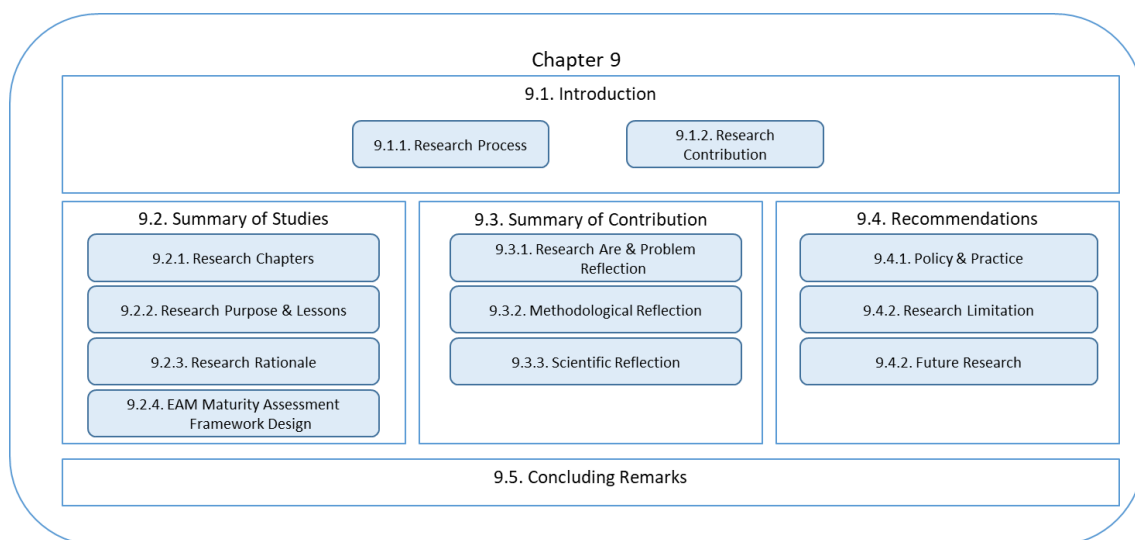


Figure 114: Chapter 9 Map

9.1.1 Research Process

The communication of the results and the conclusion phase forms the last phase of the DSR strategy, as illustrated in Figure 115: EAM Framework Research Approach. This chapter aims at providing a summary view of the learnings and contributions.

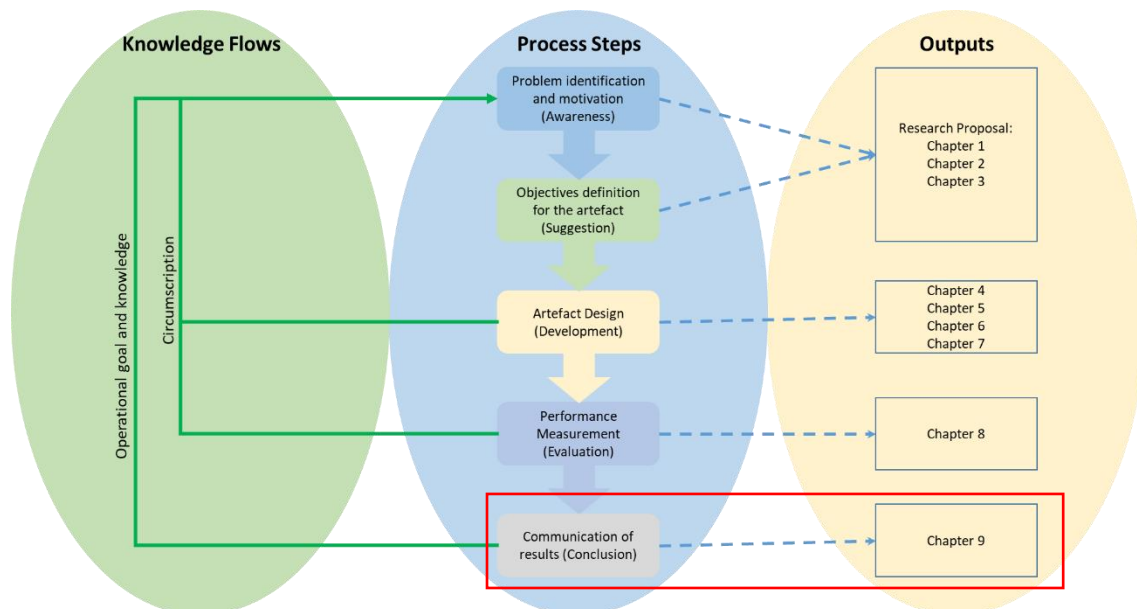


Figure 115: EAM Framework Research Approach

9.1.2 Research Contribution

As the journey into the new era of the 4th industrial revolution begins (Davis, 2016; Hirschi, 2018; Xing & Marwala, 2018), ICT has become a crucial part of it (Mocetti et al., 2016). Jonkers et al. (2006) argue that to be able to manage complex systems in large organisations, understanding its architecture is key in positioning new developments within the context of the people, processes and technology of an organisation. Huge investments are continually made to increase the organisation's effectiveness and efficiency but the challenge of managing those once implemented remains.

While EAM is recognised as the accepted solution by organisations to assist with strategic transformation, there is no commonly accepted understanding of maturity in EAM (Buckl et al., 2010; Simon et al., 2013). This makes it difficult for organisations

to identify and agree on the critical components of EAM and the level of maturity that is required to be successful in managing the EA practice. Many dimensions must be assessed and addressed; maturity model assessments are good instruments for measuring and supporting improvements within the functional areas (van Steenberg et al., 2010).

The goal was to develop an eMA framework that can be used in the financial services industry. This was achieved by identifying dimensions that were seen as vital in both literature and EAM practices in the financial services industry and then relating the result to the selected case study where the EAM assessment framework was tested, and the result summarised in Figure 116: Maturity Level – Classification. This method of identifying vital dimensions made use of data that was aggregated using triangulation (Carter et al., 2014) which looked at data collection from the SLR in **Chapter 4** and the data collected through the survey questionnaires and interview conducted in the **Chapter 5**.

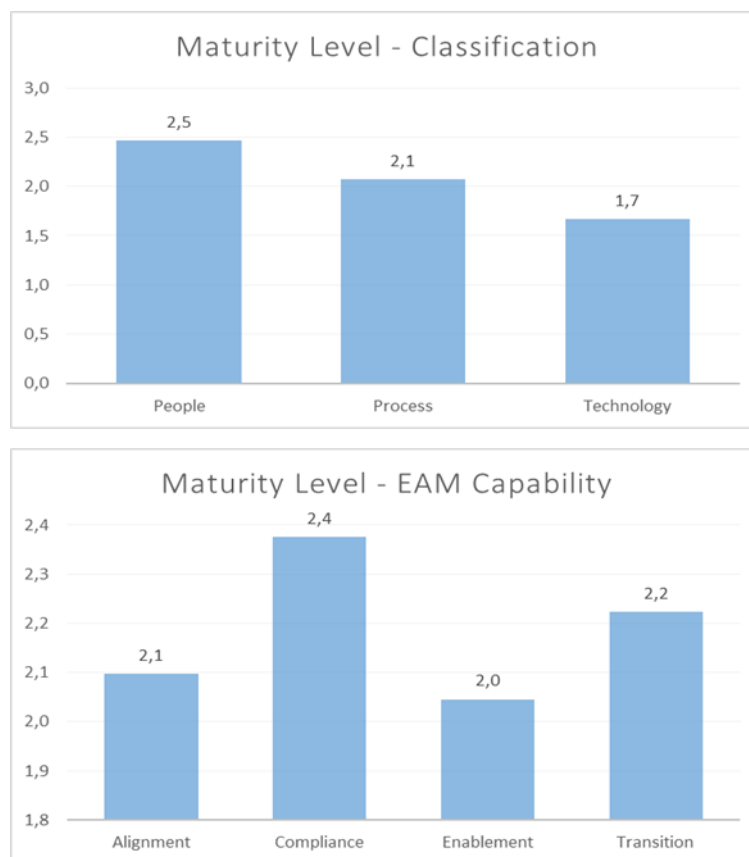
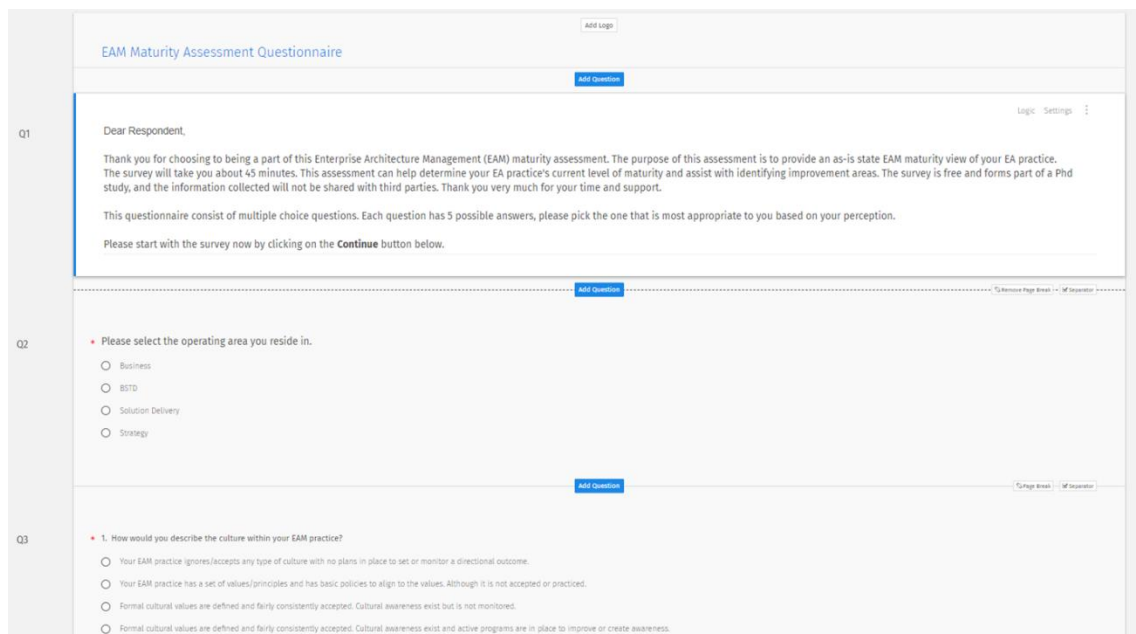


Figure 116: Maturity Level – Classification

The result of the research was the development of an eMA framework that organisations can use to assess their current state of maturity level.

Through having an understanding of your current maturity level as well as being able to identify poor performing dimensions, one can put plans in place to improve those poor performing dimensions. The results were classified as people, process and technology as well as alignment, compliance, enablement and transition as a group, to identify performance-based themes as depicted in the figure above. The framework consisted of the question with five possible answers, as illustrated in Figure 117: Survey Assessment Example. The scores were then averaged out, indicating the maturity level for the dimensions as well as the aggregated classified answers.



The screenshot displays the 'EAM Maturity Assessment Questionnaire' interface. It features a sidebar on the left with question markers Q1, Q2, and Q3. The main content area shows the text of each question and its corresponding multiple-choice options. Question Q1 is a welcome message. Question Q2 asks for the operating area. Question Q3 asks about the culture within the EAM practice.

Q1

Dear Respondent,

Thank you for choosing to be a part of this Enterprise Architecture Management (EAM) maturity assessment. The purpose of this assessment is to provide an as-is state EAM maturity view of your EA practice. The survey will take you about 45 minutes. This assessment can help determine your EA practice's current level of maturity and assist with identifying improvement areas. The survey is free and forms part of a PhD study, and the information collected will not be shared with third parties. Thank you very much for your time and support.

This questionnaire consist of multiple choice questions. Each question has 5 possible answers, please pick the one that is most appropriate to you based on your perception.

Please start with the survey now by clicking on the **Continue** button below.

Q2

• Please select the operating area you reside in.

- ☐ Business
- ☐ BSTD
- ☐ Solution Delivery
- ☐ Strategy

Q3

• 1. How would you describe the culture within your EAM practice?

- ☐ Your EAM practice ignores/accepts any type of culture with no plans in place to set or monitor a directional outcome.
- ☐ Your EAM practice has a set of values/principles and has basic policies to align to the values. Although it is not accepted or practiced.
- ☐ Formal cultural values are defined and fairly consistently accepted. Cultural awareness exist but is not monitored.
- ☐ Formal cultural values are defined and fairly consistently accepted. Cultural awareness exist and active programs are in place to improve or create awareness.

Figure 117: Survey Assessment Example

9.2 SUMMARY OF STUDY

In this section, a summary of the study is provided. The summary is detailed in four subsections consisting of the summary of all chapters, the research purpose and lessons, the dissertation rationale and the eMA framework.

9.2.1 Research Chapters

The study followed the DSR approach, which consisted of five phases, the introduction and awareness of the problem, the suggestion, development, evaluation and the conclusion/communication phase. Each one of the chapters in this study is mapped to a corresponding phase of the DSR approach, as illustrated in Figure 115: EAM Framework Research Approach.

Chapter 1 started with detailing the introduction and motivation behind the study. It described the research area and problem continuing with the justification and purpose of the study. The chapter also provided clarification on the research questions and objectives. The chapter set the expectation for the consequent chapters. **Chapter 2** started the suggestion phase and provided more detail into some of the relating topics to the research area. The chapter explored EA and its attributes before exploring the same with EAM and its association to EA. It also explored the maturity model, providing a baseline for the knowledge requirement, to further this research in the subsequent chapters. The chapter ended with an understanding of the financial services industry and its relation to EAM. **Chapter 3** described the research strategy and methodology that were selected for its design. The chapter examined existing paradigms and provided the rationale for selecting each one that was adopted. The DSR strategy and its implication to the research study were described.

Chapter 4 started the development phase of the DSR with an SLR to determine a list of vital EAM dimensions. The chapter resulted in a list of dimensions and the relationships that they have with each other. These dimensions were classified into EAM components based on similarities of the dimensions. **Chapter 5**, similar to the objectives of **Chapter 4**, identified vital dimensions of EAM as seen by EAM practitioners. This was addressed from two points of view (1) a survey questionnaire that was administered to any EAM practitioner in the financial services industry through social groups and (2) interviews and a survey questionnaire was administered to the selected case study within financial services. Using the convergence design approach, the data collected from the two collection groups was aggregated to produce a list of dimensions that EAM practitioners considered essential for success.

Chapter 6 continued with an SLR that identified the components and their associated qualities that were necessary for the measurement of people, process and technology capabilities that enable the EAM practice. It concluded with maturity levels and their associated qualities to each of the three measurable areas. **Chapter 7** concluded the development phase by bringing together the outputs of each chapter to make up the eMA framework and its associated questions for administering the maturity assessment process.

Chapter 8 detailed the evaluation of the eMA framework and outlined the approach and findings from the evaluation process. The process of administering was conducted within the selected case study and the result of such was highlighted.

The last chapter, **Chapter 9**, provides the concluding remarks and the communication of the research. It describes the contributions to the relevant body of knowledge and provided a view on the limitation of the study and the potential for future research.

This study also included six appendixes: Appendix A, Appendix B, Appendix C, Appendix D and Appendix E which provide the supporting data and results for the relevant chapters of this study. The information for each appendix is summarised as:

- Appendix A – Chapter 4 Supporting data and results
- Appendix B – Chapter 5 Survey results
- Appendix C – Chapter 6 Supporting data and results
- Appendix D – Chapter 8 Evaluation results
- Appendix E – Chapter 5 Interview transcripts.

9.2.2 Research Purpose and Lessons Learnt

The purpose of this study was to explore the critical factors that contribute to a higher rate of success in the EAM practice of an organisation in the financial services industry. When the Zachman framework was introduced in 1987, there was a fundamental shift in how we managed and structured our information systems and thus, the Zachman framework became the standard for defining and controlling the integration of all

components of the system (J. Zachman, 1987; J. A. Zachman, 1999). Years of adopting new technologies and systems have led to large and complicated IT environments (Kotusev, 2016). Organisations understand that to get the full benefit of EAM and it is not only important to be aligned with Business and IT but also to understand areas of improvement within the practice that directly impact the organisation objectives. Many dimensions must be assessed and addressed accordingly. Maturity model assessments are good instruments for measuring and supporting improvements within the functional areas (van Steenberg et al., 2010).

This research aimed to develop a framework that can be used to assess the maturity level of the EAM practice so that organisations can better understand and identify poorly performing areas with the expectation that improvement plans could be put in place to increase their maturity level, which could result in a more successful practice. While progressing through this study, many challenges/considerations were derived:

1. Identify vital dimensions through the use of an SLR process.
2. Identify vital dimensions in practice through the use of survey questionnaires. This was limited to financial services but can be extended to include other industries.
3. A dimension classification was created to provide insights into groupings of dimensions. This provided further insights into related dimensions.
4. Maturity level classifications were identified, but there are opportunities to refine the level classifications.
5. The technology used to administer the final assessment survey would be better administered using a custom-developed solution.

9.2.3 Research Rationale

The rationale for this study resulted from personal work experiences and challenges with EAM frameworks and maturity assessments. Many different frameworks and methodologies exist for the implementation and management of EA, but all have a generalised perspective of EA and provide the guidelines that cater for every scenario in terms of artefacts and insights analysis. Trying to examine and identify what is

important to meet the desired outcome becomes confusing and frustrating. The motivation was centred on the understanding of what is vital for the success of EAM from a practice perspective and not just addressing the needs of either a framework or a methodology. It is not possible to manage EAM using all of the artefacts as described in the TOGAF framework.

Equal to the importance of some dimensions or components of the framework are the people dimensions that speak to culture and adoption and a few other socio-technological dimensions. An assessment framework should be able to balance or cover the needs of people, processes and technology as well as aggregate the views of literature, EAM practitioners and a case study to make certain that there was greater coverage in the identification of vital dimensions. To answer **MRQ1** below a set of subquestions needed to be answered in aid of adequately addressing the overall objectives.

MRQ1: “What are the critical components in EAM that can be used to measure its maturity in a Financial Institute in support of an EAM practice?”

- **SRQ1:** What are the most critical components within the existing EAM framework that can be used in a maturity framework?
- **SRQ2:** What are the most critical components of EAM as seen by EAM practitioners in financial institutions?
- **SRQ3:** What are the components with the associated qualities that are vital to test the maturity of people, process and technology in existing maturity models?
- **SRQ4:** How can the newly constructed maturity framework be validated within the selected case study?

9.2.4 EAM Maturity Assessment (eMA) Framework Design

To fulfil the objectives of this study, the research made use of the DSR strategy. DSR is best suited where the development of an artefact is required. The phases of the DSR guide to achieving this, using a structured approach that consist of five phases

and used specific techniques in the development phase by making use of a systematic literature review, mixed-method approach for data collection and following qualitative and pragmatic paradigm. To ensure that the research questions were answered adequately, a set of objectives were created and aligned to the relevant research questions as depicted in Table 41: Thesis Summary.

“To develop a framework that can be used to assess the maturity of EAM within a Financial Institution.”

1. To examine the existing EAM framework and identify the appropriate components to be reused.
2. To examine existing maturity frameworks and identify the most appropriate components to be reused.
3. To identify critical components of EAM through EAM practitioners in financial institutions.
4. To validate the newly constructed maturity framework with the selected case study.

Research Question	Objective	Chapter	Technique	Output
What are the critical components in EAM that can be used to measure its maturity in a financial institution in support of an EAM practice?	To develop a framework that can be used to assess the maturity of EAM within a financial institution	Chapter 4,5,6,7	DSR	EAM assessment framework
What are the most critical components within the existing EAM framework that can be used in a maturity framework?	To examine the existing EAM framework and identify the appropriate components to be reused.	Chapter 4	Systematic Literature Review	List of vital EAM dimensions
Which maturity framework would be best suited to be used to	To examine existing maturity frameworks and identify the most	Chapter 5	Survey questionnaire and interviews	List of vital EAM dimensions

Research Question	Objective	Chapter	Technique	Output
assess EAM using the components identified above?	appropriate components to be reused.			
What are the most critical components of EAM as seen by EAM practitioners in financial institutions?	To identify critical components of EAM through EAM practitioners in financial institutions.	Chapter 6	Systematic Literature Review	Maturity components with associated qualities
How can the newly constructed maturity framework be validated within the selected case study?	To validate the newly constructed maturity framework with the selected case study.	Chapter 7	DSR framework Hevner et al. (2004)	EAM assessment framework questionnaire

Table 41: Thesis Summary

An overview of the design and development approach is outlined and depicted in Figure 118: EAM Assessment Design and Development Approach:

1. Conduct a systematic literature review for vital EAM dimensions.
2. Identify a list of vital dimensions as seen by EAM practitioners.
3. Conduct interviews within the selected case study to identify gaps in points one and two.
4. Analyse and aggregate the dimensions.
5. Identify potential maturity assessment components.
6. Identify associated qualities of the components.
7. Build EAM assessment framework.
8. Validate/test within the selected case study.

9.3 SUMMARY OF CONTRIBUTIONS

This section of the thesis discusses the different contributions that were made as a result of this study. Although the main contribution of this study was the development of the eMA framework, it was not limited to only this. The contributions can be summarised using the adaption of the style composition of Mathiassen et al. (2012) in a study by Presthus and Munkvold (2016) as depicted in Figure 120: Summary of Contribution.

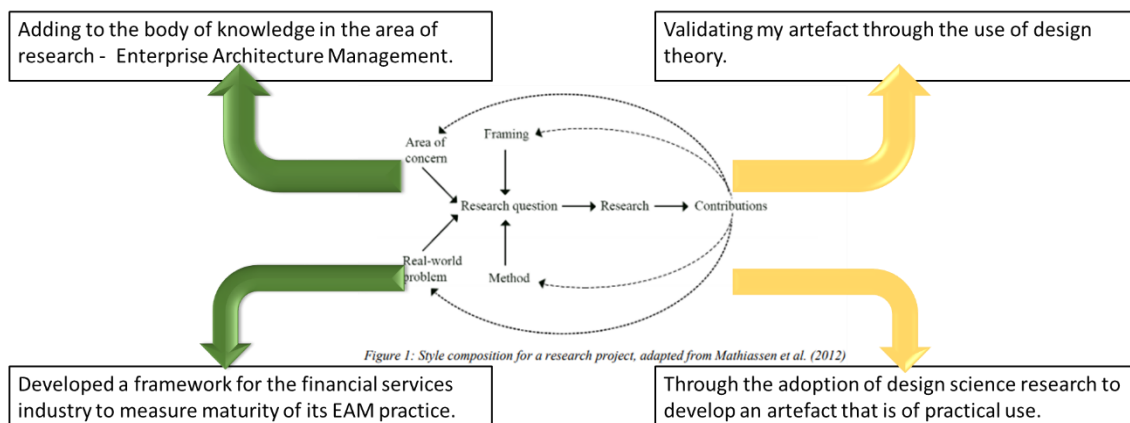


Figure 120: Summary of Contribution

9.3.1 Research Area and Problem Reflection

Research area reflection refers to the body of knowledge in the research area and the call for academia (Mathiassen et al., 2012; Presthus & Munkvold, 2016). This speaks to the contribution of the research area, which is EAM. A research gap existed in the understanding of what are the vital dimensions of EAM that will increase the success of the EAM practice. Many organisations failed after the implementation of an EA strategy because of not having this understanding. EA frameworks and methodologies are often created with generalisations in mind to satisfy all scenarios of businesses within many industries. By focusing on a specific industry, one could narrow down the dimensions that are vital for success by identifying vital dimensions. While there was a lot of focus on process and technology, limited focus was given to the people or sociotechnological dimensions. The eMA framework aims to provide the organisation

with the ability to assess its current state so that improvement plans can be put in place for poorly performing areas.

The real-world problem is related to solving a problem that represents practical concerns (Mathiassen et al., 2012; Presthus & Munkvold, 2016) In addressing the contribution requirement for the problem area, a maturity framework was developed to assist in measuring the current state of maturity. The dimensions of the framework was identified during the development phase of this DSR study and is summarised in the [Section 7.3.1](#) and [Section 7.3.2](#) of this study. Each of the dimensions were associated to the maturity the category of people, process and technology which was described in [Section 7.3.3](#). This was further extended with the relevant classification and related maturity level rating guidelines for each dimension, as described in [Section 7.4.1](#). The methodology which provides the guidelines for executing the eMA framework as described in [Section 7.4.2](#), can be summarised as the following steps:

- Read the opening short message which describes the assessment and rules on how to take the assessment.
- The organisation or EAM practice must identify key stakeholders or participants that are impacted by EAM.
- Each participant is requested to answer a predefined set of questions administered through an online interface.
- Each question is linked to an EAM dimension with a total of 51 questions that must be answered.
- Every question is given a score based on the perception of the current state as understood by the participant. The score has a direct relation to the option selected.
- The average of all scores collected for each dimension is then summed up to give an overall score per dimension as well as per classification.
- With the scoring report all low scoring dimensions can be identified and areas that require improvements are then remediated by the EAM practice through improvement plans.

This assessment was designed and built using existing tools that are configurable to administer the assessment survey with scores associated with each answer of the survey. The scores were averaged to give the final scores, which determined the level of maturity. Based on the classification of the dimensions, the insights from the different views would give the organisation an idea of their poorly performing areas. This framework is complementary to any existing EA framework that may be adopted. The eMA framework provided added value by:

- Providing a list of dimensions that are seen as vital for EAM success.
- Creating classifications that provide multiple views and insights.
- Identifying the different maturity attributes for people, processes and technology.
- Providing guidelines in the levels associated with each dimension.
- Providing an interface from which you can administer the assessment.

9.3.2 Methodological Reflection

Methodological reflection refers to the methods that were adopted for the execution of this study in the problem-solving cycle (Mathiassen et al., 2012). This study followed a structured design as depicted on the research design onion in the previous section, which aligned with the DSR strategy. As such, each element of this study has aligned the phases set out in the DSR approach and all outcomes and deliverables can be traced back to the phases of awareness of the problem, suggestion, development, evaluation and the communication phase, which was followed using an iterative approach that allowed the researcher to go back into any of the previous phases to adjust findings where necessary. The development phase of the DSR strategy was further extended to have four subcycles to allow for rigour during the design and build of the artefact. Using the guidelines proposed by Hevner et al. (2004) provided the structure and method required to design and build the artefact, a summary of the relating methods is depicted in Figure 121: Summary of Methodological Reflection.

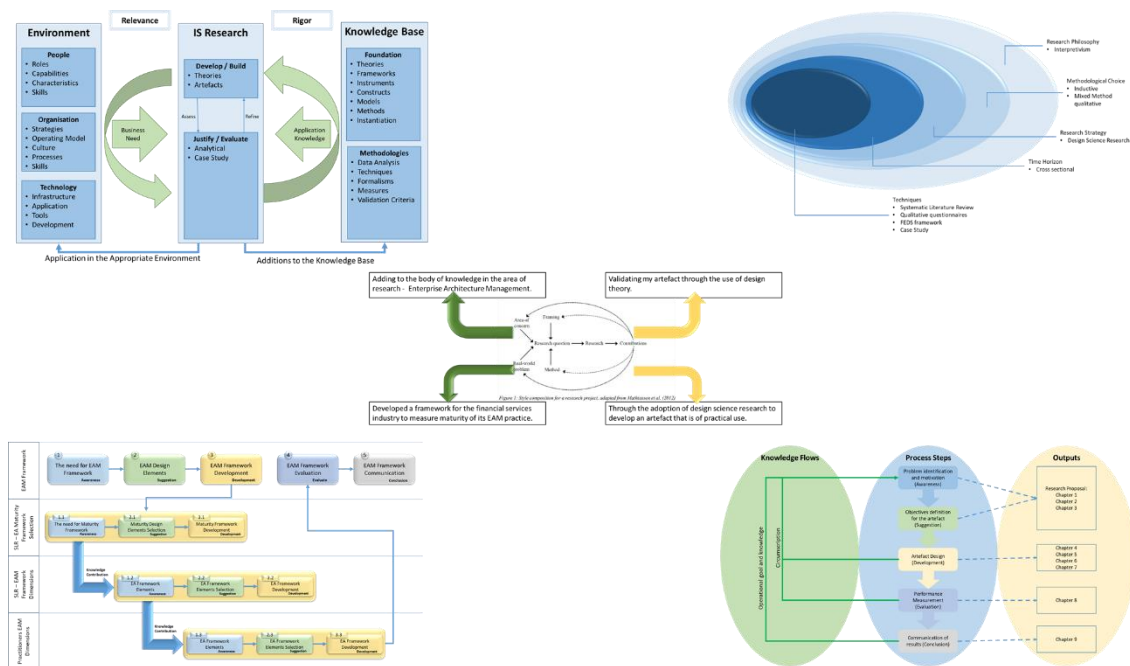


Figure 121: Summary of Methodological Reflection

9.3.3 Scientific Reflection

This section of the study compares the results of the research to existing related research and indicates possible value organisations within financial services can receive. This section also represents the reflection on the contribution to the scientific body of knowledge.

Since there was nothing at the time of this study that matched the framework, it motivated the researcher to start a knowledge base in this area. While many maturity models exist and have been adapted to fit EA, none of them addresses the need of measuring EAM maturity of the practice with the objectives of concentrating on people, process and technology dimensions of EAM. It was equally important to not only take into consideration the dimensions as seen in literature but to also test and validate them through a case study. Through the interview process, the researcher was able to collaborate and accept or reject certain dimensions based on their experience within their environment, which provided for more rigour when selecting dimensions in the end product. The rationale was that the organisation should put effort into focus areas that contribute to the success of the practice by receiving the perceived values of EAM

throughout the organisation. When the perceived value is not gained, the interest and confidence in EAM is lost, which then leads to failure and ultimately its demise.

Through the method adopted in **Chapters 4 and 5**, the requirements for the eMA framework was gathered using existing dimensions that were identified as vital. This requirement would now form a baseline that can be improved as further studies against other case studies are completed.

9.4 RECOMMENDATIONS

This section discusses the recommendations that emanated from the study. This is discussed through three perspectives which cover the policy and practice and future research and follows in the subsequent sections.

9.4.1 Policy and Practice

No maturity assessment measures the maturity level of EAM with regard to people, process and technology. While there are many that address specific needs of a specific EA framework and methodology, none address the needs as a practice and cater for the socio-technological dimensions. The challenge was to identify dimensions that are vital for an organisation which then selects dimensions that are seen as vital for success. There needs to be a shift from organisation to be more focused or specific to meet their organisation's objectives. Trying to satisfy all requirements/guiding principles of existing frameworks is the biggest contributor to failure as it is a mammoth task because of the area of scope it touches. By adopting this approach, organisations are measuring maturity levels that are key for them to succeed and narrows the scope significantly in the effort to focus on the poorly performing areas. To improve year-on-year, it is recommended that this assessment survey be conducted once every year to track the progress being made and to adapt the improvement strategy required to ensure that continuous progress is being made.

9.4.2 Research Limitation

The following limitation was identified during the execution of this study:

- The study was limited to one case study within the financial services industry.
- The value of the study depends on the willingness of the organisation to accept the output of the eMA framework and then taking action by implementing the respective improvement plans.
- The research through literature focuses on vertically aligned elements such as technology and data architecture domain and not any of the horizontal elements such as security and integration architecture.

9.4.3 Future Research

The eMA framework defines the dimensions and maturity levels for the financial services industry and provides a tool that provides insights into the current EAM practice in terms of areas that are adequately performing versus the poorly performing dimensions. While this study focuses specifically on the financial services industry, the focus of this study was one case study. The following are some areas that can be extended for future research.

- For this framework to be more useful and relative to the larger financial services industry, this assessment framework should be tested against many more cases studies within financial services.
- The assessment framework can also be tested against other similar industries while eventually reaching other industries to test compatibility or just adjusting the framework to suit the need.
- Exploration into a more detailed analysis of the implementation/administration process should be completed.
- Additional classification of the dimensions should also be explored and linked to the objectives set out by the organisation for better insights analysis and identification of poorly performing areas.
- Identify themes of poorly performing areas across multiple case studies.

- Extend the framework to include improvement plans for commonly identified poorly performing areas.

9.5 CONCLUDING REMARKS

This chapter provided a reflection and overview of EAM and an understanding of its importance for its success. With the evolution of EAM moving at such a rapid pace, it becomes important to understand what the critical dimensions of EAM are before trying to develop or mature other dimensions brought to life as a result of its evolution.

The main objective of this study was to develop an eMA framework by adopting the DSR strategy in the Information Communication and Technology (ICT) and business strategy domain of the financial services industry. To develop the framework, the dimensions that are vital for success were determined. Aligned with the dimensions were the corresponding maturity levels and associated qualities to measure the maturity level. The framework was tested with an organisation in the financial services industry. This framework intends to identify poorly or nonexistent dimensions within the EAM practice of the organisation that are seen as vital for EAM success. In doing so, relevant improvement plans can be put in place to remedy those areas so that EAM can get closer to their desired maturity level. This would increase the value of EAM in the organisation by satisfying those dimensions that make the most impact on an EAM practice.

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11 APPENDIX A: CHAPTER 4 – SUPPORTING DATA



Paper-Id	Title of paper	C1	C2	C3	C4	C5	C6	C7	C8	C9	Total
p001	A balanced scorecard approach to measure the value of enterprise architecture	1	1	0	0,5	1	1	1	0,5	0	6
p002	A Case Study of Stakeholder Concerns on EAM	0,5	1	0,5	0,5	1	0,5	0,5	1	1	6,5
p003	A comparative analysis of enterprise architecture frameworks based on EA quality attributes	1	0	0	1	1	1	1	0	0	5
p004	A comparison enterprise architecture implementation methodologies	1	0	0	1	1	1	0,5	0,5	0	5
p005	A comparison of the top four enterprise-architecture methodologies	1	0	0	0	0,5	1	0,5	0	0	3
p006	A comprehensive enterprise architecture metamodel and its implementation using a metamodeling platform	1	0	0	0,5	0,5	1	0,5	0	0	3,5
p007	A Design of Business-Technology Alignment Consulting Framework	0,5	0	0	0	0,5	1	0,5	0	0	2,5
p008	A Design Theory Nexus for Situational Enterprise Architecture Management	1	0	0	0,5	1	1	1	0	0	4,5
p009	A federated approach to enterprise architecture model maintenance	1	0	0	1	1	1	1	0	0	5
p010	A framework for enterprise architecture effectiveness	1	0	0	0,5	0,5	1	0,5	0	0	3,5
p011	A framework for local project architecture in the context of enterprise architecture	1	0,5	0	0,5	1	1	1	0	0	5
p012	A framework for measuring ROI of enterprise architecture	0,5	0	0	0	0,5	0,5	0,5	0	0	2
p013	A Label is not enough – Approach for an Enterprise Architecture Role Description Framework	1	1	0	1	1	1	1	1	0	7
p014	A Lightweight Approach to Enterprise Architecture Modeling and Documentation	1	1	0	1	1	1	1	0	0	6
p015	A Meta-Model for Automated Enterprise Architecture Model Maintenance	1	1	0	1	1	1	1	0	0	6



p016	A Method Base for Enterprise Architecture Management	1	1	0	1	1	1	1	1	0	7
p017	A new content framework and metamodel for Enterprise Architecture and IS Strategic Planning	1	1	0	1	1	1	1	1	0	7
p018	A Probabilistic Enterprise Architecture Model Evolution	1	1	0	1	1	1	1	1	0	7
p019	A real options perspective to enterprise architecture as an investment activity	1	1	0	0,5	0,5	1	1	0	0	5
p020	A Reassessment of Enterprise Architecture Implementation	1	1	1	1	1	1	1	1	0	8
p021	A resource-based perspective of value generation through enterprise architecture management	1	1	0	1	1	1	1	1	1	8
p022	A review of critical success factors of enterprise architecture implementation	1	1	0	1	1	1	1	1	0	7
p023	A situated approach to enterprise architecture management	1	0	0	0,5	1	1	1	0	0	4,5
p024	A situational method for semi-automated Enterprise Architecture Documentation	1	1	0	1	1	1	1	1	0	7
p025	A systematic literature review: Critical Success Factors to Implement Enterprise Architecture	1	1	0	1	1	1	1	1	0	7
p026	A tool for enterprise architecture analysis	1	1	0	1	1	1	1	1	0	7
p027	A viable system perspective on enterprise architecture management	1	1	0	1	1	1	1	0	0	6
p028	Aligning Business Process Access Control Policies with Enterprise Architecture	1	1	0	0	0	0	0	0	0	2
p029	An empirical analysis of the factors and measures of Enterprise Architecture Management success	1	1	0,5	1	1	1	1	1	0	7,5
p030	An Experts' Perspective on Enterprise Architecture Goals, Framework Adoption and Benefit Assessment	1	1	1	1	1	1	1	1	1	9
p031	An Extensible Enterprise Architecture Pattern for Turnaround Management	1	1	0	0,5	0,5	0,5	0,5	0,5	0	4,5



p032	An Instrument for the Development of the Enterprise Architecture Practice.	1	1	0	1	1	1	1	1	0	7
p033	Analysis of Enterprise Architecture Tool Support for Industry 4.0 Transformation Planning	1	1	0	0,5	0,5	1	1	1	0	6
p034	Analyzing Task and Technology Characteristics for Enterprise Architecture Management Tool Support	1	1	0	1	1	1	1	1	0	7
p035	Architectural Principles for Enterprise Frameworks: Guidance for Interoperability	1	0,5	0,5	0,5	0,5	1	1	0,5	0	5,5
p036	Architecture consistency: State of the practice, challenges and requirements	0,5	0,5	0	0	0,5	0,5	0,5	0,5	0	3
p037	Benefits of Enterprise Architecture Management – Insights from European Experts	1	1	0,5	0,5	1	1	1	1	0	7
p038	Beyond EA frameworks: Towards an understanding of the adoption of enterprise architecture management	1	1	1	1	1	1	1	1	0	8
p039	Building an enterprise architecture step by step	1	0	0	1	1	1	1	0	0	5
p040	Business capabilities centric enterprise architecture	1	0	0	1	1	1	1	1	0	6
p041	Challenges in Integrating Product-IT into Enterprise Architecture – a case study	1	0	0	1	1	1	1	1	0	6
p042	Communication as a Crucial Element for Enterprise Architecture Management in Virtual Organization	1	0	0	1	1	1	1	1	0	6
p043	Conceptual Model of Enterprise Architecture Management	1	1	1	1	1	1	1	1	1	9
p045	Data Governance on EA Information Assets: Logical Reasoning for Derived Data	1	1	0	1	1	1	1	1	0	7
p046	Decoupling Models and Visualisations for Practical EA Tooling	1	0	0	1	1	1	1	1	0	6
p047	Development of an enterprise architecture management capability catalog	1	1	0	1	1	1	1	1	0	7



p048	Development of Software Tool Support for Enterprise Architecture in Small and Medium-Sized Enterprises	0,5	0,5	0,5	1	0,5	1	0,5	0,5	0,5	5,5
p049	Does Enterprise Architecture Support Customer Experience Improvement? Towards a Conceptualization in Digital Transformation Context	1	1	0	1	1	1	1	1	0	7
p050	Enterprise Architecture Adoption Challenges: An exploratory Case Study of the Norwegian Higher Education Sector	1	1	1	1	1	1	1	1	0	8
p051	Enterprise architecture and change management	1	0	0	1	1	1	1,5	0,5	0	6
p052	Enterprise architecture governance: the need for a business-to-IT approach	1	0	0	0,5	0,5	1	1	0	0	4
p053	Enterprise architecture implementation and management: A case study on interoperability	0,5	0	0	0,5	0,5	1	1	0	0	3,5
p054	Enterprise architecture management and its role in corporate strategic management	1	1	0,5	1	1	1	1	1	0	7,5
p055	Enterprise architecture management patterns	0,5	0,5	0	0,5	1	1	1	0	0	4,5
p056	Enterprise Architecture Management Patterns – Exemplifying the Approach	0,5	0,5	0	0,5	1	1	1	0	0	4,5
p057	Enterprise architecture management patterns for company-wide access views on business objects	0,5	0,5	0	0,5	1	1	1	0	0	4,5
p058	Enterprise Architecture Management-Based Framework for Integration of SME into a Collaborative Network	0,5	0,5	0	0,5	1	1	1	0	0	4,5
p059	Enterprise Architecture Management's Impact on Information Technology Success	1	1	0	1	1	1	1	1	0	7
p060	Enterprise Architecture Migration Planning Using the Matrix of Change										0
p061	Enterprise architecture patterns for business process support analysis	0,5	0,5	0	0,5	1	0	0	0	0	2,5



p062	Enterprise Architecture Planning in the Context of Industry 4.0 Transformations	0,5	0,5	0	0,5	1	0	0	0	0	2,5
p063	Enterprise architecture quality attributes: A case study	1	1	1	1	1	1	1	1	0	8
p064	Enterprise architecture Stakeholders-a holistic view	1	1	1	1	1	1	1	1	0	8
p065	Enterprise Architecture: A Governance Framework	0,5	0,5	0	0,5	0,5	0,5	1	1	0	4,5
p066	Enterprise architecture: a maturity model based on TOGAF ADM	1	1	1	1	1	1	1	1	0	8
p067	Enterprise architecture: critical factors affecting modelling and management	1	1	0,5	1	1	1	1	1	0	7,5
p068	Enterprise architecture: Enabling integration, agility and change	0,5	0,5	0	0	0	0	0	0	0	1
p069	Enterprise architecture: Management tool and blueprint for the organisation	1	0,5	0	1	1	1	1	0	0	5,5
p070	Essential layers, artifacts, and dependencies of enterprise architecture	1	0,5	0	1	1	1	1	0	0	5,5
p071	Evaluating project compliance during EA planning: a model-based semi automatic method for enterprise architecture planning	0,5	0,5	0	0,5	0,5	1	1	0	0	4
p072	Evaluation of current architecture frameworks	0,5	0,5	0	0,5	0,5	1	1	0	0	4
p073	Evolving the EAM pattern language	0,5	0,5	0	0,5	0,5	1	1	0	0	4
p074	Exploring the future of enterprise architecture: A Zachman perspective	0,5	0,5	0	0,5	0,5	1	1	0	0	4
p075	Factors affecting the organizational adoption of service-oriented architecture (SOA)	0,5	0,5	0	0,5	0,5	1	1	0	0	4
p076	Factors Influencing the Engagement between Enterprise Architects and Stakeholders in Enterprise Architecture Development.	1	1	0,5	1	1	1	1	1	0	7,5
p077	Fostering enterprise architecture education and training with the enterprise architecture competence framework	1	0	0	1	1	1	1	1	0	6
p078	Frameworks for enterprise architecture	1	0	0	1	1	1	1	1	0	6



p079	From Expert Discipline to Common Practice: A Vision and Research Agenda for Extending the Reach of Enterprise Modeling	0,5	0,5	0	0,5	0,5	1	1	0	0	4
p080	From problems to critical success factors of enterprise architecture adoption	1	1	1	1	1	1	1	1	1	9
p081	Future Research Topics in Enterprise Architecture Management – A Knowledge Management Perspective	0,5	0,5	0	0,5	0,5	1	1	0	0	4
p082	Goals in Enterprise Architecture Management – Findings from Literature and Future Research Directions	0,5	1	0	0,5	0,5	0,5	0,5	0	0	3,5
p083	How companies can benefit from Enterprise Architecture Management - An Extended Research Model	0,5	0,5	0	0,5	0,5	0,5	0,5	0	0	3
p084	How Digital Transformation affects Enterprise Architecture Management - a case study	0,5	0,5	0	0,5	0,5	0,5	0,5	0	0	3
p085	How does enterprise architecture add value to organisations?	0,5	0,5	0	0,5	0,5	0,5	0,5	0	0	3
p086	How Enterprise Architecture Formative Critical Success Facets Might Affect Enterprise Architecture Success: A Literature Analysis	1	1	1	1	1	1	1	1	1	9
p087	How to make your enterprise architecture management endeavor fail!	1	0	0	1	1	1	1	0	0	5
p088	How to realise corporate value from enterprise architecture	0,5	0,5	0	0,5	0,5	0,5	0,5	0	0	3
p089	Information strategy challenges in the digital era how enterprise architecture management can support strategic IS planning	1	1	0	1	1	1	1	1	0	7
p090	Institutional Perspectives on the Process of Enterprise Architecture Adoption	1	1	1	1	1	1	1	1	1	9
p091	Institutionalization and the effectiveness of enterprise architecture management	1	1	1	1	1	1	1	1	1	9



p092	Integrating Business Models and Enterprise Architecture	0,5	0,5	0	0,5	0,5	0,5	0,5	0	0	3
p093	Integration of IT strategy and enterprise architecture models	0,5	0,5	0	0,5	0,5	0,5	0,5	0	0	3
p094	Introducing a Coordination Perspective to Enterprise Architecture Management Research	1	1	0	1	1	1	1	1	1	8
p095	Investigating the usage of enterprise architecture artifacts	1	1	1	1	1	1	1	1	1	9
p096	IT strategy Implementation Framework-Bridging Enterprise Architecture and IT Governance.	1	1	0	1	1	1	1	1	0	7
p097	Looking for a five-legged sheep: identifying enterprise architects' skills and competencies	1	1	0	1	1	1	1	1	0	7
p098	Measurement of enterprise architecture readiness within organizations	1	1	0	1	1	1	1	1	0	7
p099	Metrics for architectural synthesis and evaluation: requirements and compilation by viewpoint: an industrial experience report	0,5	0,5	0	0,5	0	0	0	0	0	1,5
p100	Modeling and simulation competency center for mature enterprises	1	0	0	1	1	1	1	1	0	6
p101	Nuanced Responses to Enterprise Architecture Management: Loyalty, Voice, and Exit	1	0	0	1	1	1	1	1	0	6
p102	On applying the theory of structuration in enterprise architecture design	1	0	0	0,5	0,5	0,5	0,5	0,5	0	3,5
p103	On the systemic enterprise architecture methodology (SEAM)	0,5	0	0	0,5	0,5	0,5	0,5	0,5	0	3
p104	Outcomes and success factors of enterprise IT architecture management: empirical insight from the international financial services industry	1	0	0	1	1	1	1	1	0	6
p105	Overcoming implementation challenges in enterprise architecture management: a design theory for architecture-driven IT Management (ADRIMA)	1	0	0	1	1	1	1	1	0	6

p106	Pattern-based Design Research in Enterprise Architecture Management	0,5	0	0	0,5	0,5	0,5	0,5	0,5	0	3
p107	Planning Support for Enterprise Changes	0,5	0	0	0,5	0,5	0,5	0,5	0,5	0	3
p108	Potential critical success factors for enterprise architecture	1	1	0	1	1	1	1	1	0	7
p109	Purpose of Enterprise Architecture Management: Investigating Tangible Benefits in the German Logistics Industry	0,5	0	0	0,5	0,5	0,5	0,5	0,5	0	3
p110	Rule-Based Architectural Compliance Checks for Enterprise Architecture Management	0,5	0	0	0,5	0,5	0,5	0,5	0,5	0	3
p111	Success factors for federated enterprise architecture model management	1	1	0	1	1	1	1	1	0	7
p112	The Benefits of Enterprise Architecture in Organizational Transformation	0,5	0	0	0,5	0,5	0,5	0,5	0,5	0	3
p113	The critical success factors of enterprise architecture	1	0	0	1	1	1	1	0	0	5
p114	The Failure of Success Factors: Lessons from Success and Failure Cases of Enterprise Architecture Implementation [Best Paper Nominee]	1	1	0	1	1	1	1	1	0	7
p115	The impact of organisational structure on enterprise architecture deployment	1	1	0	1	1	1	1	1	0	7
p116	The organizational impact of enterprise architecture: a research framework	0,5	0	0	0,5	0,5	0,5	0,5	0,5	0	3
p117	The role of organizational culture for grounding, management, guidance and effectiveness of enterprise architecture principles	1	1	0	1	1	1	1	1	0	7
p118	Tool Support for Enterprise Architecture Management - Strengths and Weaknesses	1	1	0	1	1	1	1	1	0	7
p119	Top 10 architecture land mines [enterprise]	1	0	0	1	1	1	1	1	0	6
p120	Toward a unified enterprise architecture framework: an analytical evaluation	1	0	0	1	1	1	1	1	0	6



p121	Towards a framework for governance architecture management in cloud environments: A semantic perspective	0,5	0	0	0,5	0,5	0,5	0,5	0,5	0	3
p122	Towards a process maturity model for evolutionary architecting of embedded system product lines	0,5	0	0	0,5	0,5	0,5	0,5	0,5	0	3
p123	Towards a quality framework for enterprise architecture models	0,5	0	0	0,5	0,5	0,5	0,5	0,5	0	3
p124	Towards an enterprise architecture controlling framework	0,5	0	0	0,5	0,5	0,5	0,5	0,5	0	3
p125	Towards an integrated service-oriented reference enterprise architecture	0,5	0	0	0,5	0,5	0,5	0,5	0,5	0	3
p126	Towards Critical Success Factors for Enterprise Architecture:[AISA Project report]	1	0	0	1	1	1	1	1	0	6
p127	Towards Integration Methods of Product-IT into Enterprise Architectures	0,5	0	0	0,5	0,5	0,5	0,5	0,5	0	3
p128	Towards the Definition of Enterprise Architecture Debts	0,5	0	0	0,5	0,5	0,5	0,5	0,5	0	3
p129	Towards the development of the framework for inter sensing enterprise architecture	0,5	0	0	0,5	0,5	0,5	0,5	0,5	0	3
p130	Type-Safety in EA Model Analysis	0,5	0	0	0,5	0,5	0,5	0,5	0,5	0	3
p131	Understanding enterprise architecture management design-an empirical analysis	1	0	0	1	1	1	1	1	0	6
p132	Understanding the Benefits and Success Factors of Enterprise Architecture	1	0	0	1	1	1	1	1	0	6
p133	Understanding the role of organizational culture for design and success of enterprise architecture management	1	0	0	1	1	1	1	1	0	6
p134	Understanding the success of strategic IT benchmarking—Exploring the role of the individual level	0,5	0	0	0,5	0,5	0,5	0,5	0,5		3

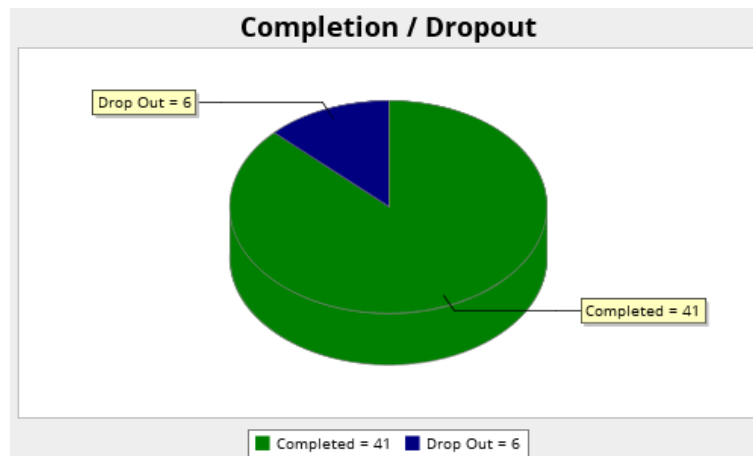
p135	Untangling EA's Long Path of Becoming a Partner for Business Transformation: The Case of Swiss Federal Railways	0,5	0	0	0,5	0,5	0,5	0,5	0,5	0	3
p136	Updating the enterprise architecture planning model	0,5	0	0	0,5	0,5	0,5	0,5	0,5	0	3
p137	Use It or Lose It? The Role of Pressure for Use and Utility of Enterprise Architecture Artifacts	0,5	0	0	0,5	0,5	0,5	0,5	0,5	0	3
p138	Using Enterprise Architecture Management Patterns to Complement TOGAF	0,5	0	0	0,5	0,5	0,5	0,5	0,5	0	3
p139	Using enterprise architecture model analysis and description logics for maturity assessment	0,5	0	0	0,5	0,5	0,5	0,5	0,5	0	3
p140	Using Enterprise Architecture Models for Creating the Record of Processing Activities (Art. 30 GDPR)	0,5	0	0	0,5	0,5	0,5	0,5	0,5	0	3
p141	Using enterprise architecture to integrate strategic, business, and technology planning	0,5	0	0	0,5	0,5	0,5	0,5	0,5	0	3
p142	Variability Mining of Technical Architectures	0,5	0	0	0,5	0,5	0,5	0,5	0,5	0	3
p143	Visual Roadmaps for Managed Enterprise Architecture Evolution	0,5	0	0	0,5	0,5	0,5	0,5	0,5	0	3
p144	What Drives Application Portfolio Complexity? An Empirical Analysis of Application Portfolio Cost Drivers at a Global Automotive Company	0,5	0	0	0,5	0,5	0,5	0,5	0,5	0	3
Score-	Consolidating Enterprise Architecture Management Research	1	1	0	1	1	1	1	1	0	7

Table 42: EAM Dimension SLR Appraisal Result



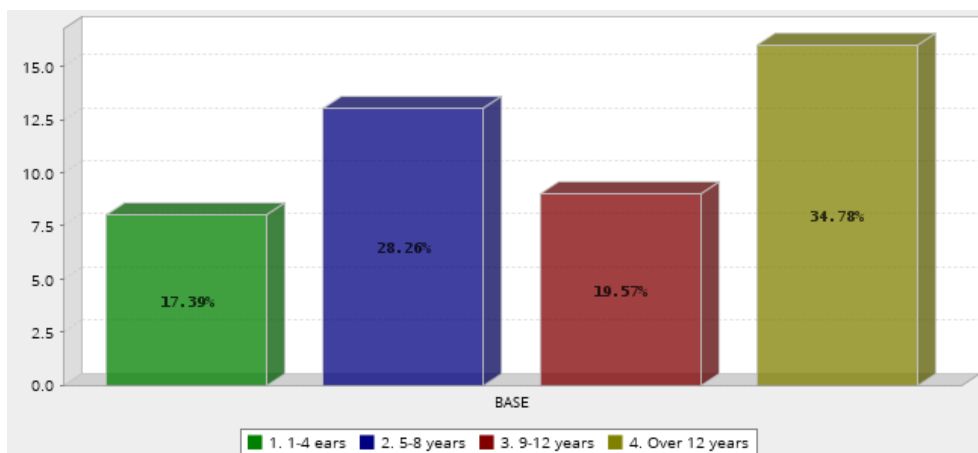
12 APPENDIX B: CHAPTER 5 – SUPPORTING DATA

Survey Overview



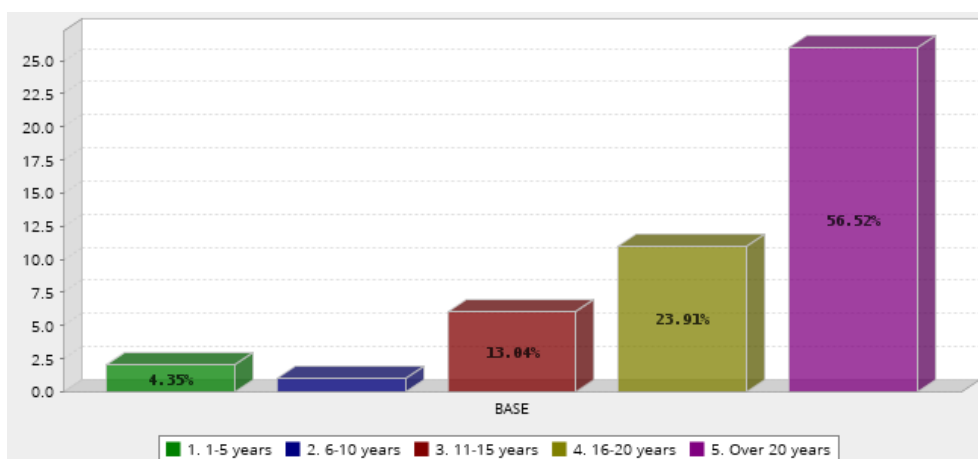
Viewed	Started	Completed	Completion Rate	Drop Outs (After Starting)	Average Time to Complete Survey
110	47	41	87.23%	6	25 minutes

Q1. What level of experience you do have in EA?



	Answer	Count	Percent
1.	1-4 ears	8	17.39%
2.	5-8 years	13	28.26%
3.	9-12 years	9	19.57%
4.	Over 12 years	16	34.78%
	Total	46	100%

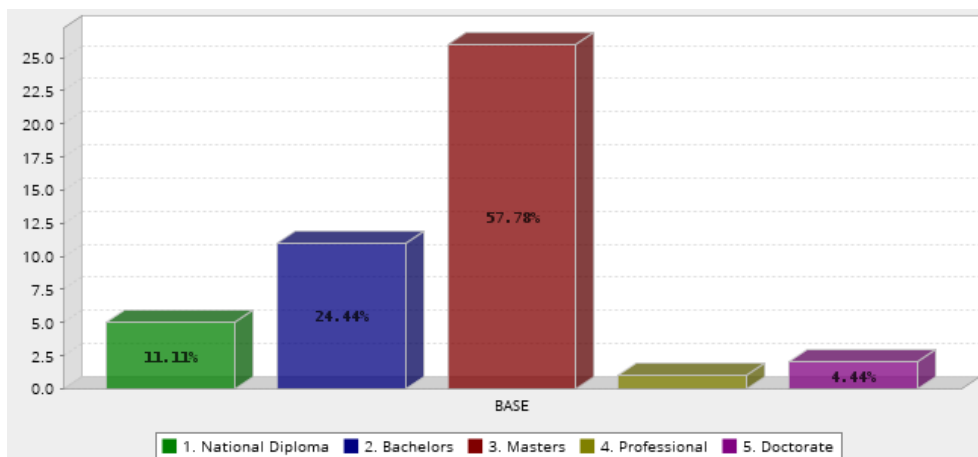
Q2. What are your total years of experience?



	Answer	Count	Percent
1.	1-5 years	2	4.35%
2.	6-10 years	1	2.17%

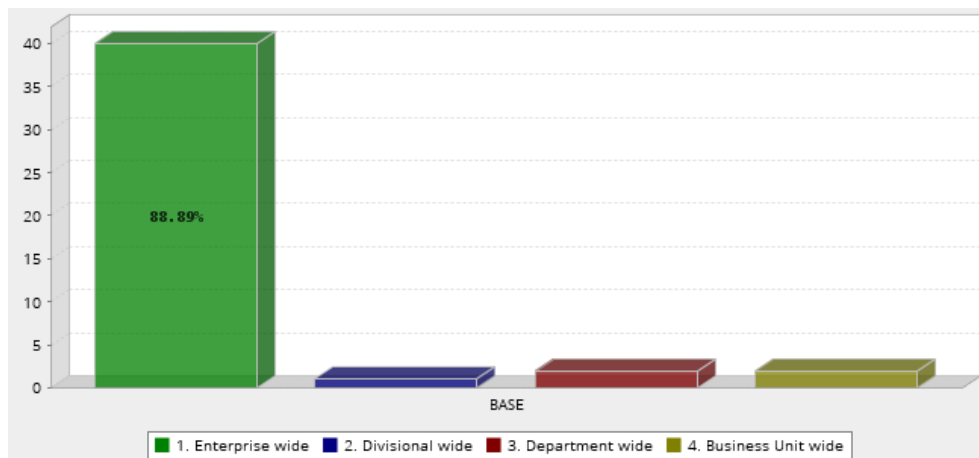
3.	11-15 years	6	13.04%
4.	16-20 years	11	23.91%
5.	Over 20 years	26	56.52%
	Total	46	100%

Q3. What is your highest level of education?



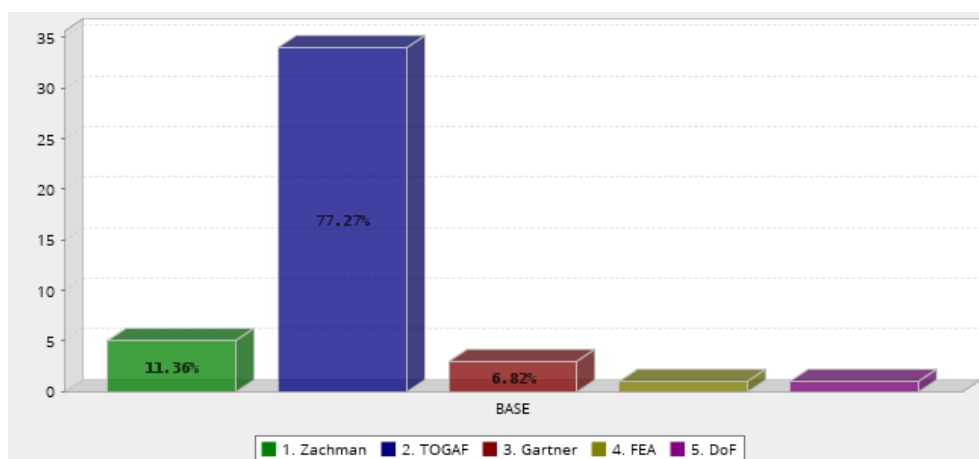
	Answer	Count	Percent
1.	National Diploma	5	11.11%
2.	Bachelors	11	24.44%
3.	Masters	26	57.78%
4.	Professional	1	2.22%
5.	Doctorate	2	4.44%
	Total	45	100%

Q4. What is the scope of EAM?



	Answer	Count	Percent
1.	Enterprise wide	40	88.89%
2.	Divisional wide	1	2.22%
3.	Department wide	2	4.44%
4.	Business Unit wide	2	4.44%
	Total	45	100%

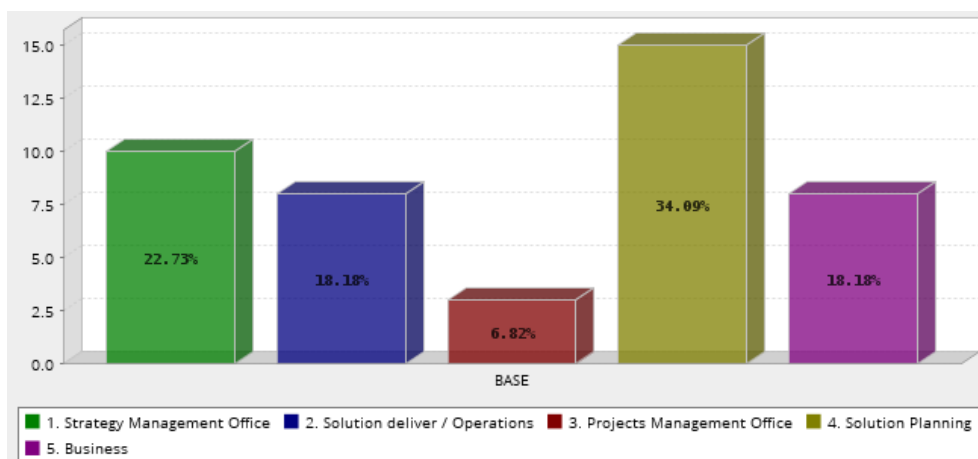
Q6. What EA framework and methodology are you most associated with?



	Answer	Count	Percent
1.	Zachman	5	11.36%

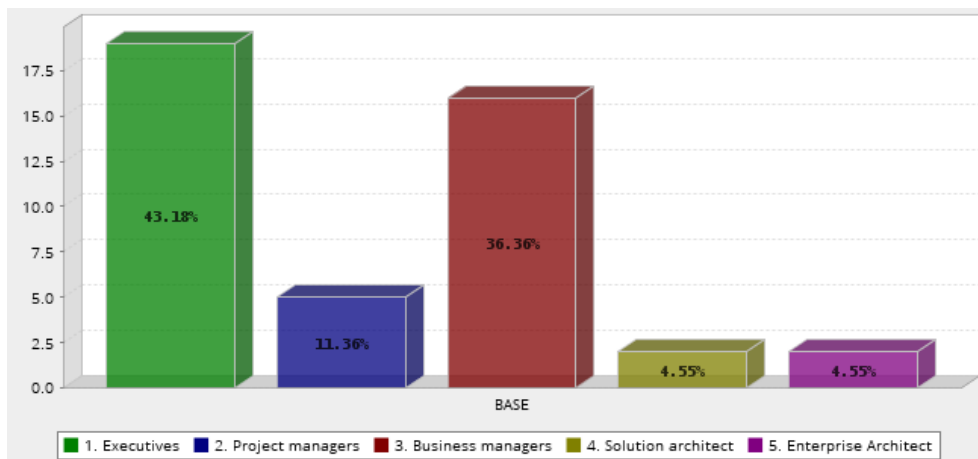
2.	TOGAF	34	77.27%
3.	Gartner	3	6.82%
4.	FEA	1	2.27%
5.	DoF	1	2.27%
	Total	44	100%

Q7. Which operating area do you reside in?



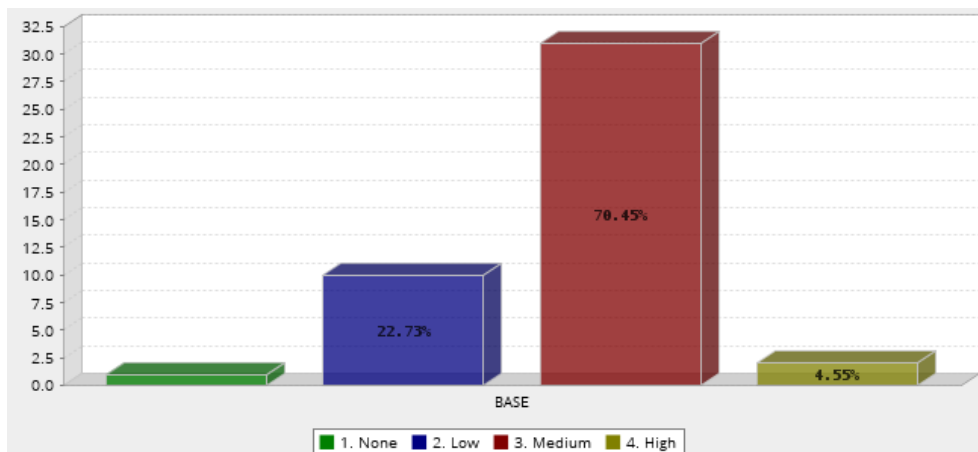
	Answer	Count	Percent
1.	Strategy Management Office	10	22.73%
2.	Solution deliver / Operations	8	18.18%
3.	Projects Management Office	3	6.82%
4.	Solution Planning	15	34.09%
5.	Business	8	18.18%
	Total	44	100%

Q8. Who you do consider to be your most valuable stakeholder i.e., interact the most with?



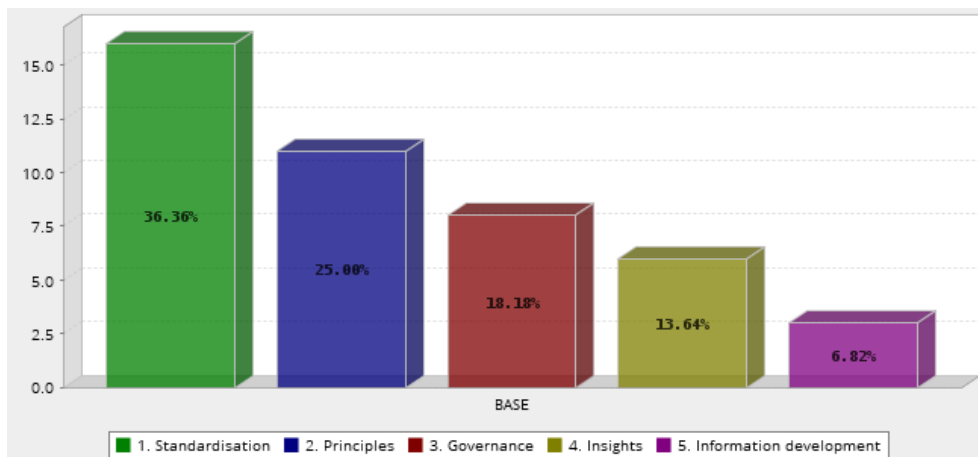
	Answer	Count	Percent
1.	Executives	19	43.18%
2.	Project managers	5	11.36%
3.	Business managers	16	36.36%
4.	Solution architect	2	4.55%
5.	Enterprise Architect	2	4.55%
	Total	44	100%

Q9. What level of maturity do you think your EA efforts have obtained?



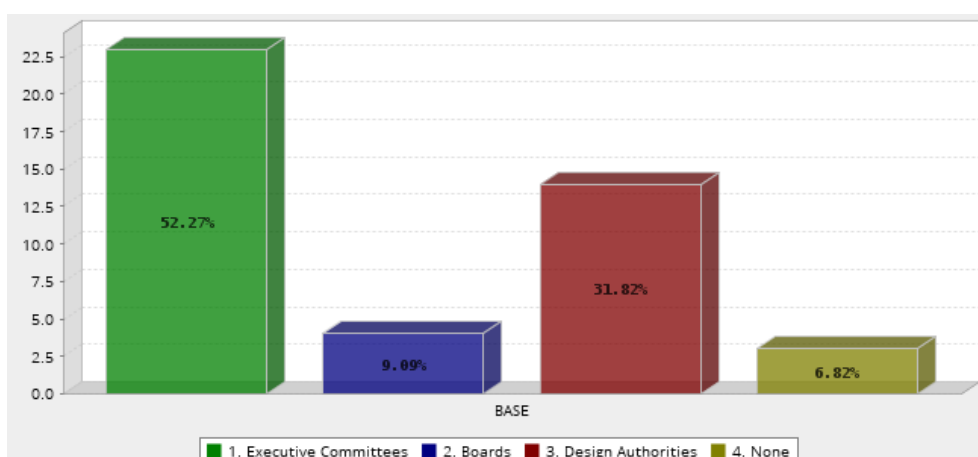
	Answer	Count	Percent
1.	None	1	2.27%
2.	Low	10	22.73%
3.	Medium	31	70.45%
4.	High	2	4.55%
	Total	44	100%

Q10. What do you think EA demonstrates well?



	Answer	Count	Percent
1.	Standardisation	16	36.36%
2.	Principles	11	25.00%
3.	Governance	8	18.18%
4.	Insights	6	13.64%
5.	Information development	3	6.82%
	Total	44	100%

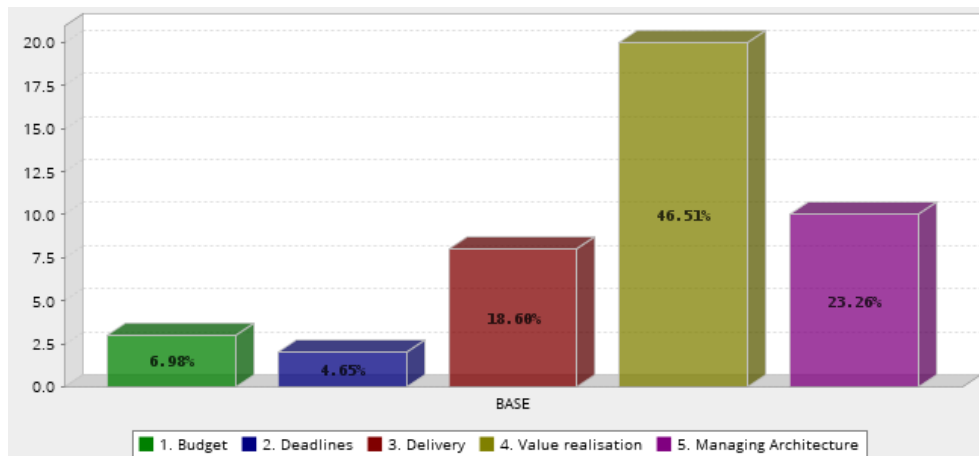
Q11. What governance structure do you interact with?



	Answer	Count	Percent
1.	Executive Committees	23	52.27%

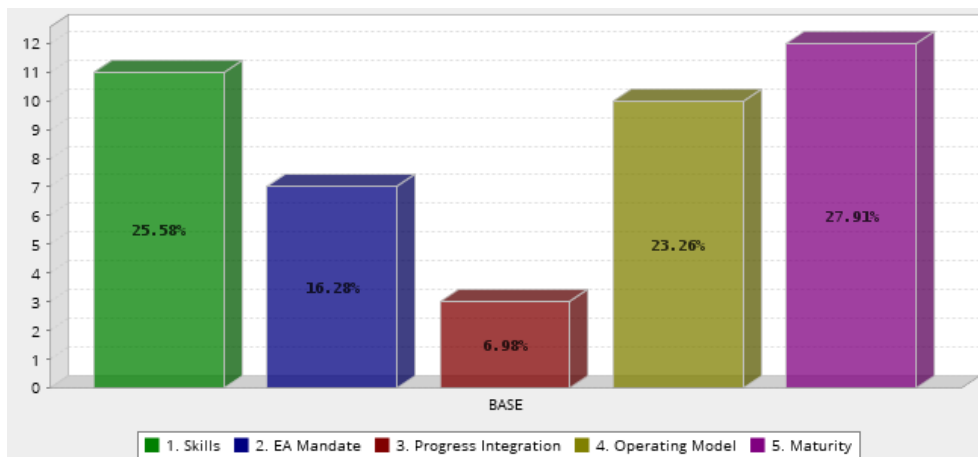
2.	Boards	4	9.09%
3.	Design Authorities	14	31.82%
4.	None	3	6.82%
	Total	44	100%

Q12. What EA concerns do you have in your current role?



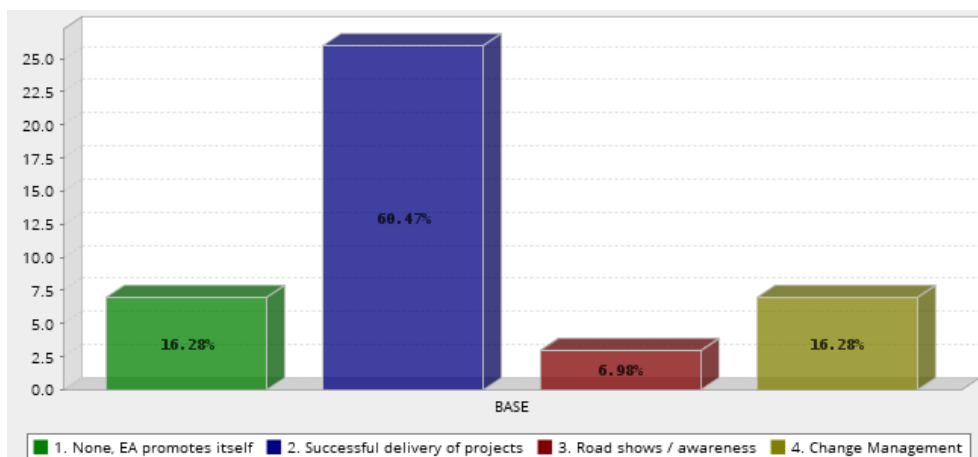
	Answer	Count	Percent
1.	Budget	3	6.98%
2.	Deadlines	2	4.65%
3.	Delivery	8	18.60%
4.	Value realisation	20	46.51%
5.	Managing Architecture	10	23.26%
	Total	43	100%

Q13. What EA Challenges do you have in your current role?



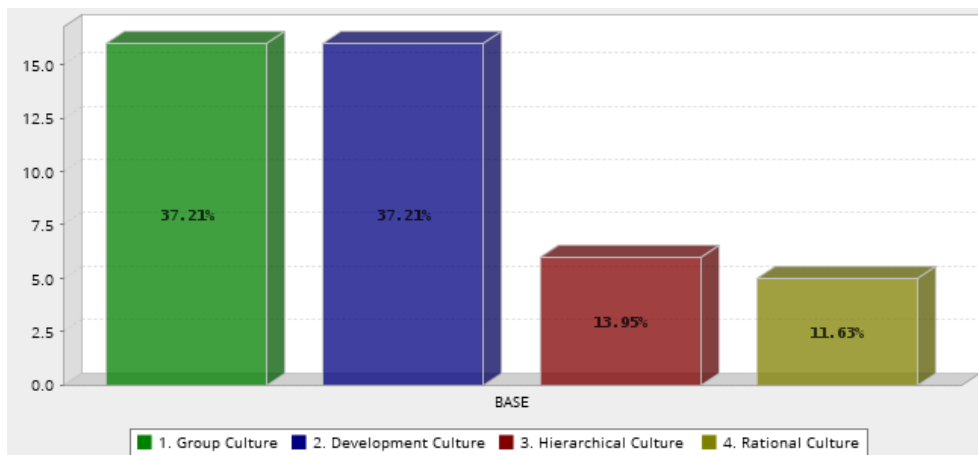
	Answer	Count	Percent
1.	Skills	11	25.58%
2.	EA Mandate	7	16.28%
3.	Progress Integration	3	6.98%
4.	Operating Model	10	23.26%
5.	Maturity	12	27.91%
	Total	43	100%

Q14. What techniques are used to promote EA in your current role?



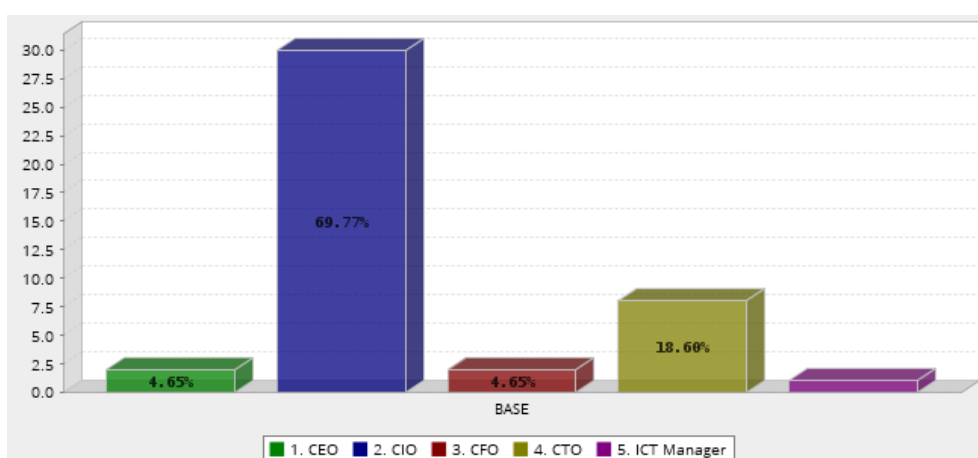
	Answer	Count	Percent
1.	None, EA promotes itself	7	16.28%
2.	Successful delivery of projects	26	60.47%
3.	Road shows / awareness	3	6.98%
4.	Change Management	7	16.28%
	Total	43	100%

Q15. What organisational culture best fits the EA function in your organisation?



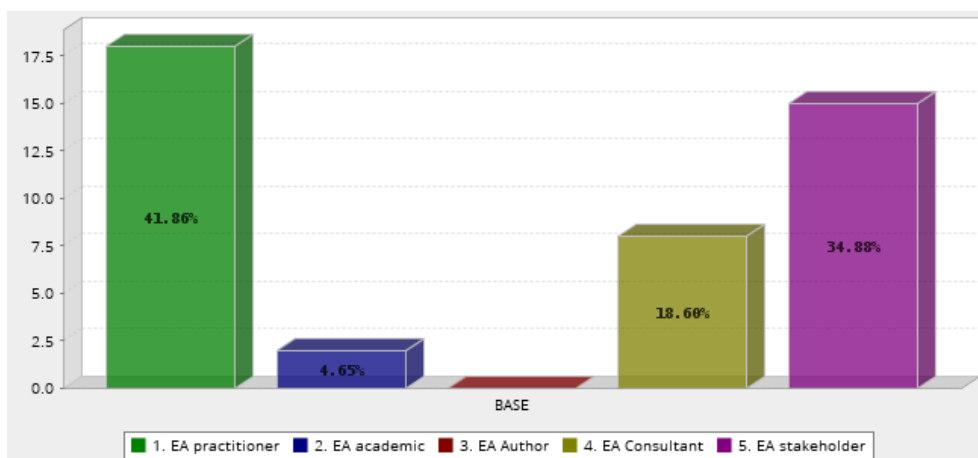
	Answer	Count	Percent
1.	Group Culture	16	37.21%
2.	Development Culture	16	37.21%
3.	Hierarchical Culture	6	13.95%
4.	Rational Culture	5	11.63%
	Total	43	100%

Q16. Who does the EA function report into?



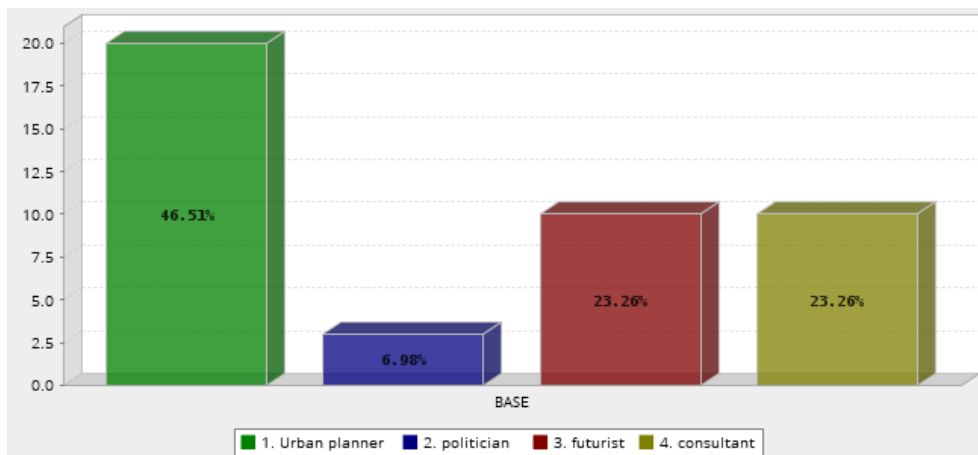
	Answer	Count	Percent
1.	CEO	2	4.65%
2.	CIO	30	69.77%
3.	CFO	2	4.65%
4.	CTO	8	18.60%
5.	ICT Manager	1	2.33%
	Total	43	100%

Q17. What is your interest in EA?



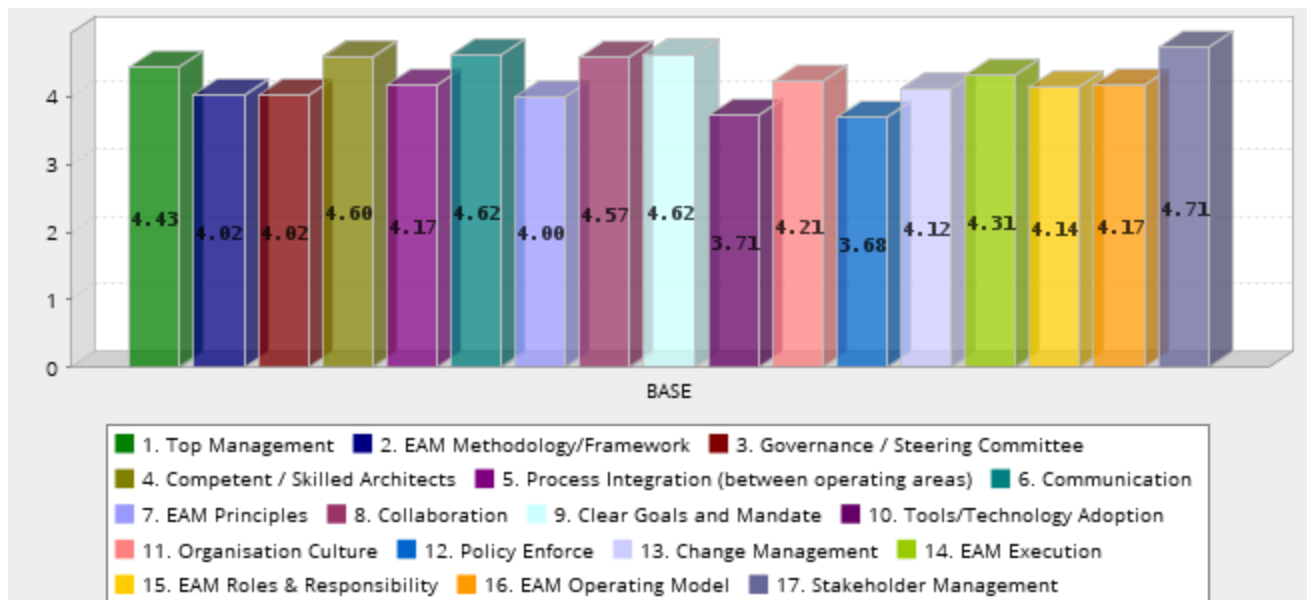
	Answer	Count	Percent
1.	EA practitioner	18	41.86%
2.	EA academic	2	4.65%
3.	EA Author	0	0.00%
4.	EA Consultant	8	18.60%
5.	EA stakeholder	15	34.88%
	Total	43	100%

Q19. What do you think best describes an EA?



	Answer	Count	Percent
1.	Urban planner	20	46.51%
2.	politician	3	6.98%
3.	futurist	10	23.26%
4.	consultant	10	23.26%
	Total	43	100%

Q19. What do you believe are the factors that increase the SUCCESS of EAM?
Select the most appropriate answer from the following areas:

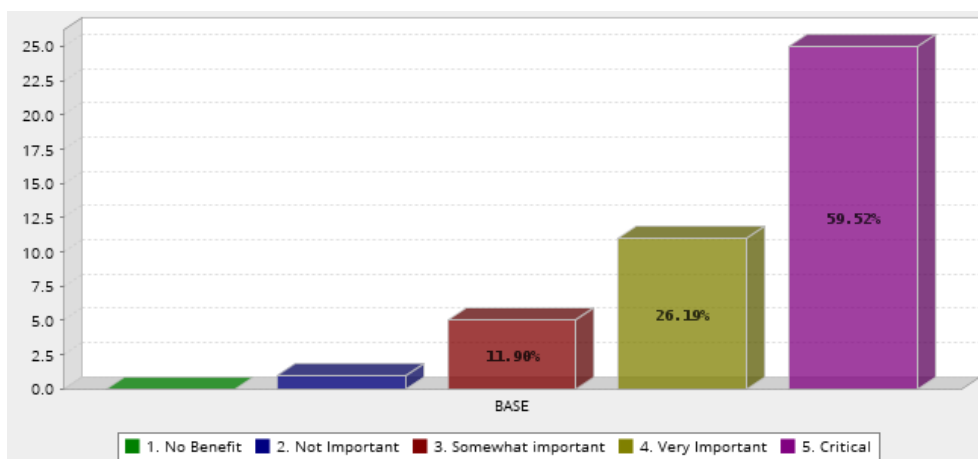


Q19. Overall Matrix Scorecard : What do you believe are the factors that increase the SUCCESS of EAM? Select the most appropriate answer from the following areas:

	Question	Count	Score	
1.	Top Management	42	4.429	
2.	EAM Methodology/Framework	42	4.024	
3.	Governance / Steering Committee	42	4.024	
4.	Competent / Skilled Architects	42	4.595	
5.	Process Integration (between operating areas)	42	4.167	
6.	Communication	42	4.619	
7.	EAM Principles	42	4.000	
8.	Collaboration	42	4.571	
9.	Clear Goals and Mandate	42	4.619	
10.	Tools/Technology Adoption	42	3.714	
11.	Organisation Culture	42	4.214	
12.	Policy Enforce	41	3.683	

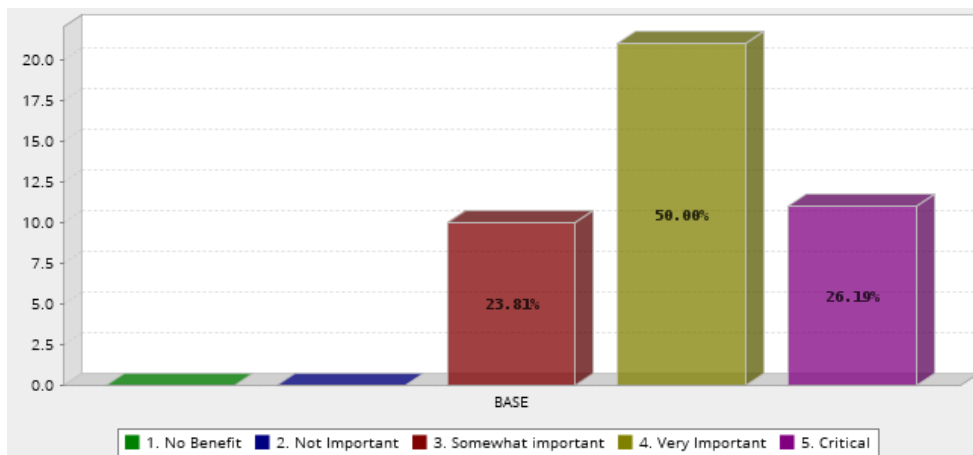
13.	Change Management	42	4.119	
14.	EAM Execution	42	4.310	
15.	EAM Roles and Responsibility	42	4.143	
16.	EAM Operating Model	42	4.167	
17.	Stakeholder Management	42	4.714	
Average			4.242	

Q19. Top Management



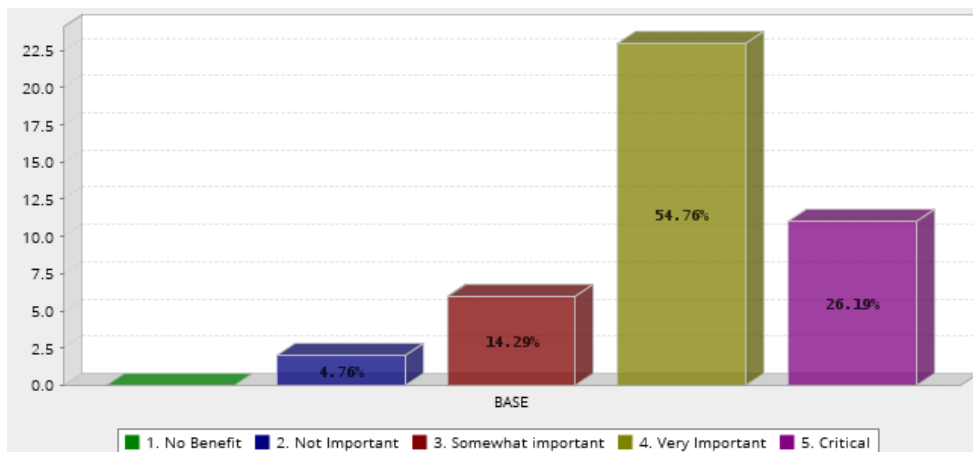
	Answer	Count	Percent
1.	No Benefit	0	0.00%
2.	Not Important	1	2.38%
3.	Somewhat important	5	11.90%
4.	Very Important	11	26.19%
5.	Critical	25	59.52%
	Total	42	100%

Q19. EAM Methodology / Framework



	Answer	Count	Percent
1.	No Benefit	0	0.00%
2.	Not Important	0	0.00%
3.	Somewhat important	10	23.81%
4.	Very Important	21	50.00%
5.	Critical	11	26.19%
	Total	42	100%

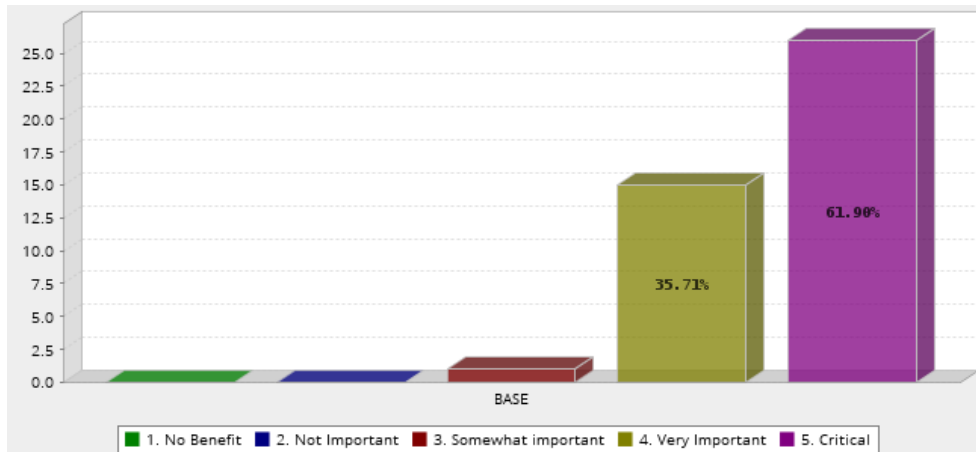
Q19. Governance / Steering Committee



	Answer	Count	Percent
1.	No Benefit	0	0.00%
2.	Not Important	2	4.76%
3.	Somewhat important	6	14.29%
4.	Very Important	23	54.76%
5.	Critical	11	26.19%

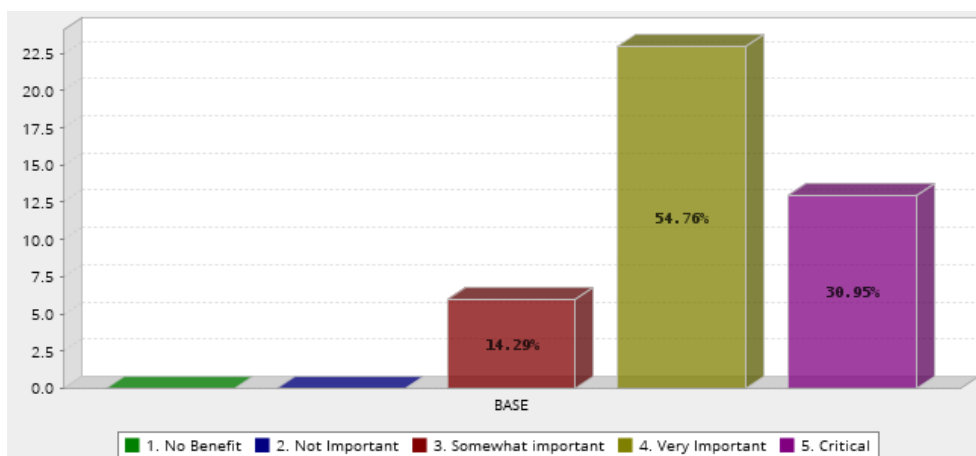
Total	42	100%

Q19. Competent / Skilled Architects



	Answer	Count	Percent
1.	No Benefit	0	0.00%
2.	Not Important	0	0.00%
3.	Somewhat important	1	2.38%
4.	Very Important	15	35.71%
5.	Critical	26	61.90%
	Total	42	100%

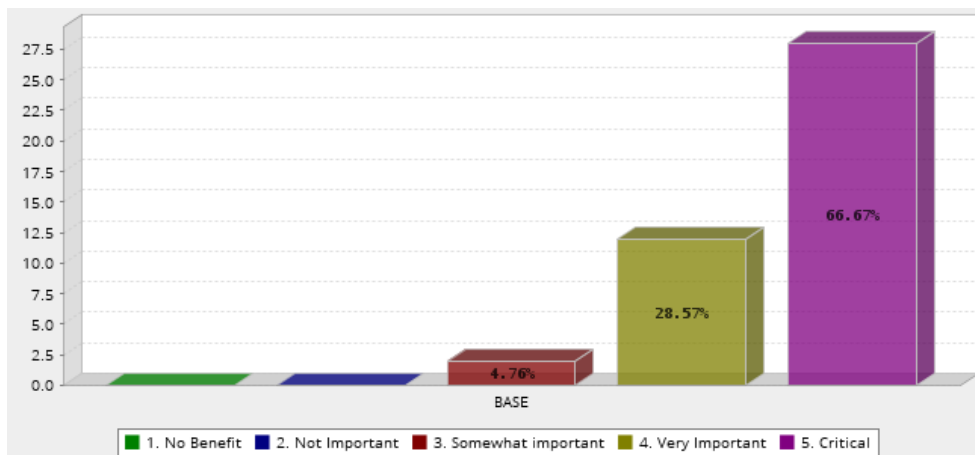
Q19. Process Integration (between operating areas)



	Answer	Count	Percent

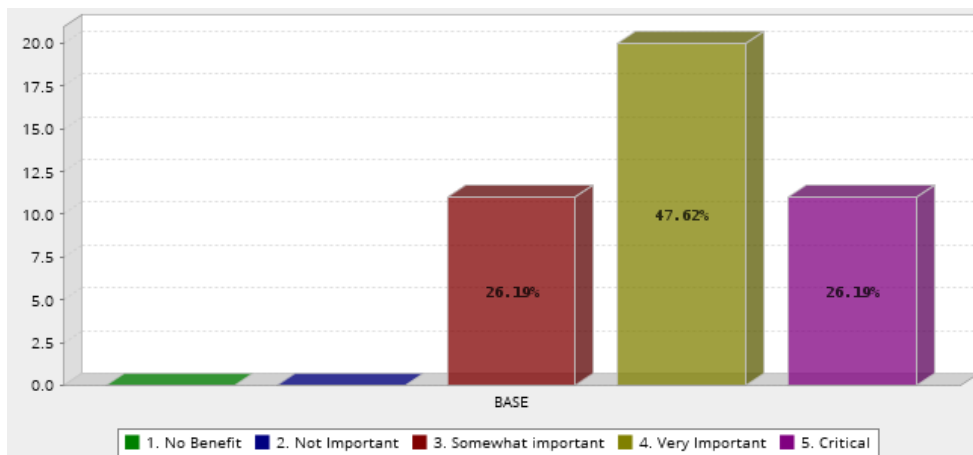
1.	No Benefit	0	0.00%
2.	Not Important	0	0.00%
3.	Somewhat important	6	14.29%
4.	Very Important	23	54.76%
5.	Critical	13	30.95%
	Total	42	100%

Q19. Communication



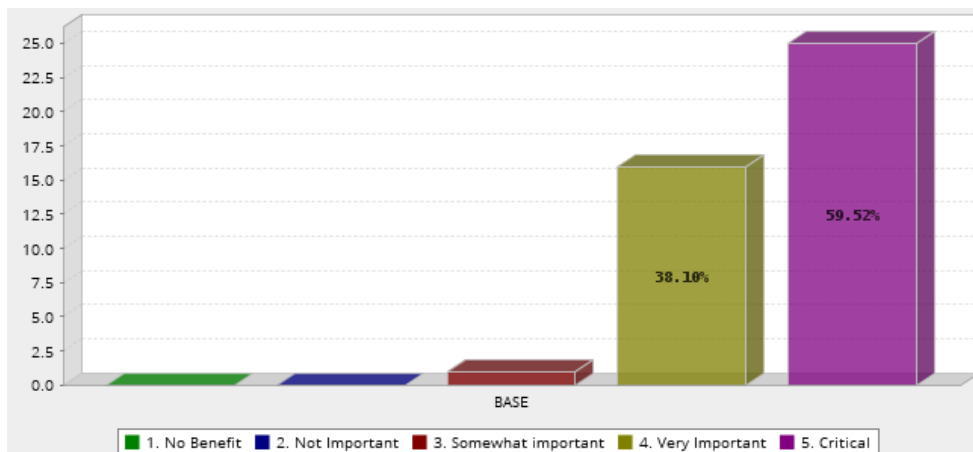
	Answer	Count	Percent
1.	No Benefit	0	0.00%
2.	Not Important	0	0.00%
3.	Somewhat important	2	4.76%
4.	Very Important	12	28.57%
5.	Critical	28	66.67%
	Total	42	100%

Q19. EAM Principles



	Answer	Count	Percent
1.	No Benefit	0	0.00%
2.	Not Important	0	0.00%
3.	Somewhat important	11	26.19%
4.	Very Important	20	47.62%
5.	Critical	11	26.19%
	Total	42	100%

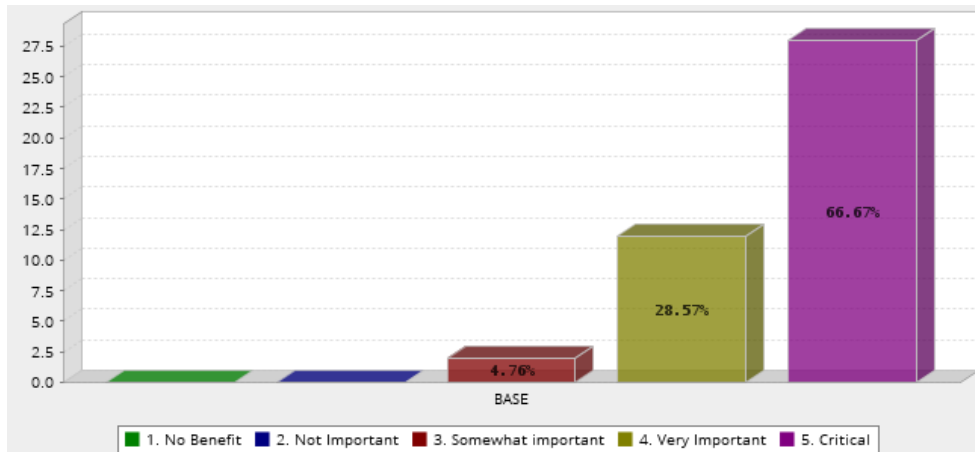
Q19. Collaboration



	Answer	Count	Percent
1.	No Benefit	0	0.00%
2.	Not Important	0	0.00%
3.	Somewhat important	1	2.38%
4.	Very Important	16	38.10%
5.	Critical	25	59.52%

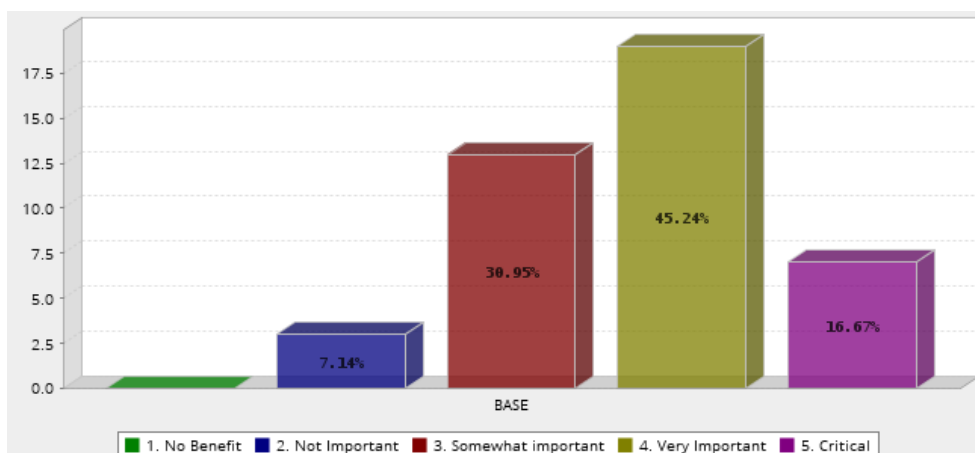
Total	42	100%

Q19. Clear Goals and Mandate



	Answer	Count	Percent
1.	No Benefit	0	0.00%
2.	Not Important	0	0.00%
3.	Somewhat important	2	4.76%
4.	Very Important	12	28.57%
5.	Critical	28	66.67%
	Total	42	100%

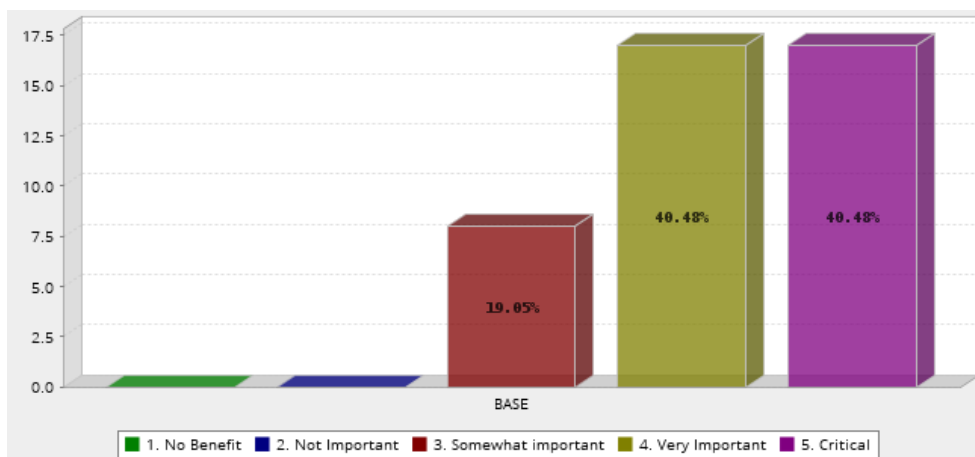
Q19. Tools / Technology Adoption



	Answer	Count	Percent

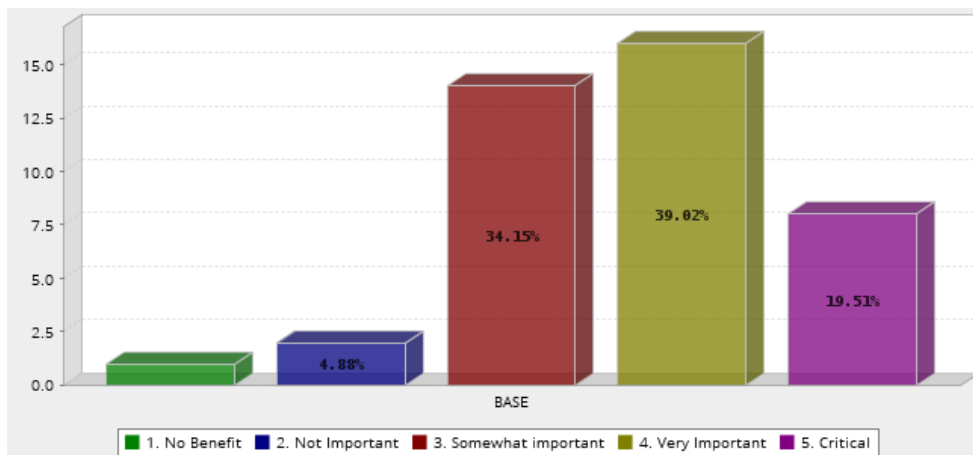
1.	No Benefit	0	0.00%
2.	Not Important	3	7.14%
3.	Somewhat important	13	30.95%
4.	Very Important	19	45.24%
5.	Critical	7	16.67%
	Total	42	100%

Q19. Organisation Culture



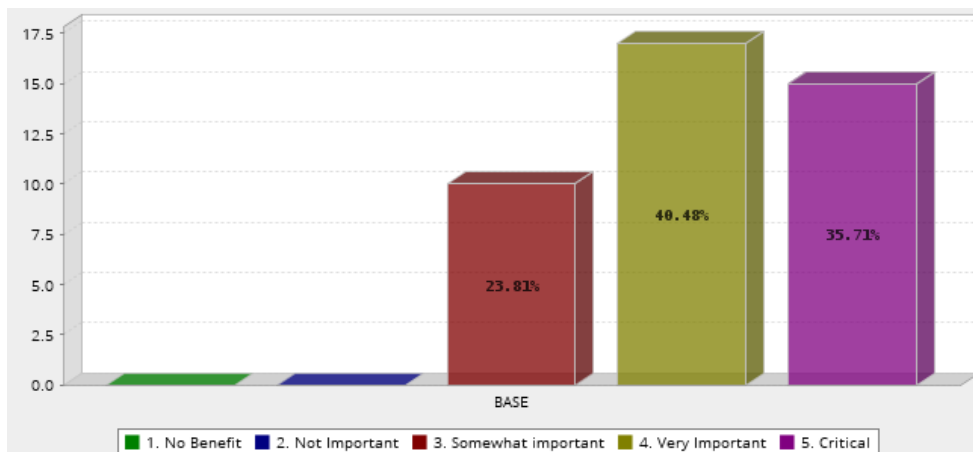
	Answer	Count	Percent
1.	No Benefit	0	0.00%
2.	Not Important	0	0.00%
3.	Somewhat important	8	19.05%
4.	Very Important	17	40.48%
5.	Critical	17	40.48%
	Total	42	100%

Q19. Policy Enforcement



	Answer	Count	Percent
1.	No Benefit	1	2.44%
2.	Not Important	2	4.88%
3.	Somewhat important	14	34.15%
4.	Very Important	16	39.02%
5.	Critical	8	19.51%
	Total	41	100%

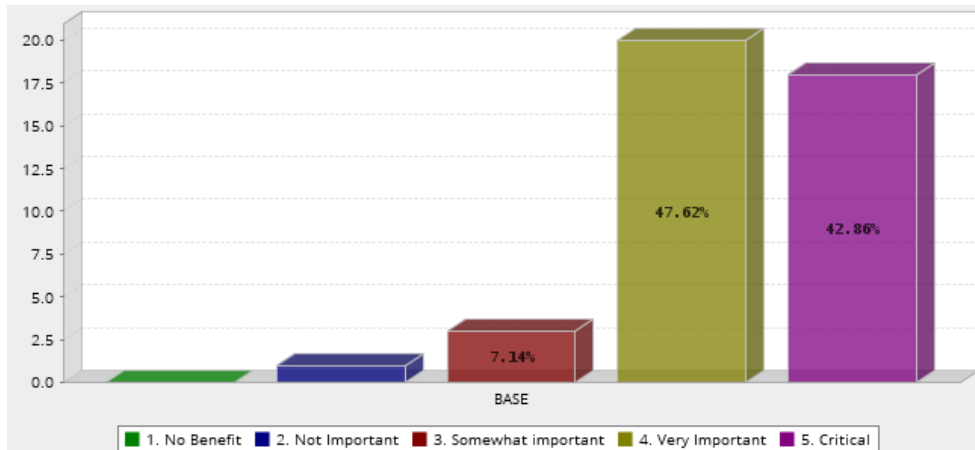
Q19. Change Management



	Answer	Count	Percent
1.	No Benefit	0	0.00%
2.	Not Important	0	0.00%
3.	Somewhat important	10	23.81%
4.	Very Important	17	40.48%
5.	Critical	15	35.71%

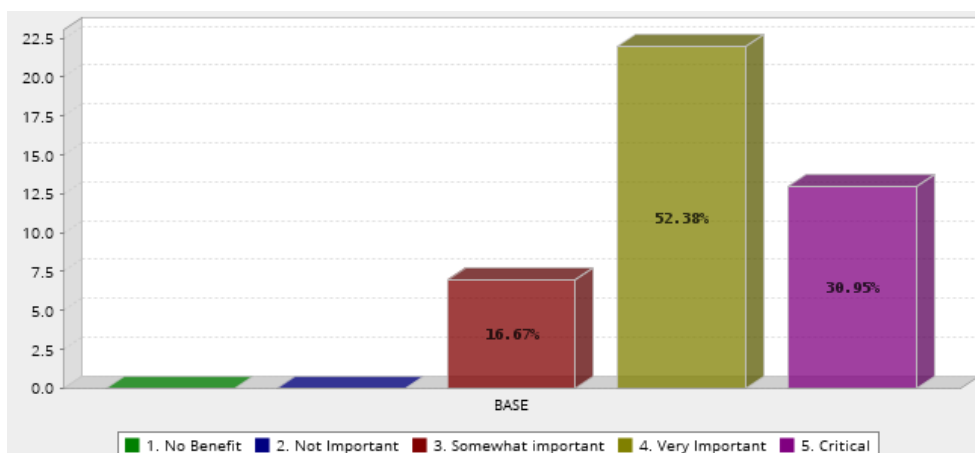
Total	42	100%

Q19. EAM Execution



	Answer	Count	Percent
1.	No Benefit	0	0.00%
2.	Not Important	1	2.38%
3.	Somewhat important	3	7.14%
4.	Very Important	20	47.62%
5.	Critical	18	42.86%
	Total	42	100%

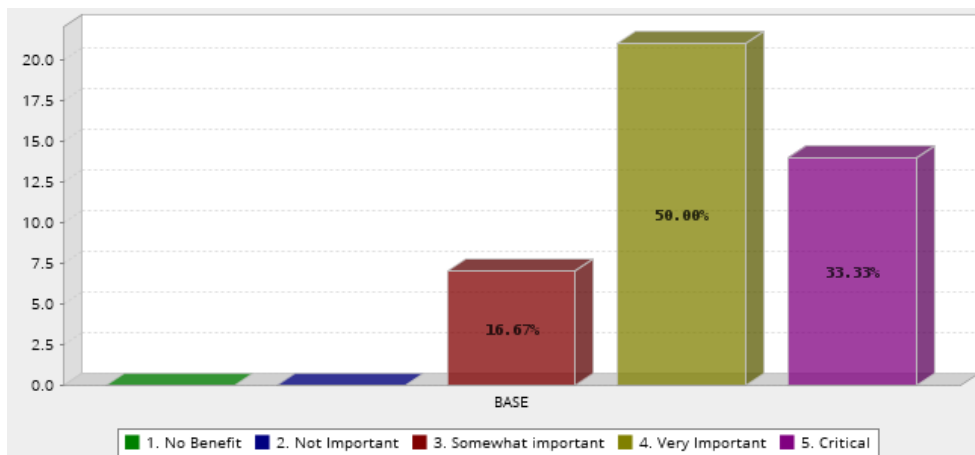
Q19. EAM Roles and Responsibility



	Answer	Count	Percent

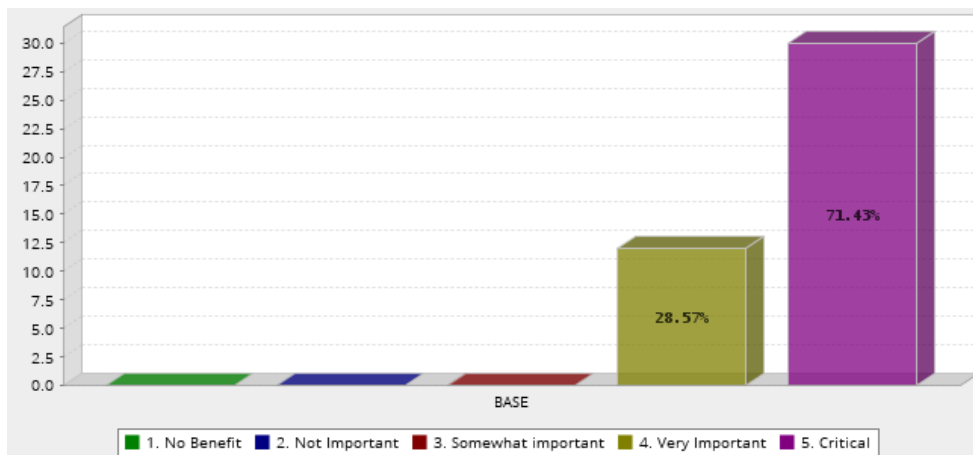
1.	No Benefit	0	0.00%
2.	Not Important	0	0.00%
3.	Somewhat important	7	16.67%
4.	Very Important	22	52.38%
5.	Critical	13	30.95%
	Total	42	100%

Q19. EAM Operating Model



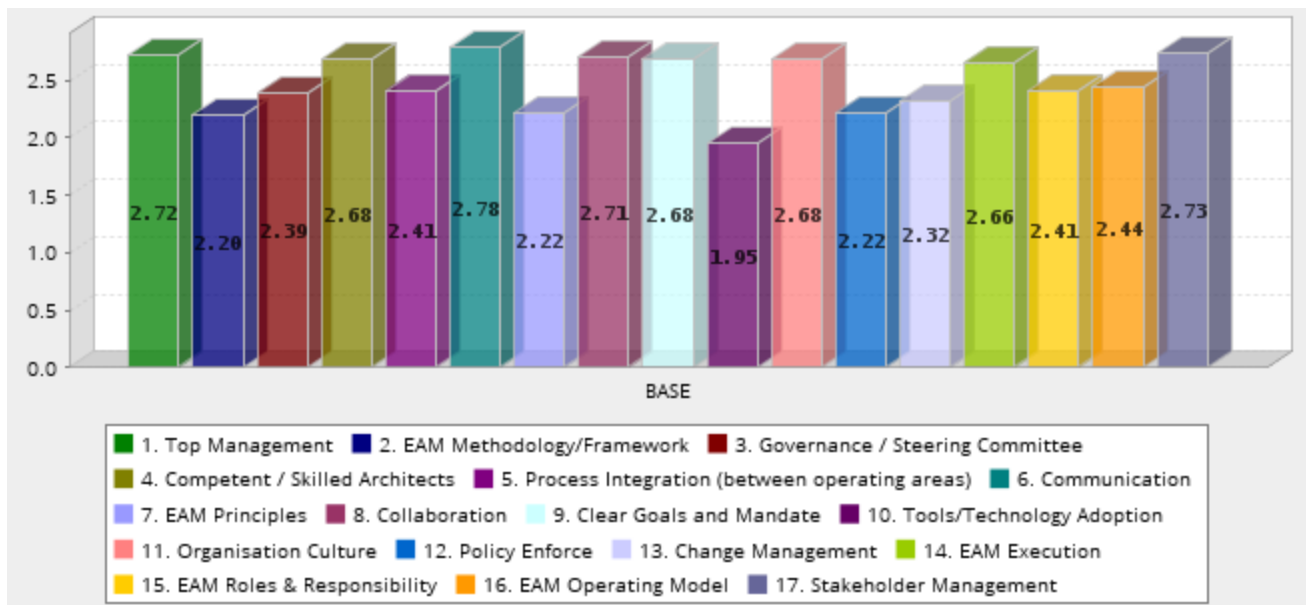
	Answer	Count	Percent
1.	No Benefit	0	0.00%
2.	Not Important	0	0.00%
3.	Somewhat important	7	16.67%
4.	Very Important	21	50.00%
5.	Critical	14	33.33%
	Total	42	100%

Q19. Stakeholder Management



	Answer	Count	Percent
1.	No Benefit	0	0.00%
2.	Not Important	0	0.00%
3.	Somewhat important	0	0.00%
4.	Very Important	12	28.57%
5.	Critical	30	71.43%
	Total	42	100%

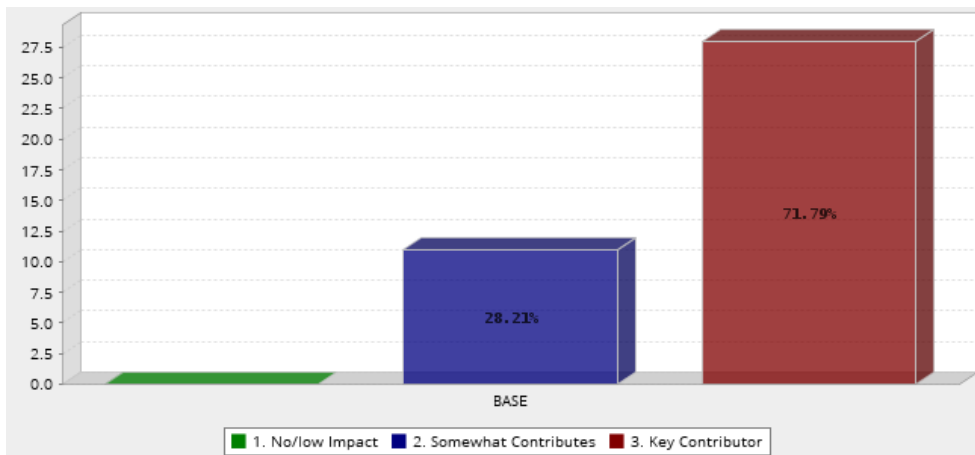
Q20. What do you believe are the factors that contribute to the FAILURES of EAM? Select the most appropriate answer to the following questions.



Q20. Overall Matrix Scorecard : What do you believe are the factors that contribute to the FAILURES of EAM? Select the most appropriate answer to the following questions.

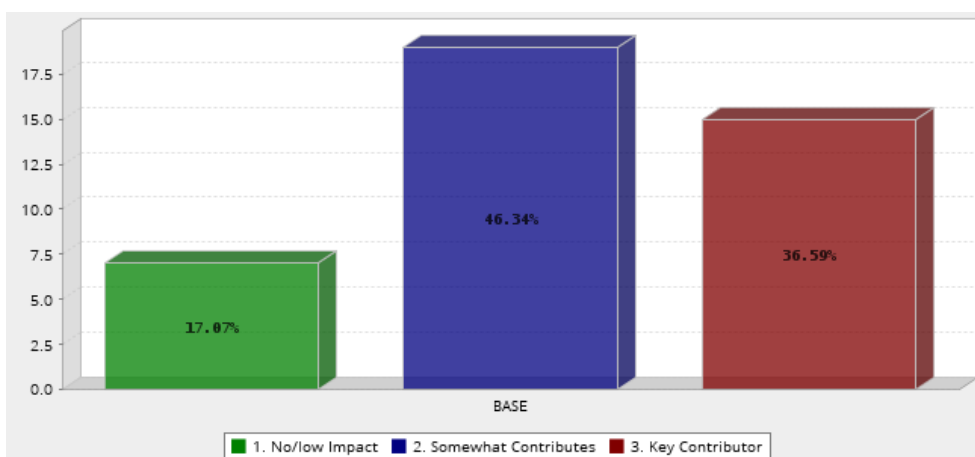
	Question	Count	Score	
1.	Top Management	39	2.718	
2.	EAM Methodology/Framework	41	2.195	
3.	Governance / Steering Committee	41	2.390	
4.	Competent / Skilled Architects	41	2.683	
5.	Process Integration (between operating areas)	41	2.415	
6.	Communication	41	2.780	
7.	EAM Principles	41	2.220	
8.	Collaboration	41	2.707	
9.	Clear Goals and Mandate	41	2.683	
10.	Tools/Technology Adoption	40	1.950	
11.	Organisation Culture	41	2.683	
12.	Policy Enforce	41	2.220	
13.	Change Management	41	2.317	
14.	EAM Execution	41	2.659	
15.	EAM Roles and Responsibility	41	2.415	
16.	EAM Operating Model	41	2.439	
17.	Stakeholder Management	41	2.732	
	Average		2.483	

Q20. Top Management



	Answer	Count	Percent
1.	No / low Impact	0	0.00%
2.	Somewhat Contributes	11	28.21%
3.	Key Contributor	28	71.79%
	Total	39	100%

Q20. EAM Methodology / Framework

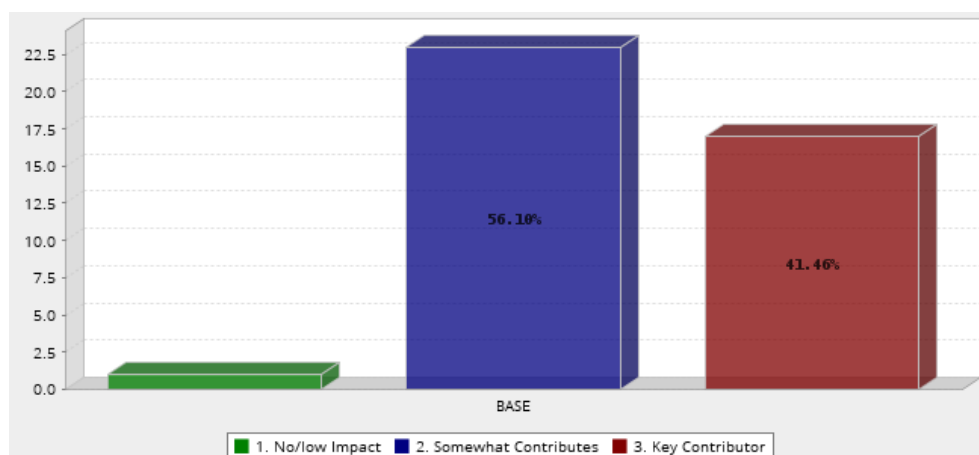


	Answer	Count	Percent
1.	No / low Impact	7	17.07%
2.	Somewhat Contributes	19	46.34%



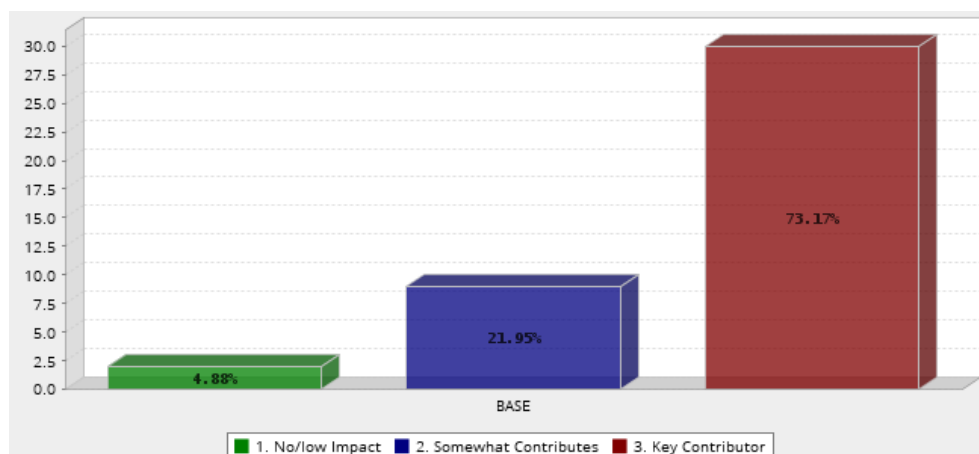
3.	Key Contributor	15	36.59%
	Total	41	100%

Q20. Governance / Steering Committee



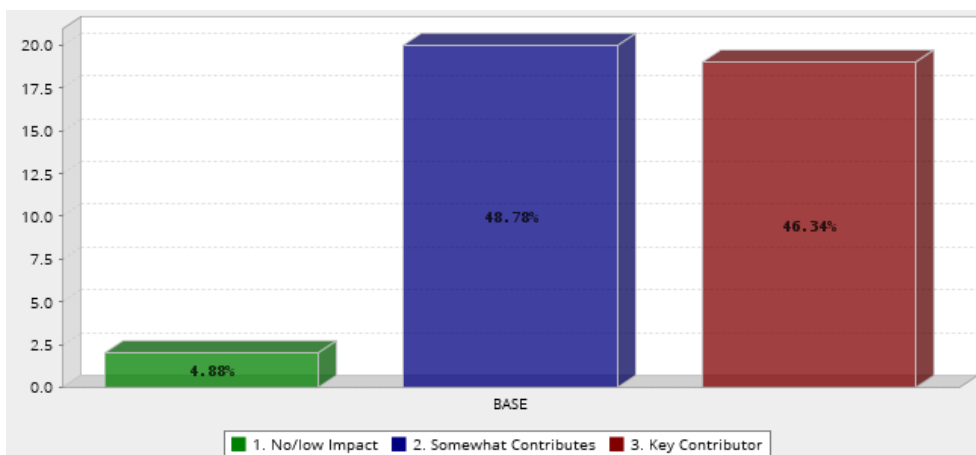
	Answer	Count	Percent
1.	No / low Impact	1	2.44%
2.	Somewhat Contributes	23	56.10%
3.	Key Contributor	17	41.46%
	Total	41	100%

Q20. Competent / Skilled Architects



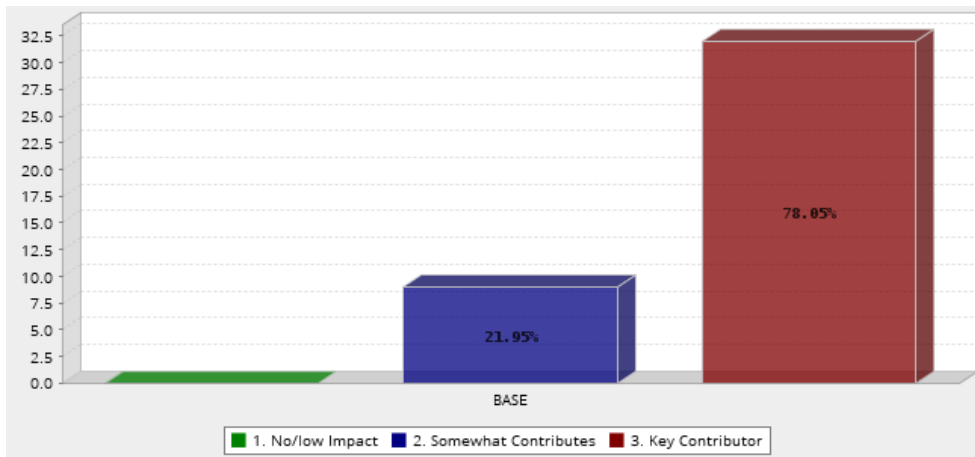
	Answer	Count	Percent
1.	No / low Impact	2	4.88%
2.	Somewhat Contributes	9	21.95%
3.	Key Contributor	30	73.17%
	Total	41	100%

Q20. Process Integration (between operating areas)



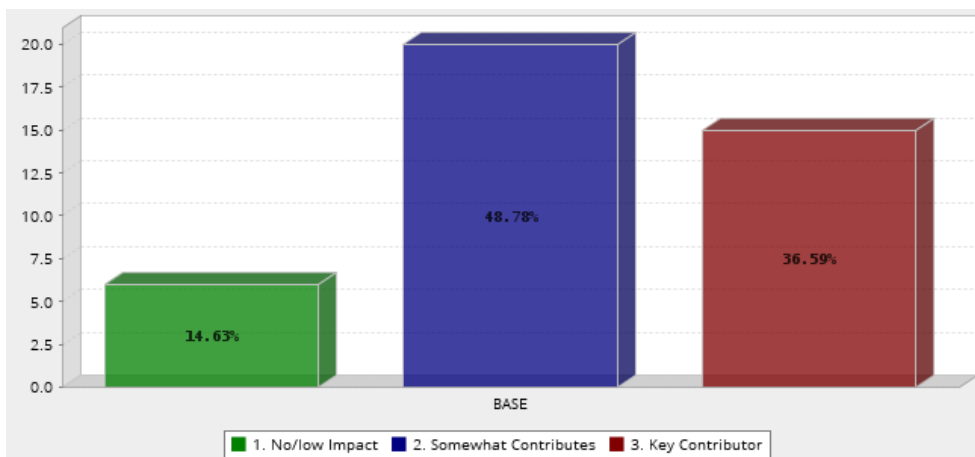
	Answer	Count	Percent
1.	No / low Impact	2	4.88%
2.	Somewhat Contributes	20	48.78%
3.	Key Contributor	19	46.34%
	Total	41	100%

Q20. Communication



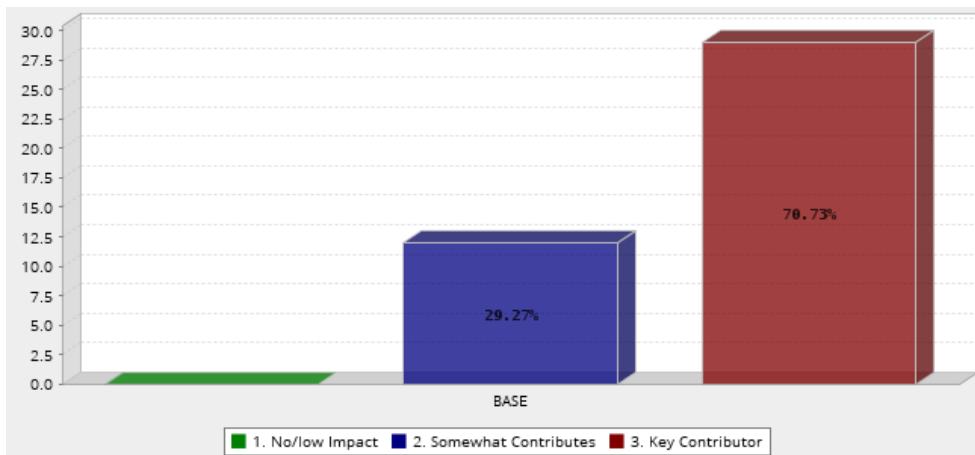
	Answer	Count	Percent
1.	No / low Impact	0	0.00%
2.	Somewhat Contributes	9	21.95%
3.	Key Contributor	32	78.05%
	Total	41	100%

Q20. EAM Principles



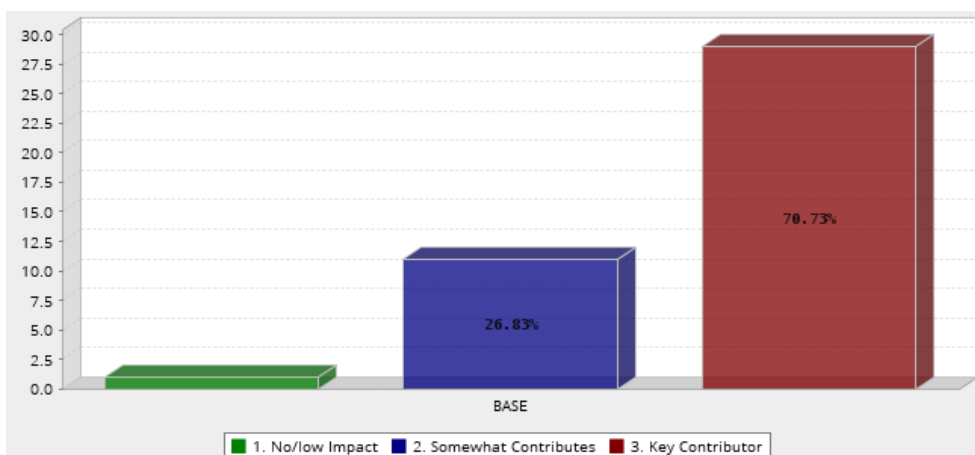
	Answer	Count	Percent
1.	No / low Impact	6	14.63%
2.	Somewhat Contributes	20	48.78%
3.	Key Contributor	15	36.59%
	Total	41	100%

Q20. Collaboration



	Answer	Count	Percent
1.	No / low Impact	0	0.00%
2.	Somewhat Contributes	12	29.27%
3.	Key Contributor	29	70.73%
	Total	41	100%

Q20. Clear Goals and Mandate

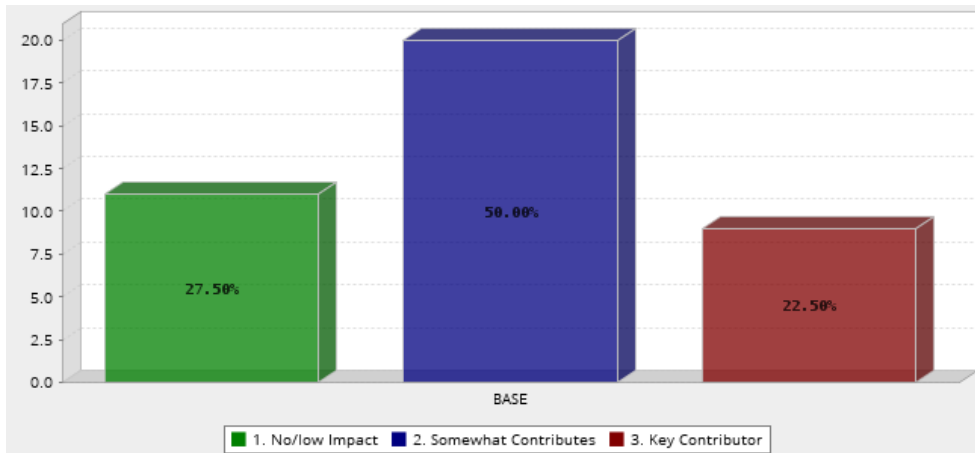


	Answer	Count	Percent



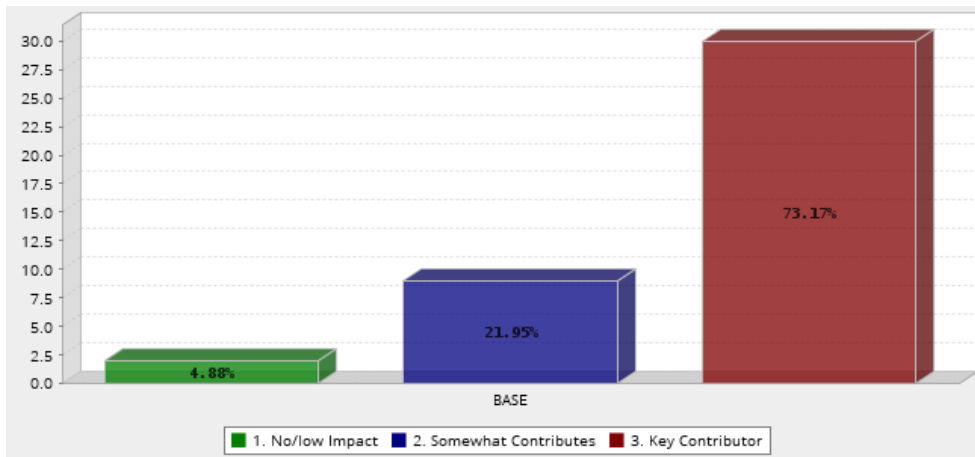
1.	No / low Impact	1	2.44%
2.	Somewhat Contributes	11	26.83%
3.	Key Contributor	29	70.73%
	Total	41	100%

Q20. Tools / Technology Adoption



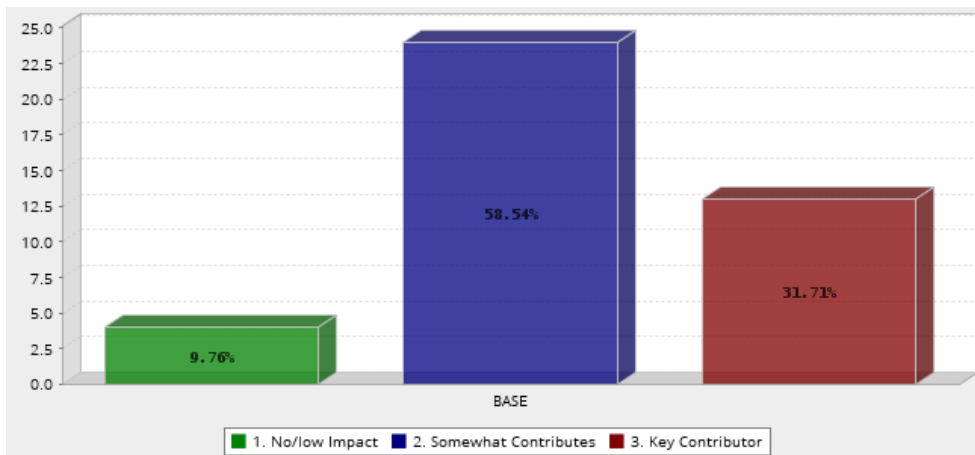
	Answer	Count	Percent
1.	No / low Impact	11	27.50%
2.	Somewhat Contributes	20	50.00%
3.	Key Contributor	9	22.50%
	Total	40	100%

Q20. Organisation Culture



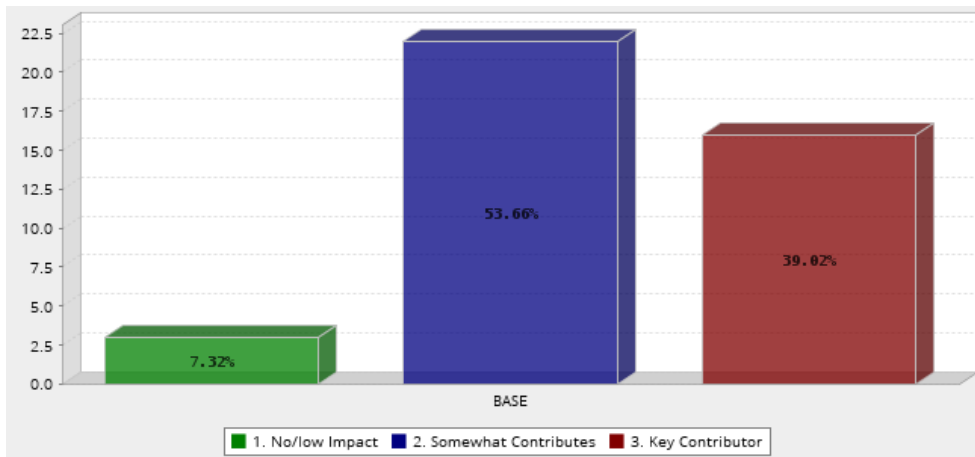
	Answer	Count	Percent
1.	No / low Impact	2	4.88%
2.	Somewhat Contributes	9	21.95%
3.	Key Contributor	30	73.17%
	Total	41	100%

Q20. Policy Enforcement



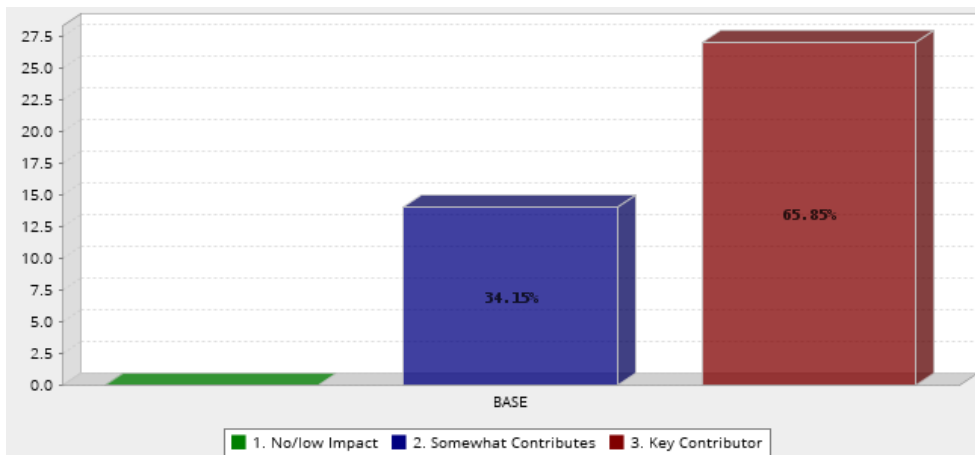
	Answer	Count	Percent
1.	No / low Impact	4	9.76%
2.	Somewhat Contributes	24	58.54%
3.	Key Contributor	13	31.71%
	Total	41	100%

Q20. Change Management



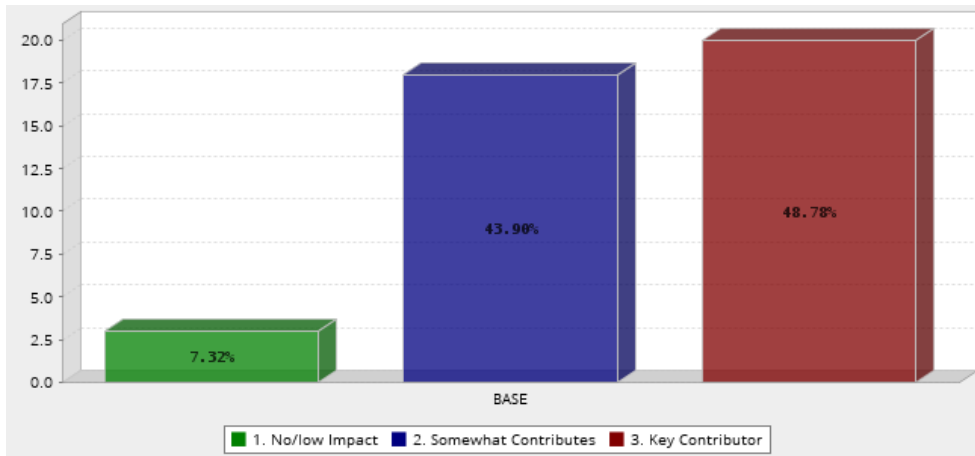
	Answer	Count	Percent
1.	No / low Impact	3	7.32%
2.	Somewhat Contributes	22	53.66%
3.	Key Contributor	16	39.02%
	Total	41	100%

Q20. EAM Execution



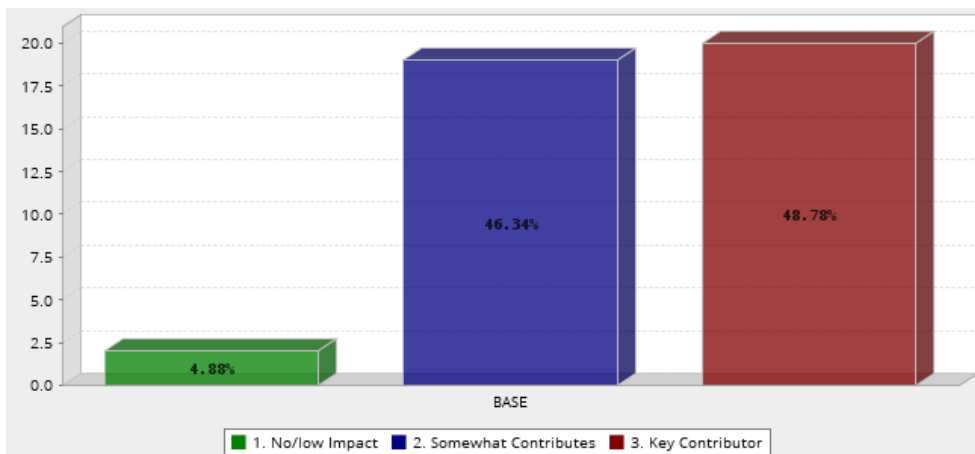
	Answer	Count	Percent
1.	No / low Impact	0	0.00%
2.	Somewhat Contributes	14	34.15%
3.	Key Contributor	27	65.85%
	Total	41	100%

Q20. EAM Roles and Responsibilities



	Answer	Count	Percent
1.	No / low Impact	3	7.32%
2.	Somewhat Contributes	18	43.90%
3.	Key Contributor	20	48.78%
	Total	41	100%

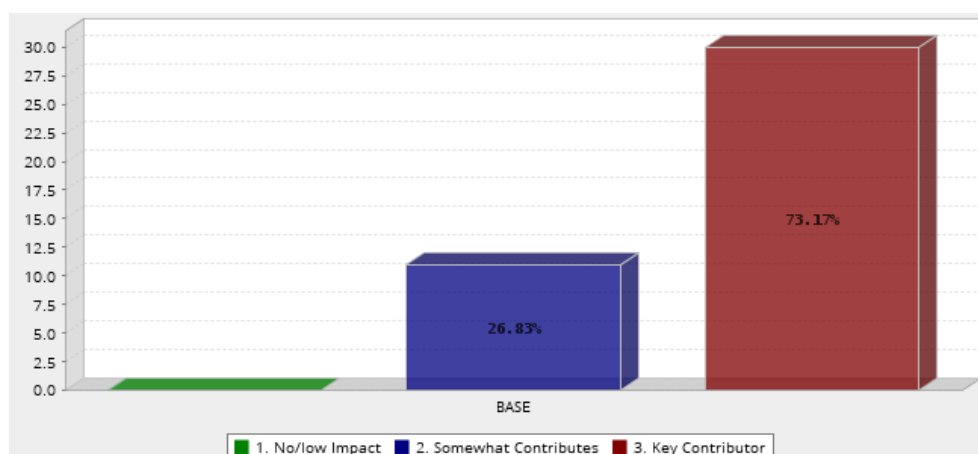
Q20. EAM Operating Model



	Answer	Count	Percent
1.	No / low Impact	2	4.88%
2.	Somewhat Contributes	19	46.34%
3.	Key Contributor	20	48.78%

Total	41	100%

Q20. Stakeholder Management



	Answer	Count	Percent
1.	No / low Impact	0	0.00%
2.	Somewhat Contributes	11	26.83%
3.	Key Contributor	30	73.17%
	Total	41	100%

Q21. Additional Comments:

38777248	Agile governance is needed as the rate of change and level of complexity far outstrips the traditional architecture boards and governance. Architecture principles are also proving challenging to set in large and frequently changing enterprises. The concerns of EA are also reaching out of traditional enterprise boundaries and towards ecosystems that cut across diverse entities
38735648	Adequate funding can affect the success or failure of EAM.
38680354	Great Questionnaire. As much as EA is mostly about standards, structure and conforming, in the current years EA needs to be more agile and adaptive to business needs and culture. The same methodologies and policies might not work the same way for every unit of the enterprise. The key is steering each stakeholder/unit towards common goals while adapting to their needs and culture. Thank you.
38679117	Access to Strategic functions as well as CEO oversight could unlock value in EAM

38678401	What I have noticed is that for as long as stakeholder management is not done well, organizations hardly consume EA artifacts, and leads to the whole misconception of we don't know what EA does or that EA is supposed to be Solution Architecture, so stakeholder management makes up a big part of EA success and should be a key focus for Architects
37137494	EAM is also highly dependent on the definition and perspective of what EA is and is not for a particular enterprise. Unfortunately, there are different perspectives on what EA is and what it includes and some are related to either: experience, the maturing or expanding evolution of EA and it's value proposition vs legacy or historically "stuck" perspectives, executive or organisational understanding, expectations or misunderstanding of what EA should or could be.
36878341	Great questionnaire! It would be interesting to understand how would you code the responses. All the best!
36393119	I really believe in the value and benefit of EA even in an agile environment. The problem is our senior management thinks it's a dead principle and do not see the value. Even though they are burning due to haphazard discussions made to meet the immediate requirement without taking account the wider impact nevermind the future impact. Supporting too many overlapping tools and having to cater for support for this as well. Cloud is not fixing the problem just moving the non-standard problem to a new platform. Looking at the problem in isolation
36204771	some of the questions are ambiguous
36168183	Enterprise Architects are, in general too busy with multiple tasks, and don't get enough time to explore, think and brainstorm the future of the organisation, and the future of the industry ecosystem within which the organisation lives. They are often so fixated on fixing yesterday's and today's problems, that they are not thinking about the challenges tomorrow will bring.
36100690	For me enterprise management is a good concept, but getting all the aspects coordinated and ensuring that actual delivery takes place is very problematic.
36022590	I think for an EA function to be effective, its need to be responsive to the business needs and provide valuable insights to executives to enhance and quicken decision making. Architecture for the sake of architecture adds no value.
35991479	One of the most critical (and often overlooked) factors in EAM is to identify the value that EAM will provide, in the short term and the longer term. Without this, many EAM programmes lose focus and spend valuable time and resources building EA organisations, implementing toolsets and frameworks, debating principles etc. instead of delivering value. The cope of the EA programme is critical to ensure that value is delivered - e.g. focus on the areas of the business that are undergoing change, rather than modelling the parts of the business that will remain static for the next 2-3 years. Define value before starting the programme and measure it afterwards, Value could be measured as reduction in post implementation changes, reduce system operating costs; improved data quality, reduced time to add new features etc. Being able to demonstrate this value delivered is a key part of obtaining stakeholder buy-in and part of an overall communication and change management effort.



13 APPENDIX C: CHAPTER 6 – SUPPORTING DATA



#	Title	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Total
1	A capability maturity model for knowledge-based decisionmaking	1	1	1	1	1	1	0,5	0	6,5
2	A capability maturity model for scientific data management	1	1	1	1	0	0,5	0,5	0	5
3	A maturity model for enterprise interoperability	1	1	1	1	0,5	0,5	1	1	7
4	A maturity model for the implementation of software process improvement: an empirical study	1	1	1	0,5	1	1	1	1	7,5
5	A maturity model of enterprise business intelligence	1	1	1	0,5	1	1	1	1	7,5
6	A measurement framework for assessing the maturity of requirements engineering process	1	1	0,5	1	1	1	1	0,5	7
7	A resource-based perspective of value generation through enterprise architecture management	1	0,5	0,5	1	1	1	1	0,5	6,5
8	A socio-technical approach to improving the systems development process	1	1	1	1	1	0,5	1	0,5	7
9	Achieving value from enterprise architecture maturity	1	1	0,5	1	1	1	1	0,5	7
10	Advances in business process management implementation based on a maturity assessment and best practice exchange	1	1	0,5	0,5	1	0,5	1	0,5	6
11	Agile maturity model (AMM): A Software Process Improvement framework for agile software development pract	1	1	0	0	0	1	1	0,5	4,5
12	An Analysis of Maturity Models and Current State Assessment of Organizations for Industry 4.0 Implementation	1	1	0	0	0	1	1	0,5	4,5
13	An approach to measuring business-IT alignment maturity via DoDAF2.0	1	1	0	0	0	1	1	0,5	4,5
14	Assessment of Industry 4.0 Maturity Models by Design Principles	1	1	1	0,5	0,5	1	1	0,5	6,5
15	Considering People CMM for managing factors that affect software process improvement	1	1	0	0	0	1	1	0,5	4,5
16	Developing maturity models for IT management	1	1	1	1	1	1	0,5	0,5	7



17	Development of maturity models: A systematic literature review	1	1	0	0	0	1	1	0,5	4,5
18	Evaluating a process for developing a capability maturity model	1	1	1	1	0,5	0,5	0,5	0,5	6
19	Maturity Assessment for Enterprise Architecture	1	1	1	1	1	0,5	0,5	0,5	6,5
20	Maturity Model Architect: A Tool for Maturity Assessment Support	1	1	1	1	0,5	0,5	0,5	0,5	6
21	Maturity model for interoperability potential measurement	1	1	0	0	0	1	1	0,5	4,5
22	Maturity models development in is research: a literature review	1	1	0	0	0	1	1	0,5	4,5
23	Maturity models for information systems-a state of the art	1	1	0,5	0,5	0,5	1	1	0,5	6
24	Methods and techniques for maturity assessment	1	1	0,5	0,5	0,5	1	1	0,5	6
25	Properties that influence business process management maturity and its effect on organizational performance	1	1	0,5	0,5	0,5	1	1	0,5	6
26	Reference Model for Generic Capabilities in Maturity Models	1	1	0,5	0,5	1	1	1	1	7
27	Systematic literature review of software process capability/maturity models	1	1	0	0	0	1	1	0,5	4,5
28	Toward the development of a maturity model for digitalization within the manufacturing industry's supply chain	1	1	0	0	0	1	1	0,5	4,5
29	Towards a business process management maturity model	1	1	0	0	0	1	1	0,5	4,5
30	Towards purposeful enterprise modeling for enterprise analysis	1	1	0,5	0,5	0,5	1	1	0,5	6
31	Understanding the main phases of developing a maturity assessment model	1	1	0	0	0	1	1	0,5	4,5
32	Using enterprise architecture model analysis and description logics for maturity assessment	1	1	0,5	0,5	0,5	1	1	0,5	6



33	What makes a useful maturity model? A framework of general design principles for maturity models and its demonstration in business process management	1	1	0,5	0,5	1	1	1	1	7

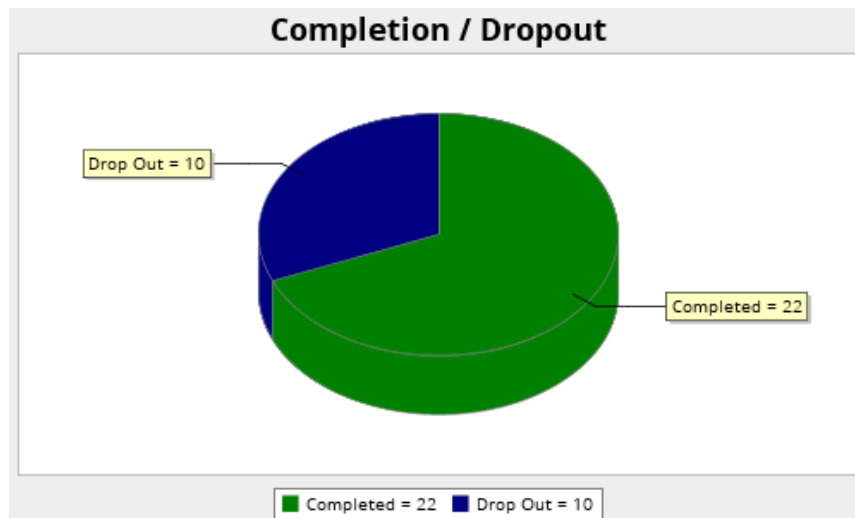
Table 43: Maturity Model SLR Appraisal Result



14 APPENDIX D: CHAPTER 8 – SUPPORTING DATA

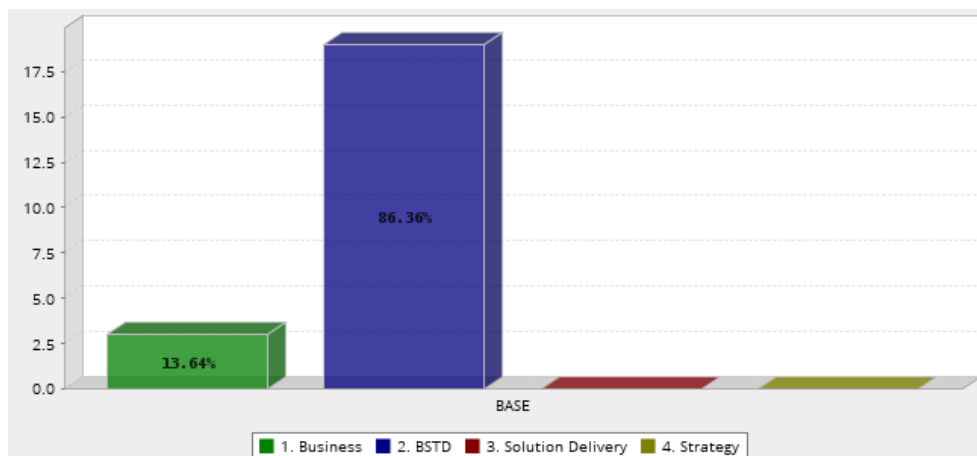
EAM Maturity Assessment Questionnaire -Main

Survey Overview



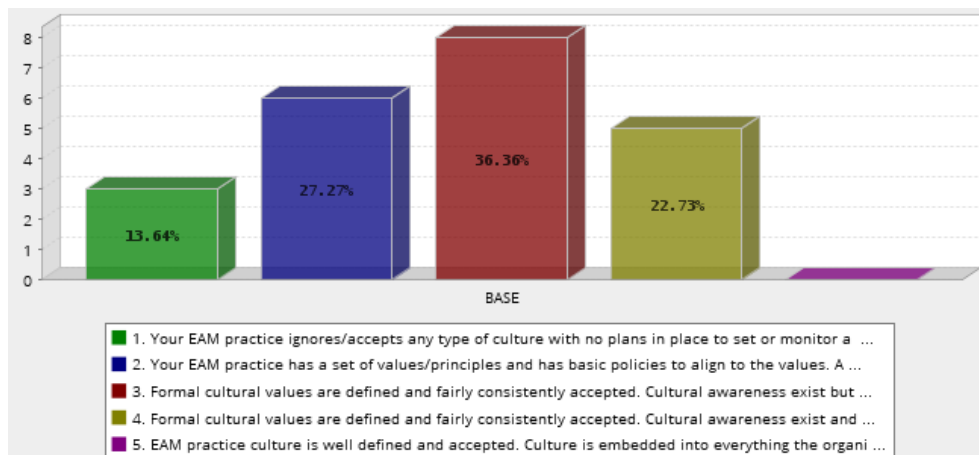
Viewed	Started	Completed	Completion Rate	Avg Completion Time
69	32	22	68.75%	19 minutes

1. Please select the operating area you reside in.



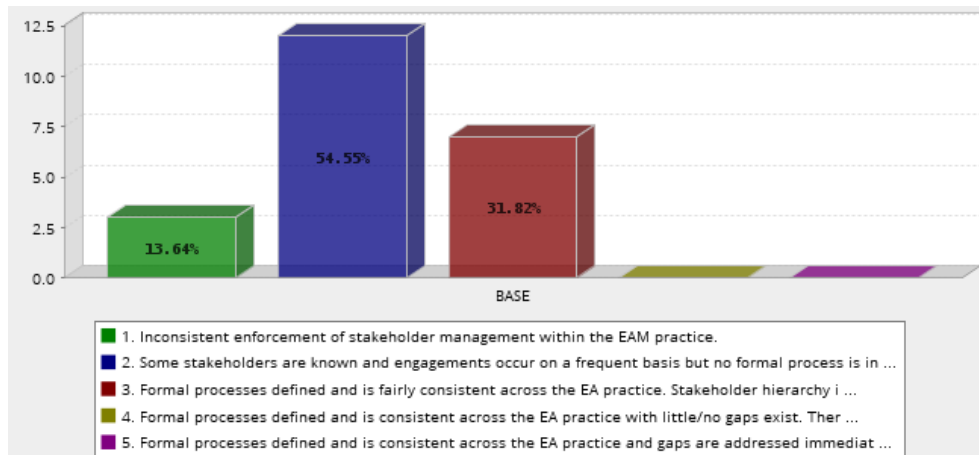
	Answer	Count	Percent
1.	Business	3	13.64%
2.	BSTD	19	86.36%
3.	Solution Delivery	0	0.00%
4.	Strategy	0	0.00%
	Total	22	100%

2. How would you describe the culture within your EAM practice?



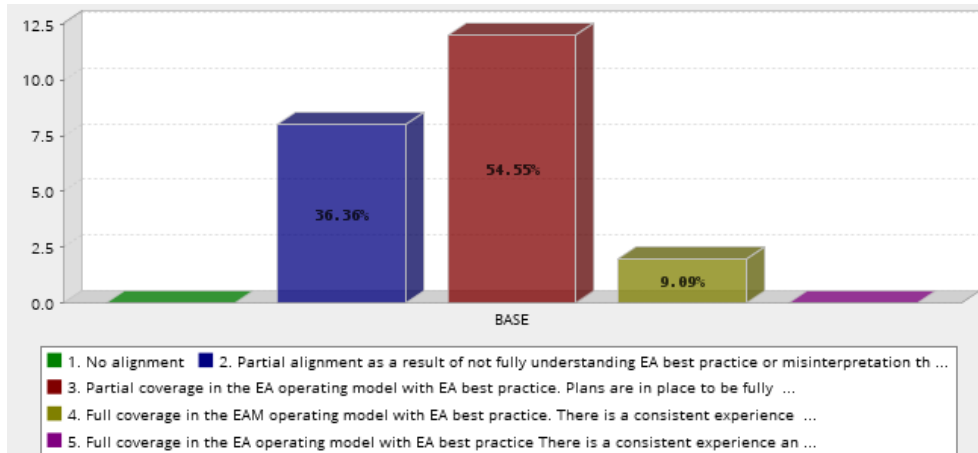
	Answer	Count	Percent
1.	Your EAM practice ignores/accepts any type of culture with no plans in place to set or monitor a directional outcome.	3	13.64%
2.	Your EAM practice has a set of values/principles and has basic policies to align to the values. Although it is not accepted or practiced.	6	27.27%
3.	Formal cultural values are defined and fairly consistently accepted. Cultural awareness exist but is not monitored.	8	36.36%
4.	Formal cultural values are defined and fairly consistently accepted. Cultural awareness exist and active programs are in place to improve or create awareness.	5	22.73%
5.	EAM practice culture is well defined and accepted. Culture is embedded into everything the organisation and practice does.	0	0.00%
	Total	22	100%

3. How would you describe stakeholder management in your EAM practice?



	Answer	Count	Percent
1.	Inconsistent enforcement of stakeholder management within the EAM practice.	3	13.64%
2.	Some stakeholders are known and engagements occur on a frequent basis but no formal process is in place to ensure consistency.	12	54.55%
3.	Formal processes defined and is fairly consistent across the EA practice. Stakeholder hierarchy is documented but some gaps exist with room for improvements.	7	31.82%
4.	Formal processes defined and is consistent across the EA practice with little/no gaps exist. There is a consistent experience and expectation by most stakeholder management.	0	0.00%
5.	Formal processes defined and is consistent across the EA practice and gaps are addressed immediately through a seamless change management process.	0	0.00%
	Total	22	100%

4. How well is your organisation EA operating model aligned to EA best practices?



	Answer	Count	Percent
1.	No alignment	0	0.00%
2.	Partial alignment as a result of not fully understanding EA best practice or misinterpretation thereof.	8	36.36%
3.	Partial coverage in the EA operating model with EA best practice. Plans are in place to be fully resourced.	12	54.55%
4.	Full coverage in the EAM operating model with EA best practice. There is a consistent experience and expectation of the EAM practice. Changes to the operating model is difficult.	2	9.09%
5.	Full coverage in the EA operating model with EA best practice There is a consistent experience and expectation of the EA practice. Operating model easily changes/adapts to evolutions of the EA best practices.	0	0.00%
	Total	22	100%

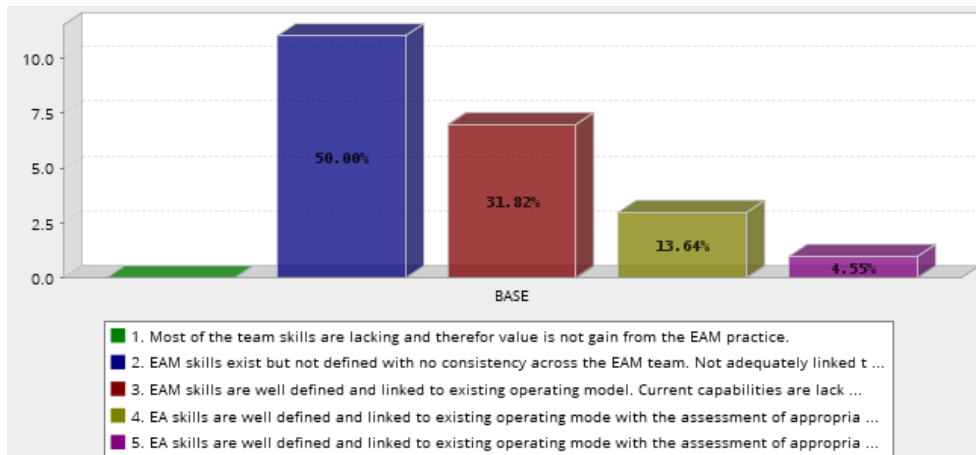
5. How would you rate your EAM practice communication strategy?



	Answer	Count	Percent
1.	Inconsistent communication strategy within the EAM practice.	3	13.64%
2.	Communications occurs on a frequent basis but no formal process is in place to ensure consistency and many gaps exist.	8	36.36%
3.	Formal communication strategy is defined and is fairly consistent across the EAM practice but some gaps exist with room for improvements. Execution of the EAM communication strategy has a limited reach across the organisation.	10	45.45%
4.	Formal communication strategy defined and is consistent across the EA practice. The EAM practice communication strategy is understood in most parts of the organisation. There is a consistent experience and expectation by most stakeholders. Nonverbal communication follows a consistent standard.	1	4.55%
5.	Formal communication strategy defined and is consistent across the EA practice; gaps are addressed immediately. There is a consistent	0	0.00%

	experience and expectation by all stakeholders. EAM practice communication strategy is understood adequately across the organisation.		
	Total	22	100%

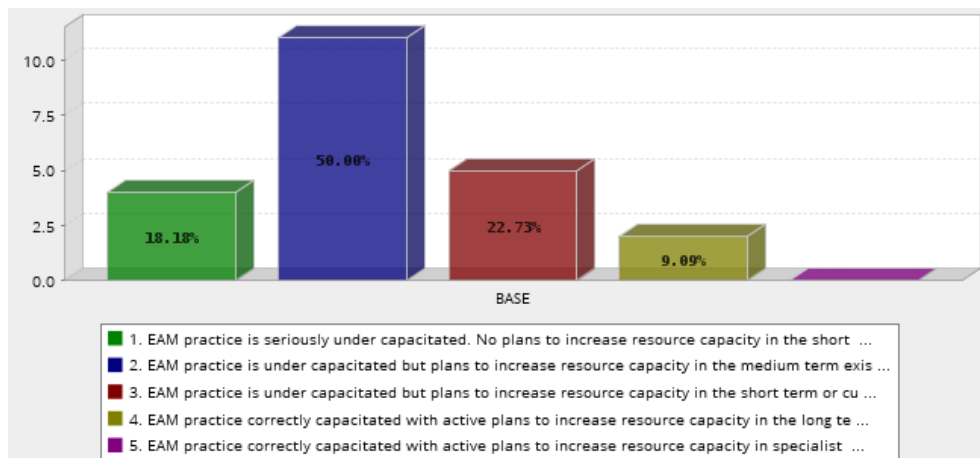
6. How would you rate the skills in your EAM practice?



	Answer	Count	Percent
1.	Most of the team skills are lacking and therefore value is not gained from the EAM practice.	0	0.00%
2.	EAM skills exist but not defined with no consistency across the EAM team. Not adequately linked to the operating model.	11	50.00%
3.	EAM skills are well defined and linked to existing operating model. Current capabilities are lacking in some individual. No training development plan in place.	7	31.82%
4.	EA skills are well defined and linked to existing operating mode with the assessment of appropriateness in current environment. Formal training development plans in place to fill the gap. Formal competencies are maintained and mentoring programs in place and executed well.	3	13.64%
5.	EA skills are well defined and linked to existing operating mode with the assessment of appropriateness in current environment. Formal training development plans in place to fill the gap. Formal competencies are maintained and mentoring programs in place and executed well.	1	4.55%

	training development plans in place to fill the gap. Formal competencies are maintained and mentoring programs in place and executed well.		
	Total	22	100%

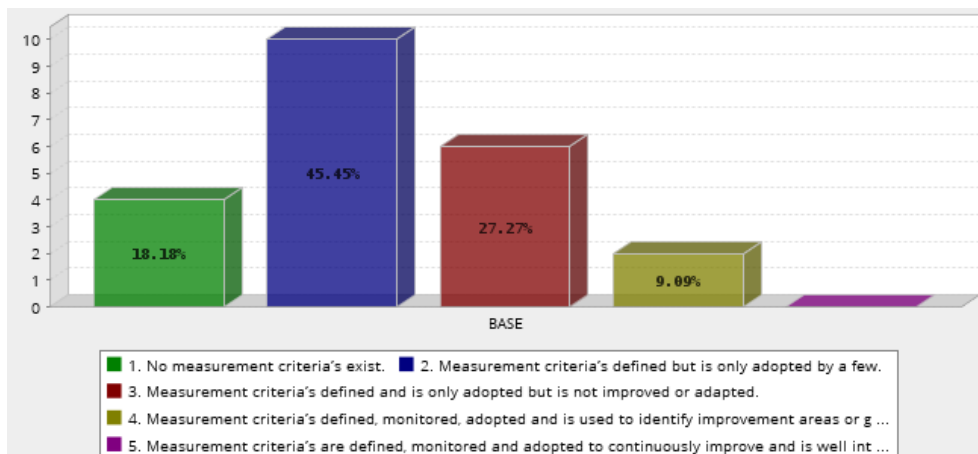
7. How would you rate your EAM practice's current capacity management?



	Answer	Count	Percent
1.	EAM practice is seriously under capacitated. No plans to increase resource capacity in the short term.	4	18.18%
2.	EAM practice is under capacitated but plans to increase resource capacity in the medium term exist or current coverage of the organisation is equal to or less than 1/3.	11	50.00%
3.	EAM practice is under capacitated but plans to increase resource capacity in the short term or current coverage of the organisation is 2/3.	5	22.73%

4.	EAM practice correctly capacitated with active plans to increase resource capacity in the long term to manage future expectations.	2	9.09%
5.	EAM practice correctly capacitated with active plans to increase resource capacity in specialist areas based on industry needs i.e., innovation specialist.	0	0.00%
	Total	22	100%

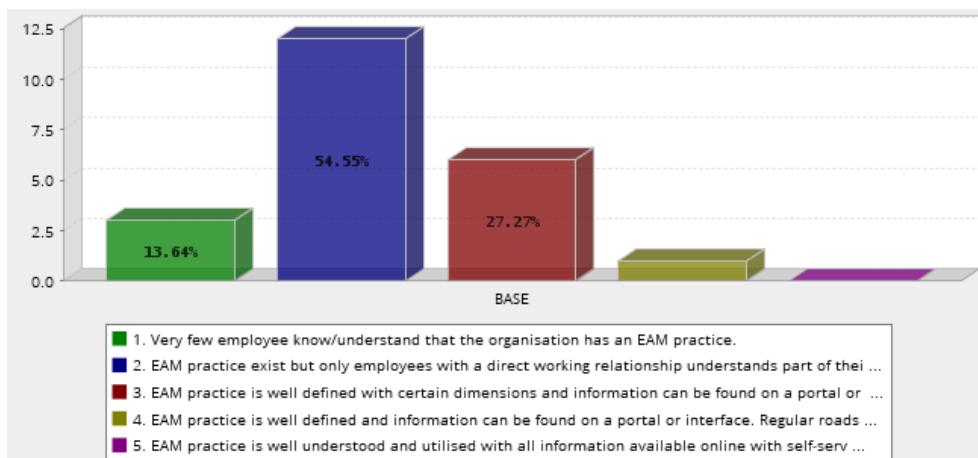
8. How is success/improvements managed in your EAM practice?



	Answer	Count	Percent
1.	No measurement criteria exist.	4	18.18%
2.	Measurement criteria defined but are only adopted by a few.	10	45.45%
3.	Measurement criteria defined and are only adopted but not improved or adapted.	6	27.27%
4.	Measurement criteria are defined, monitored, adopted and used to identify improvement areas or gaps.	2	9.09%

5.	Measurement criteria are defined, monitored and adopted to continuously improve and is well integrated into the change management process.	0	0.00%
	Total	22	100%

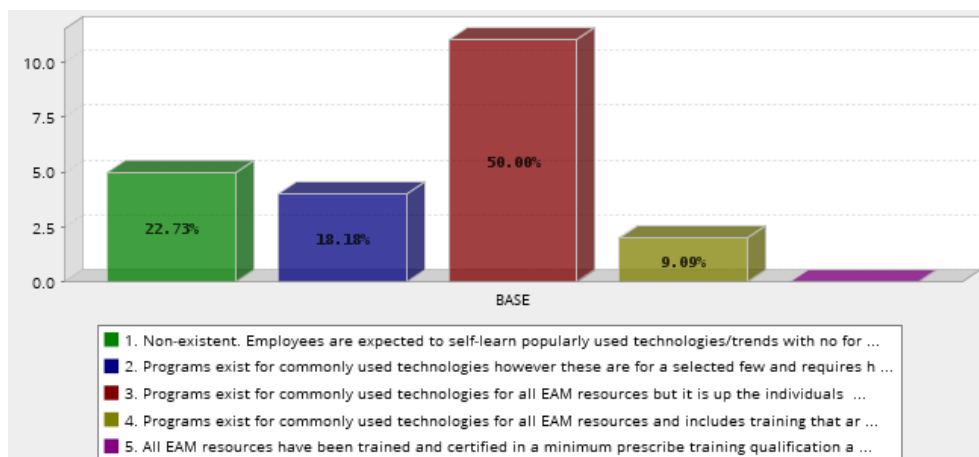
9. What is the perception of awareness with regard to your EAM practices and the products and services they provide in your organisation?



	Answer	Count	Percent
1.	Very few employees know/understand that the organisation has an EAM practice.	3	13.64%
2.	EAM practice exist but only employees with a direct working relationship understand part of their roles based on the requirement at hand.	12	54.55%
3.	EAM practice is well defined with certain dimensions and information can be found on a portal or	6	27.27%

	interface. Although not all areas are covered or explained sufficiently.		
4.	EAM practice is well defined and information can be found on a portal or interface. Regular roadshows exist that educated employees on the services and successes.	1	4.55%
5.	EAM practice is well understood and utilised with all information available online with self-service functionality to make use of any services.	0	0.00%
	Total	22	100%

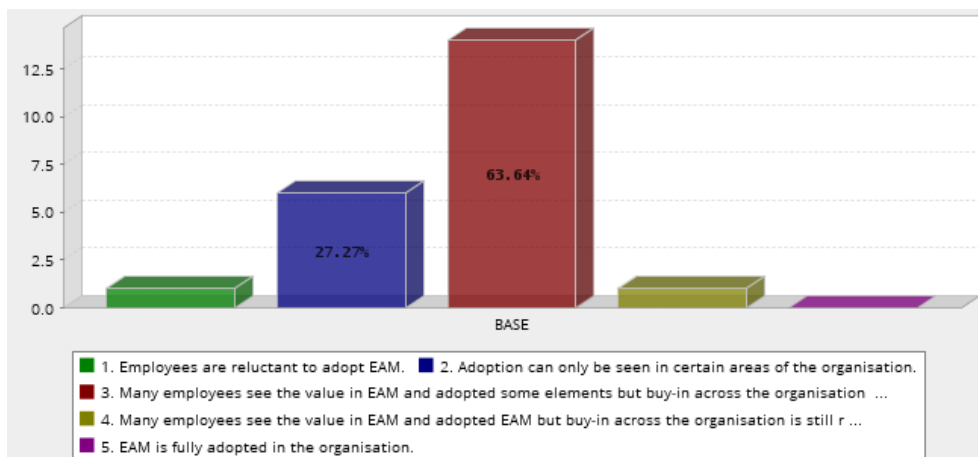
10. How would you rate the EAM training program for new skills/technology development?



	Answer	Count	Percent
1.	Nonexistent. Employees are expected to self-learn popularly used technologies/trends with no formal training plan.	5	22.73%
2.	Programs exist for commonly used technologies however these are for a selected few and requires high motivation.	4	18.18%

3.	Programs exist for commonly used technologies for all EAM resources but it is up the individuals to plan and manage their training path.	11	50.00%
4.	Programs exist for commonly used technologies for all EAM resources and includes training that are seen as niche with motivation. Proactive plans are built into the individuals personal development plans and is manage. Not all EAM resources have been trained and certified in a minimum prescribe training qualification.	2	9.09%
5.	All EAM resources have been trained and certified in a minimum prescribe training qualification all relevant to the job at hand. Continuous skills and training development improvement. Well integrated into other capabilities	0	0.00%
	Total	22	100%

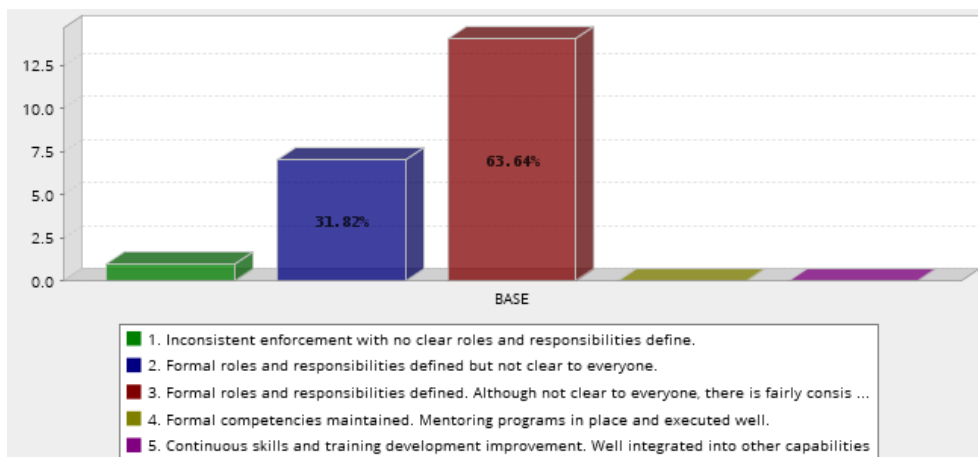
11. How would you rate the willingness to adopt EAM in your organisation?



	Answer	Count	Percent
1.	Employees are reluctant to adopt EAM.	1	4.55%
2.	Adoption can only be seen in certain areas of the organisation.	6	27.27%

3.	Many employees see the value in EAM and adopted some elements but buy-in across the organisation is still required.	14	63.64%
4.	Many employees see the value in EAM and adopted EAM but buy-in across the organisation is still required. Proactive measures are being taken into account to increase the adoption level.	1	4.55%
5.	EAM is fully adopted in the organisation.	0	0.00%
	Total	22	100%

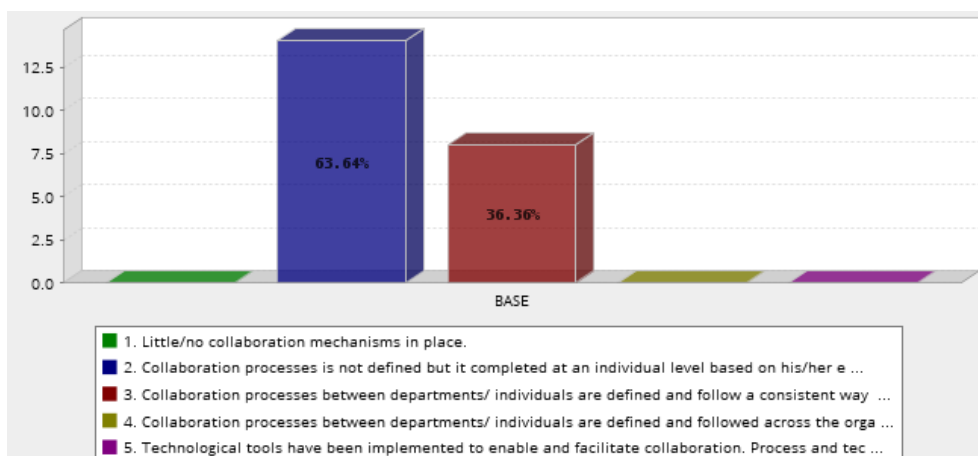
12. How would you describe the EAM roles and responsibilities in the EAM practice?



	Answer	Count	Percent
1.	Inconsistent enforcement with no clear roles and responsibilities define.	1	4.55%

2.	Formal roles and responsibilities defined but not clear to everyone.	7	31.82%
3.	Formal roles and responsibilities defined. Although not clear to everyone, there is fairly consistent delivery across resources. Some gap analysis required to further competencies.	14	63.64%
4.	Formal competencies maintained. Mentoring programs in place and executed well.	0	0.00%
5.	Continuous skills and training development improvement. Well integrated into other capabilities	0	0.00%
	Total	22	100%

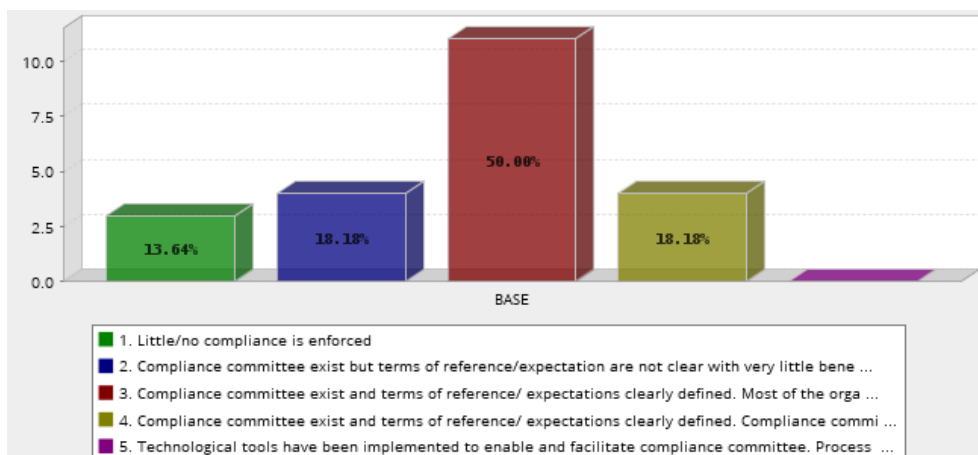
13. How would you rate the collaboration capability of the EAM practice?



	Answer	Count	Percent
1.	Little / no collaboration mechanisms in place.	0	0.00%

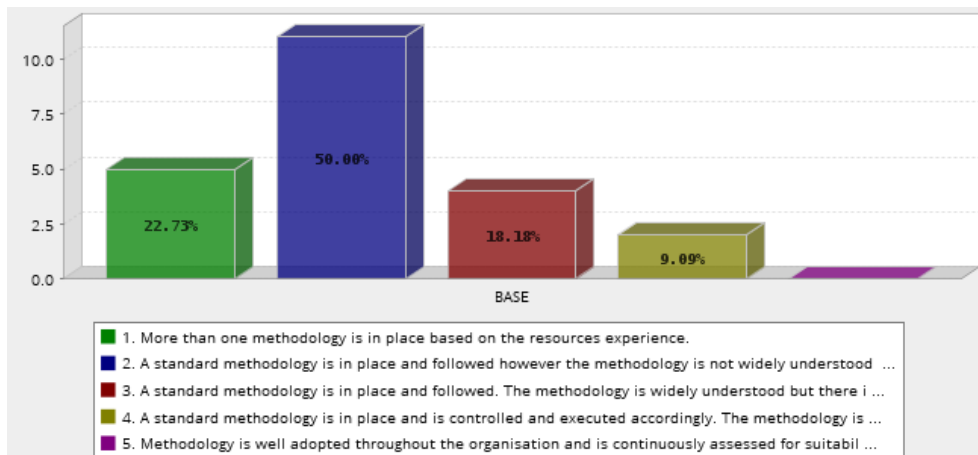
2.	Collaboration processes are not defined but completed at an individual level based on his/her experience.	14	63.64%
3.	Collaboration processes between departments/ individuals are defined and follow a consistent way across the organisation. Stricter enforcement is required.	8	36.36%
4.	Collaboration processes between departments/ individuals are defined and followed across the organisation. Technological tools have been implemented to enable and facilitate collaboration.	0	0.00%
5.	Technological tools have been implemented to enable and facilitate collaboration. Process and technology works well to produce a seamless integration.	0	0.00%
	Total	22	100%

14. How is compliance enforced within your EAM Practice?



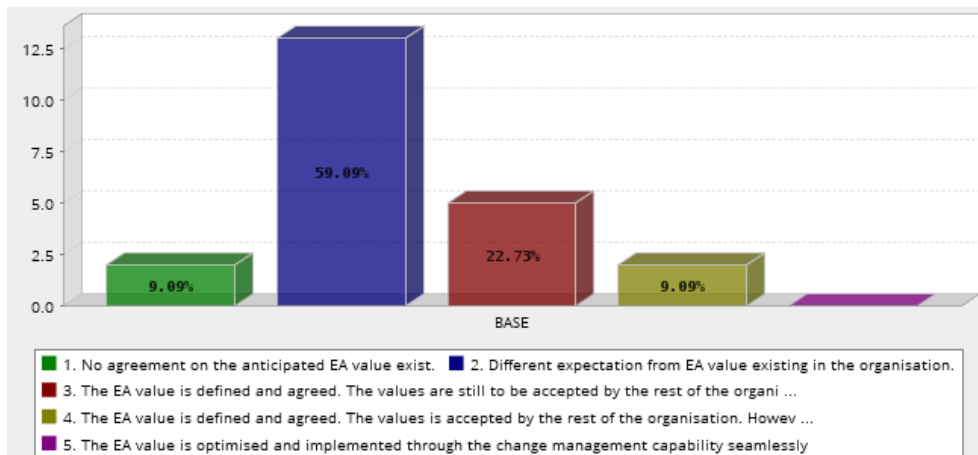
	Answer	Count	Percent
1.	Little / no compliance is enforced	3	13.64%
2.	Compliance committee exist but terms of reference/expectation are not clear with very little benefit realised.	4	18.18%
3.	Compliance committee exist and terms of reference/expectations clearly defined. Most of the organisations subscribes to the rules and policies.	11	50.00%
4.	Compliance committee exist and terms of reference/expectations clearly defined. Compliance committees are inherent in the delivery cycle of the organisation.	4	18.18%
5.	Technological tools have been implemented to enable and facilitate compliance committee. Process and technology works well to produce a seam less integration.	0	0.00%
	Total	22	100%

15. To what level is an EAM methodology implemented and followed within your EAM practice?



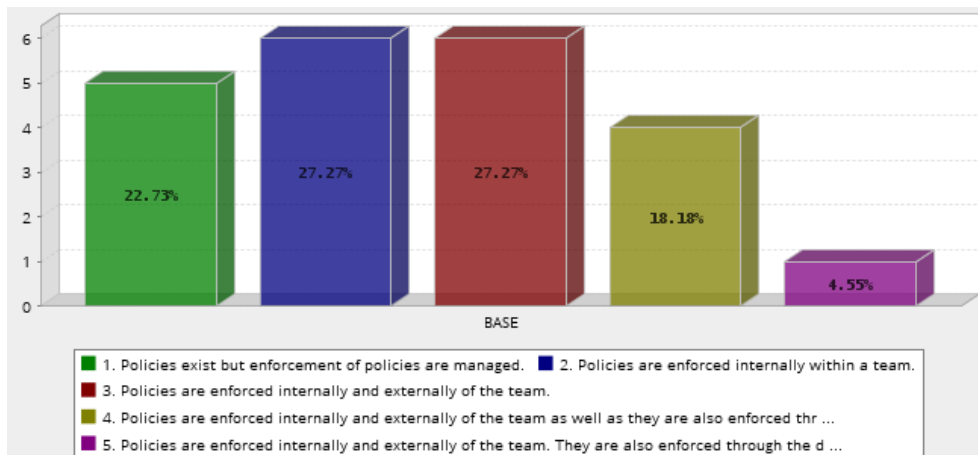
	Answer	Count	Percent
1.	More than one methodology is in place based on the resources experience.	5	22.73%
2.	A standard methodology is in place and followed however the methodology is not widely understood in the rest of the organisation.	11	50.00%
3.	A standard methodology is in place and followed. The methodology is widely understood but there is some gaps that exist which impede certain employee of the organisation from adopting them.	4	18.18%
4.	A standard methodology is in place and is controlled and executed accordingly. The methodology is widely understood. It is well adopted but improvements in implementation is still required.	2	9.09%
5.	Methodology is well adopted throughout the organisation and is continuously assessed for suitability.	0	0.00%
	Total	22	100%

16. Is the anticipated value from EA understood and agreed across the enterprise?



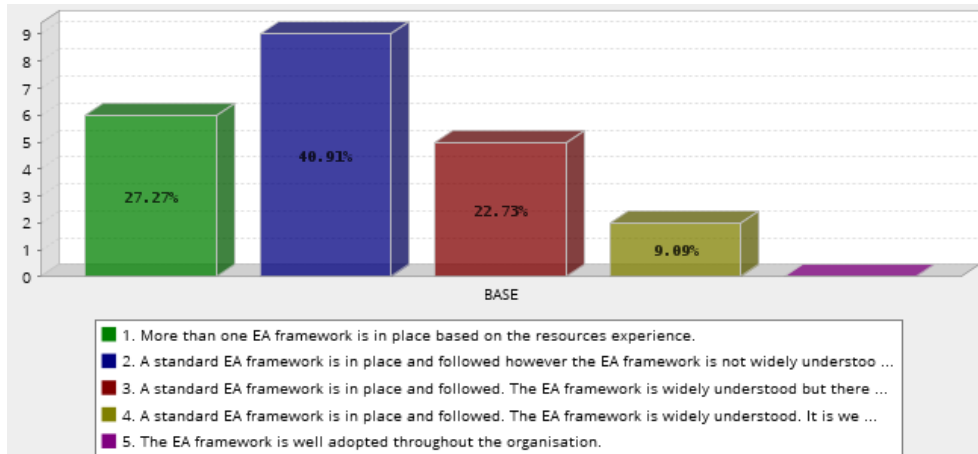
	Answer	Count	Percent
1.	No agreement on the anticipated EA value exist.	2	9.09%
2.	Different expectation from EA value existing in the organisation.	13	59.09%
3.	The EA value is defined and agreed. The values are still to be accepted by the rest of the organisation.	5	22.73%
4.	The EA value is defined and agreed. The values is accepted by the rest of the organisation. However there is room for improvement.	2	9.09%
5.	The EA value is optimised and implemented through the change management capability seamlessly	0	0.00%
	Total	22	100%

17. What level of policy enforcement do you have in your EAM practice?



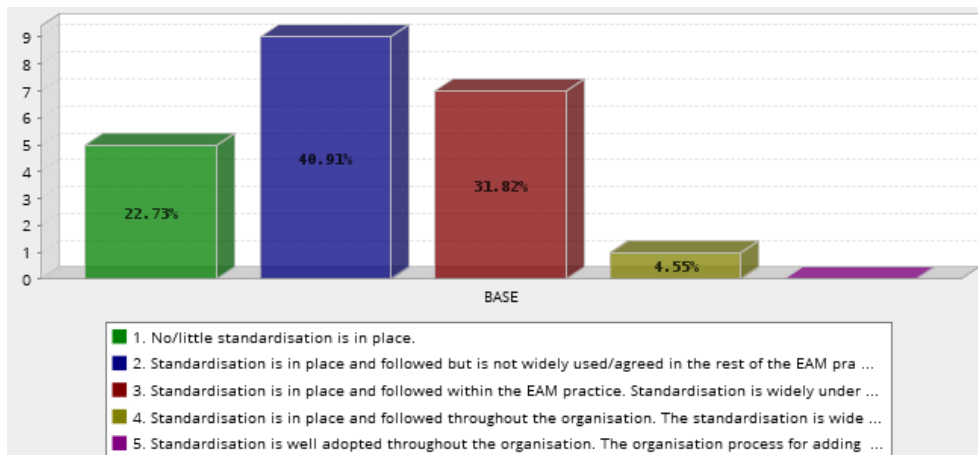
	Answer	Count	Percent
1.	Policies exist but enforcement of policies are managed.	5	22.73%
2.	Policies are enforced internally within a team.	6	27.27%
3.	Policies are enforced internally and externally of the team.	6	27.27%
4.	Policies are enforced internally and externally of the team as well as they are also enforced through the different project governance committees.	4	18.18%
5.	Policies are enforced internally and externally of the team. They are also enforced through the different governance committees all the way to executive steering committees.	1	4.55%
	Total	22	100%

18. To what level is an EA framework implemented and followed within your EAM practice?



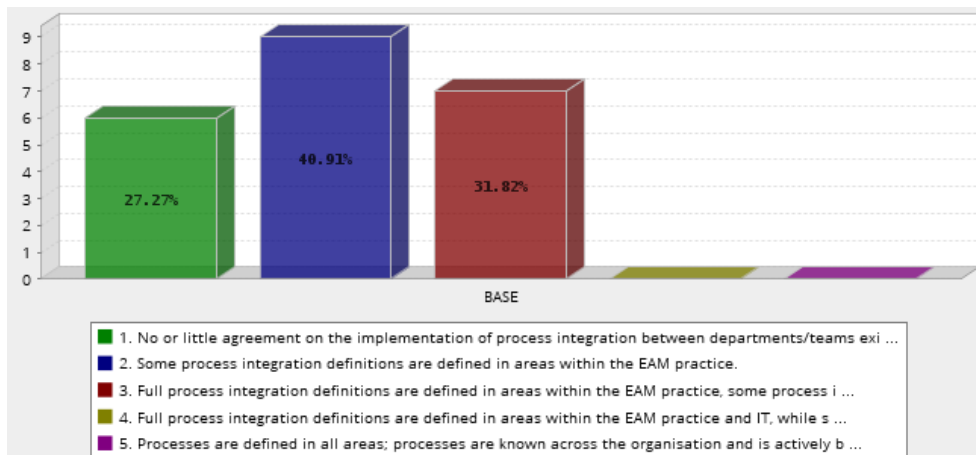
	Answer	Count	Percent
1.	More than one EA framework is in place based on the resources experience.	6	27.27%
2.	A standard EA framework is in place and followed however the EA framework is not widely understood in the rest of the EAM practice.	9	40.91%
3.	A standard EA framework is in place and followed. The EA framework is widely understood but there is some gaps that exist which impede certain employee of the EAM practice from adopting them.	5	22.73%
4.	A standard EA framework is in place and followed. The EA framework is widely understood. It is well adopted but improvements in implementation is still required.	2	9.09%
5.	The EA framework is well adopted throughout the organisation.	0	0.00%
	Total	22	100%

19. To what level is standardisation implemented and followed within your EAM practice?



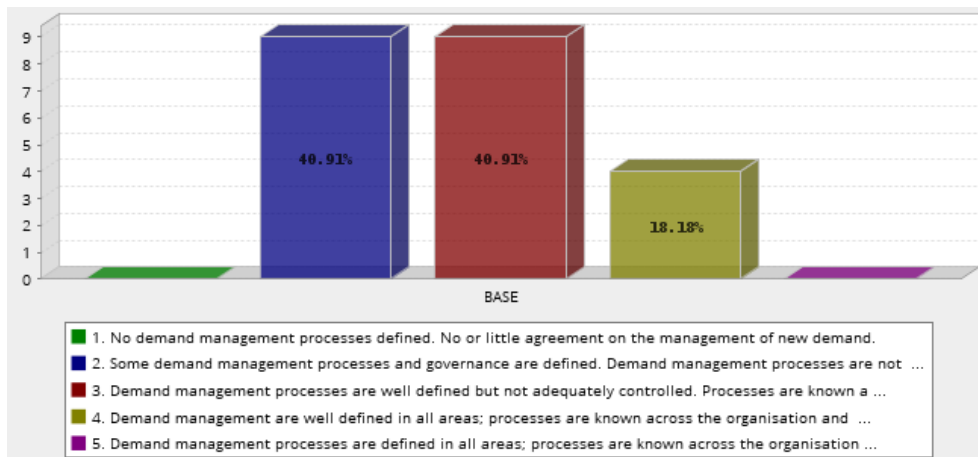
	Answer	Count	Percent
1.	No / little standardisation is in place.	5	22.73%
2.	Standardisation is in place and followed but is not widely used/agreed in the rest of the EAM practice.	9	40.91%
3.	Standardisation is in place and followed within the EAM practice. Standardisation is widely understood but there some gaps exist which impede certain employees of the organisation from adopting them.	7	31.82%
4.	Standardisation is in place and followed throughout the organisation. The standardisation is widely understood. It is well adopted but improvements in implementation is still required.	1	4.55%
5.	Standardisation is well adopted throughout the organisation. The organisation process for adding new standards is seamlessly integration to the change management process.	0	0.00%
	Total	22	100%

20. To what level is process integration implemented and followed within your EAM practice?



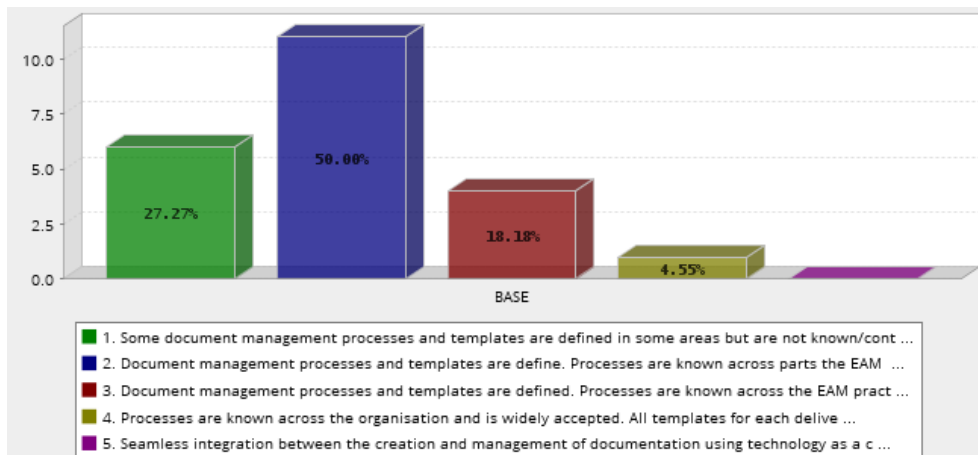
	Answer	Count	Percent
1.	No or little agreement on the implementation of process integration between departments/teams exist.	6	27.27%
2.	Some process integration definitions are defined in areas within the EAM practice.	9	40.91%
3.	Full process integration definitions are defined in areas within the EAM practice, some process integration are defined between areas within IT.	7	31.82%
4.	Full process integration definitions are defined in areas within the EAM practice and IT, while some process integration are defined with business and strategic teams.	0	0.00%
5.	Processes are defined in all areas; processes are known across the organisation and is actively being improved of efficiency. Well integrated into other capabilities such as change management.	0	0.00%
	Total	22	100%

21. To what level is demand management implemented and followed within your EAM practice?



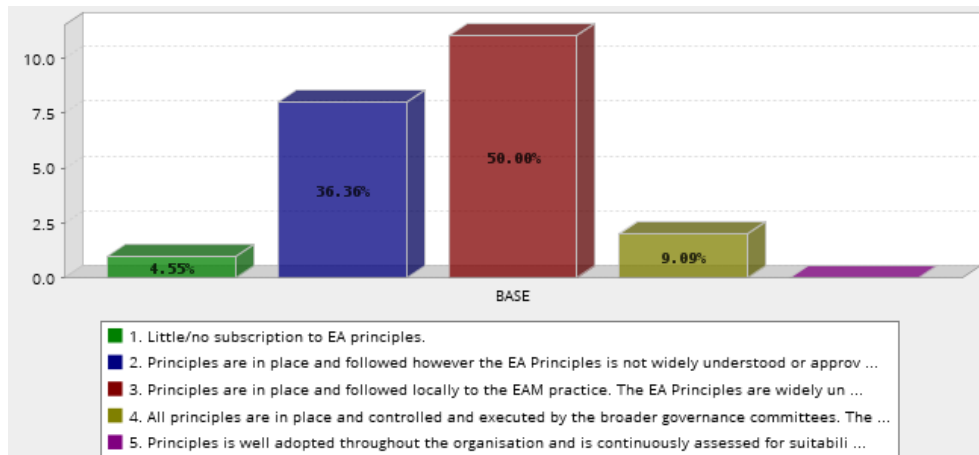
	Answer	Count	Percent
1.	No demand management processes defined. No or little agreement on the management of new demand.	0	0.00%
2.	Some demand management processes and governance are defined. Demand management processes are not known across the organisation.	9	40.91%
3.	Demand management processes are well defined but not adequately controlled. Processes are known across selected parts the organisation.	9	40.91%
4.	Demand management is well defined in all areas; processes are known across the organisation and are widely accepted.	4	18.18%
5.	Demand management processes are defined in all areas; processes are known across the organisation and are actively being improved for efficiency. Well integrated into other capabilities and controlled accordingly.	0	0.00%
	Total	22	100%

22. To what level is documentation created, managed and followed within your EAM practice?



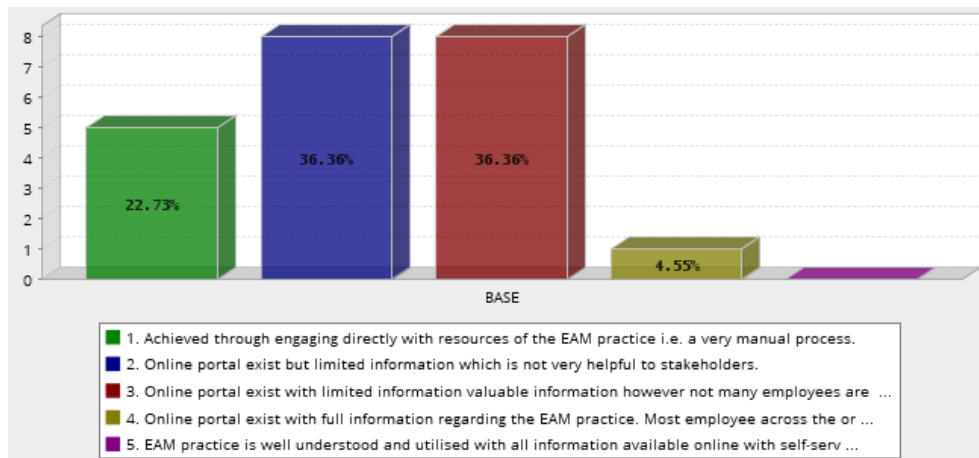
	Answer	Count	Percent
1.	Some document management processes and templates are defined in some areas but are not known/controlled across the EAM practice.	6	27.27%
2.	Document management processes and templates are defined. Processes are known across parts the EAM practice. Quality management for the deliverable exists but not adequately enforced.	11	50.00%
3.	Document management processes and templates are defined. Processes are known across the EAM practice and are widely accepted. Most of the templates for each deliverable are available and quality management is enforced.	4	18.18%
4.	Processes are known across the organisation and are widely accepted. All templates for each deliverable are available and quality management is controlled and makes use of integrated technology for the management thereof.	1	4.55%
5.	Seamless integration between the creation and management of documentation using technology as a central repository with continuous improvement to templates implemented seamless through change management.	0	0.00%
	Total	22	100%

23. To what level are the EA Principles implemented and followed within your EAM practice?



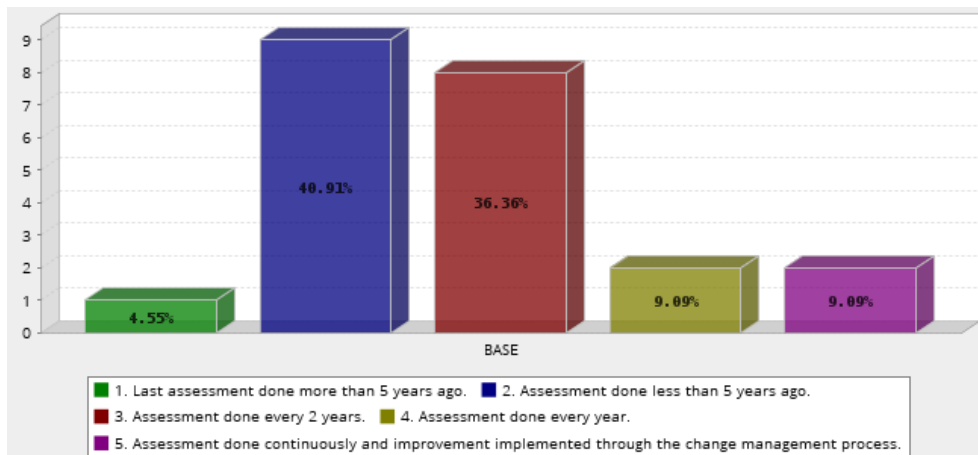
	Answer	Count	Percent
1.	Little / no subscription to EA principles.	1	4.55%
2.	Principles are in place and followed, however the EA Principles are not widely understood or approved by the rest of the organisation.	8	36.36%
3.	Principles are in place and followed locally to the EAM practice. The EA Principles are widely understood and are used to validate EAM artefacts. Some gaps exist in identifying and relating some of the principles.	11	50.00%
4.	All principles are in place and controlled and executed by the broader governance committees. The EA Principles are widely understood and adopted.	2	9.09%
5.	Principles are well adopted throughout the organisation and are continuously assessed for suitability. The organisation process for adding new processes is seamlessly integrated with the change management process.	0	0.00%
	Total	22	100%

24. How easy is it to find products, services and EAM related information in your organisation?



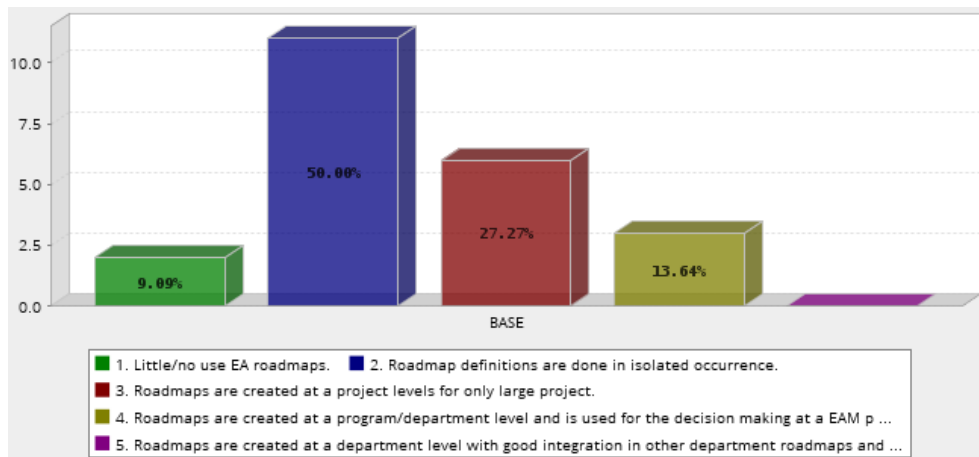
	Answer	Count	Percent
1.	Achieved through engaging directly with resources of the EAM practice i.e., a very manual process.	5	22.73%
2.	Online portal exist but limited information which is not very helpful to stakeholders.	8	36.36%
3.	Online portal exist with limited information valuable information however not many employees are aware on the portal site.	8	36.36%
4.	Online portal exist with full information regarding the EAM practice. Most employee across the organisation is aware on the portal site. Consistently updating the site with relevant information.	1	4.55%
5.	EAM practice is well understood and utilised with all information available online with self-service functionality to make use of any services.	0	0.00%
	Total	22	100%

25. How often is the state of the EAM practice assessed and improved?



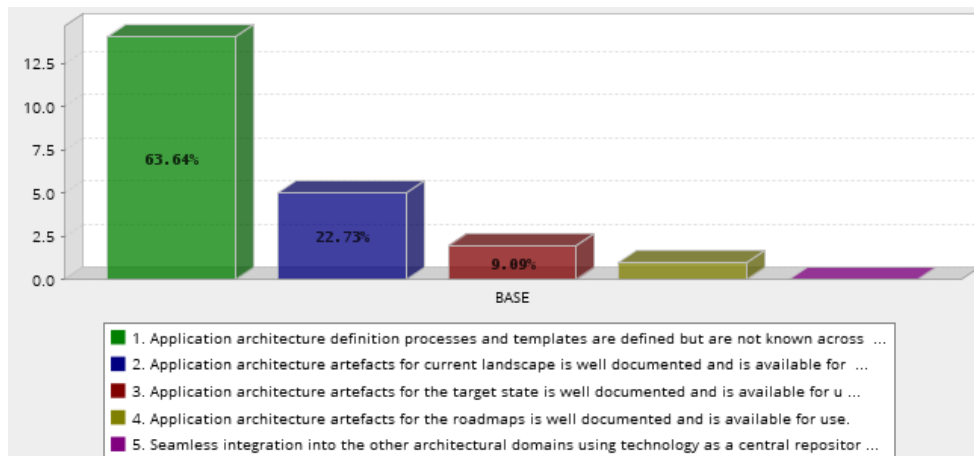
	Answer	Count	Percent
1.	Last assessment done more than 5 years ago.	1	4.55%
2.	Assessment done less than 5 years ago.	9	40.91%
3.	Assessment done every 2 years.	8	36.36%
4.	Assessment done every year.	2	9.09%
5.	Assessment done continuously and improvement implemented through the change management process.	2	9.09%
	Total	22	100%

26. How often are roadmaps created and managed in the EAM practice?



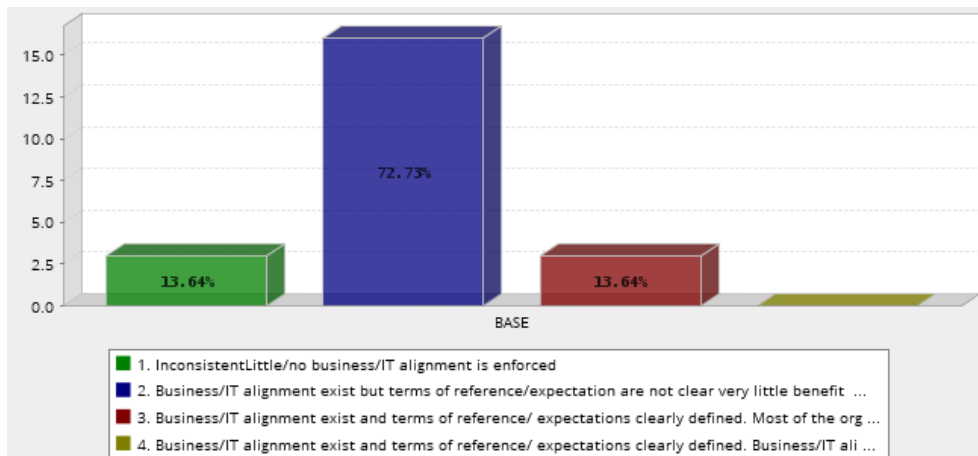
	Answer	Count	Percent
1.	Little / no use EA roadmaps.	2	9.09%
2.	Roadmap definitions are done in isolated occurrence.	11	50.00%
3.	Roadmaps are created at a project level for only large projects.	6	27.27%
4.	Roadmaps are created at a program/department level and are used for decision-making at an EAM practice level.	3	13.64%
5.	Roadmaps are created at a department level with good integration with other department roadmaps and are used for decision-making at an executive level.	0	0.00%
	Total	22	100%

27. To what level are application architecture artefacts created, managed and adopted within your EAM practice?



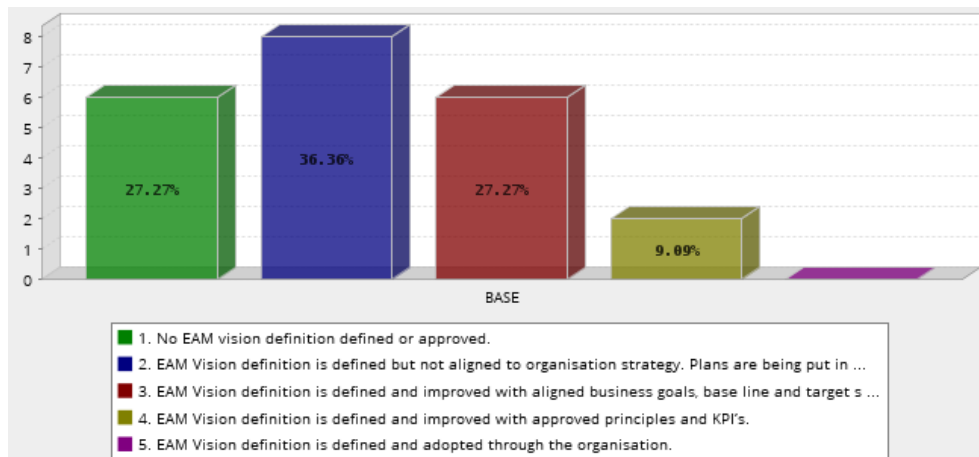
	Answer	Count	Percent
1.	Application architecture definition processes and templates are defined but are not known across the EAM practice.	14	63.64%
2.	Application architecture artefacts for current landscape are well documented and are available for use.	5	22.73%
3.	Application architecture artefacts for the target state are well documented and is available for use.	2	9.09%
4.	Application architecture artefacts for the roadmaps are well documented and are available for use.	1	4.55%
5.	Seamless integration into the other architectural domains using technology as a central repository with continuous improvements through change management.	0	0.00%
	Total	22	100%

28. To what level is business / IT alignment maintained and adopted within your EAM practice?



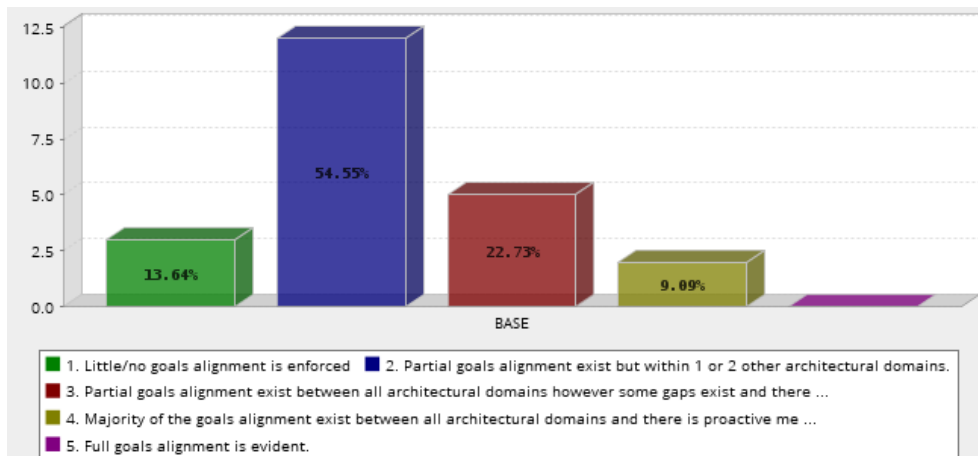
	Answer	Count	Percent
1.	Inconsistent little / no business / IT alignment is enforced	3	13.64%
2.	Business / IT alignment exists but terms of reference / expectation are not clear, very little benefit realised.	16	72.73%
3.	Business / IT alignment exists and terms of reference / expectations clearly defined. Most of the organisations subscribe to the rules and policies.	3	13.64%
4.	Business / IT alignment exists and terms of reference / expectations clearly defined. Business / IT alignment is inherent to the delivery cycle of the organisation.	0	0.00%
	Total	22	100%

29. How would you describe the development and execution of the EAM vision within the practice?



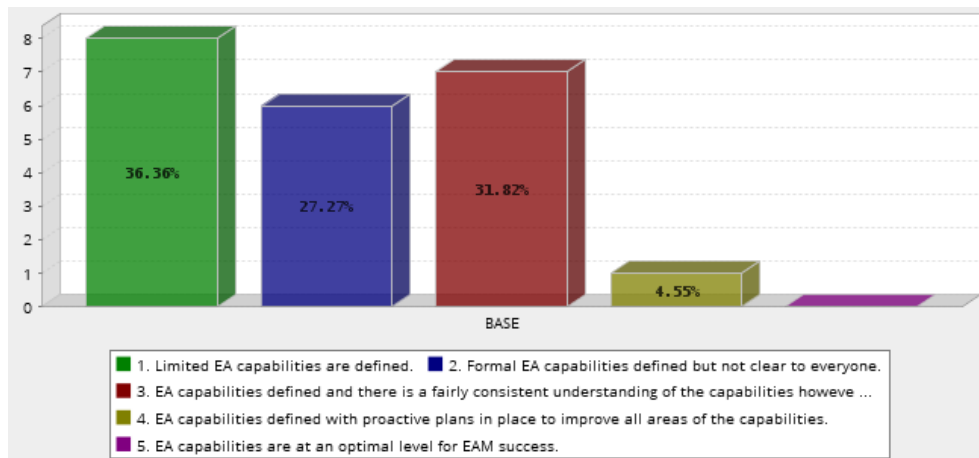
	Answer	Count	Percent
1.	No EAM vision definition defined or approved.	6	27.27%
2.	EAM Vision definition is defined but not aligned to organisation strategy. Plans are being put in place to address the concern with an approved vision.	8	36.36%
3.	EAM Vision definition is defined and improved with aligned business goals, base line and target state architecture.	6	27.27%
4.	EAM Vision definition is defined and improved with approved principles and KPI's.	2	9.09%
5.	EAM Vision definition is defined and adopted through the organisation.	0	0.00%
	Total	22	100%

30. To what level is goals alignment created and maintained within your EAM practice?



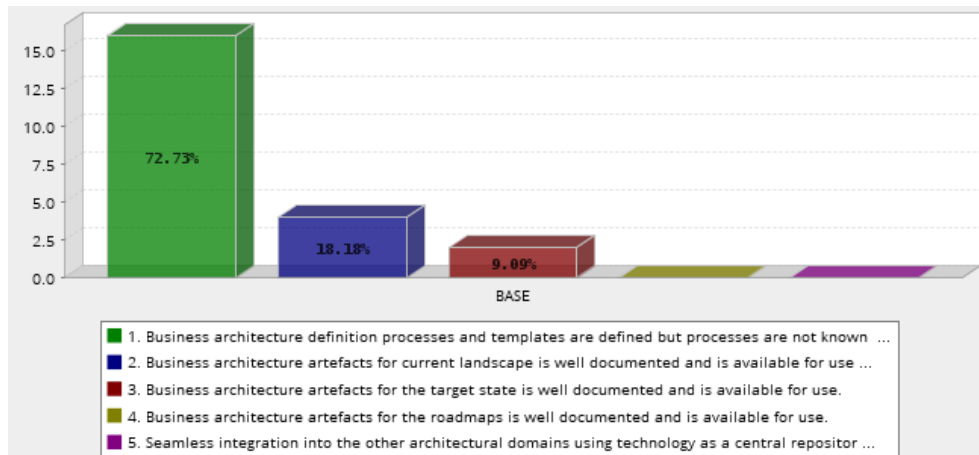
	Answer	Count	Percent
1.	Little/no goals alignment is enforced	3	13.64%
2.	Partial goals alignment exist but within 1 or 2 other architectural domains.	12	54.55%
3.	Partial goals alignment exist between all architectural domains however some gaps exist and there is proactive measure in place to meet alignment expectations.	5	22.73%
4.	Majority of the goals alignment exist between all architectural domains and there is proactive measure in place to meet alignment expectations.	2	9.09%
5.	Full goals alignment is evident.	0	0.00%
	Total	22	100%

31. To what level are EA capabilities are adopted and managed within your EAM practice?



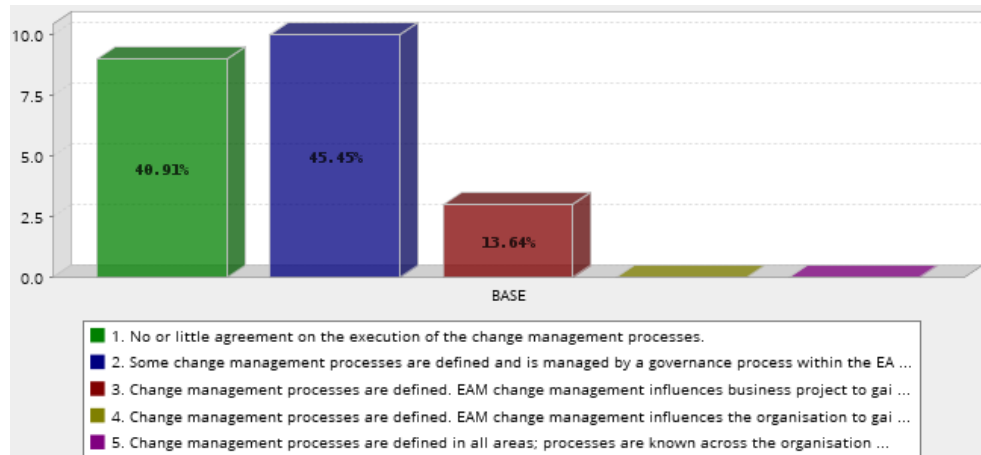
	Answer	Count	Percent
1.	Limited EA capabilities are defined.	8	36.36%
2.	Formal EA capabilities defined but not clear to everyone.	6	27.27%
3.	EA capabilities defined and there is a fairly consistent understanding of the capabilities however gap analysis required for further improvements.	7	31.82%
4.	EA capabilities defined with proactive plans in place to improve all areas of the capabilities.	1	4.55%
5.	EA capabilities are at an optimal level for EAM success.	0	0.00%
	Total	22	100%

32. To what level is business architecture artefacts created, managed and adopted within your EAM practice?



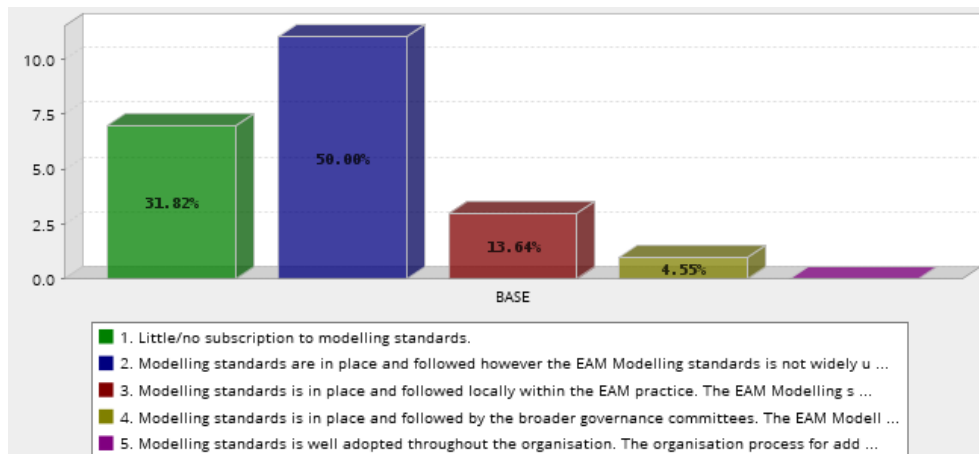
	Answer	Count	Percent
1.	Business architecture definition processes and templates are defined but processes are not known across the organisation.	16	72.73%
2.	Business architecture artefacts for current landscape is well documented and is available for use.	4	18.18%
3.	Business architecture artefacts for the target state is well documented and is available for use.	2	9.09%
4.	Business architecture artefacts for the roadmaps is well documented and is available for use.	0	0.00%
5.	Seamless integration into the other architectural domains using technology as a central repository with continuous improvements through change management.	0	0.00%
	Total	22	100%

33. To what level is change management processes create and maintained within your EAM practice?



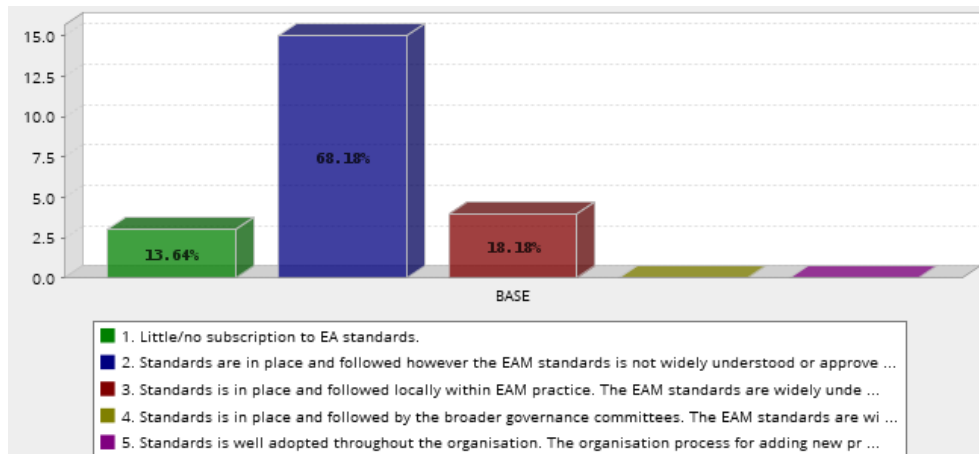
	Answer	Count	Percent
1.	No or little agreement on the execution of the change management processes.	9	40.91%
2.	Some change management processes are defined and is managed by a governance process within the EAM governance.	10	45.45%
3.	Change management processes are defined. EAM change management influences business project to gain value from the EAM practice.	3	13.64%
4.	Change management processes are defined. EAM change management influences the organisation to gain value from the EAM practice. Makes recommendations to change management processes to meet targets.	0	0.00%
5.	Change management processes are defined in all areas; processes are known across the organisation and is actively being improved of efficiency. Well integrated into other capabilities.	0	0.00%
	Total	22	100%

34. To what level is the modelling standards implemented and followed within your EAM practice?



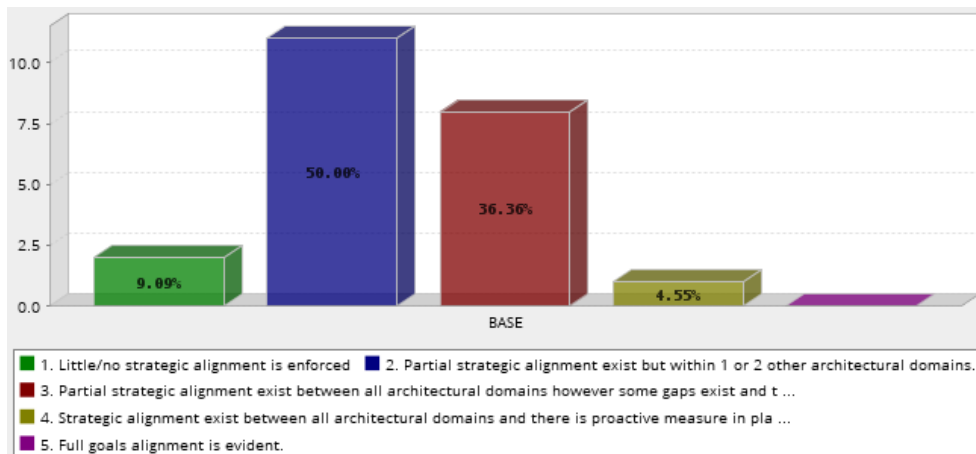
	Answer	Count	Percent
1.	Little/no subscription to modelling standards.	7	31.82%
2.	Modelling standards are in place and followed however the EAM Modelling standards is not widely understood or approved by the rest of the organisation.	11	50.00%
3.	Modelling standards is in place and followed locally within the EAM practice. The EAM Modelling standards are widely understood and is used to validate EAM artefact with some gaps existing.	3	13.64%
4.	Modelling standards is in place and followed by the broader governance committees. The EAM Modelling standards are widely understood.	1	4.55%
5.	Modelling standards is well adopted throughout the organisation. The organisation process for adding new processes is seamlessly integration to the change management process.	0	0.00%
	Total	22	100%

35. To what level is the EA standards implemented and followed within your EAM practice?



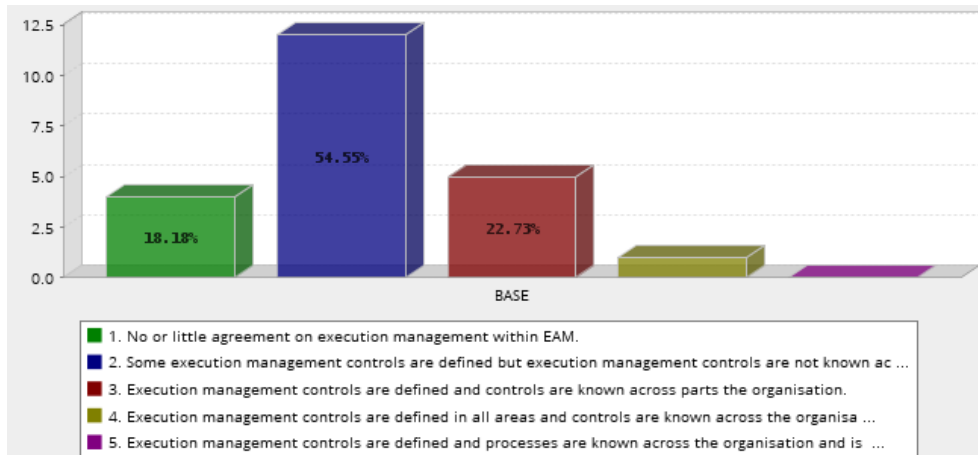
	Answer	Count	Percent
1.	Little/no subscription to EA standards.	3	13.64%
2.	Standards are in place and followed however the EAM standards is not widely understood or approved by the rest of the organisation.	15	68.18%
3.	Standards is in place and followed locally within EAM practice. The EAM standards are widely understood and is used to validate EAM artefacts.	4	18.18%
4.	Standards is in place and followed by the broader governance committees. The EAM standards are widely understood.	0	0.00%
5.	Standards is well adopted throughout the organisation. The organisation process for adding new processes is seamlessly integration to the change management process.	0	0.00%
	Total	22	100%

36. To what level is strategic alignment is create and maintained within your EAM practice?



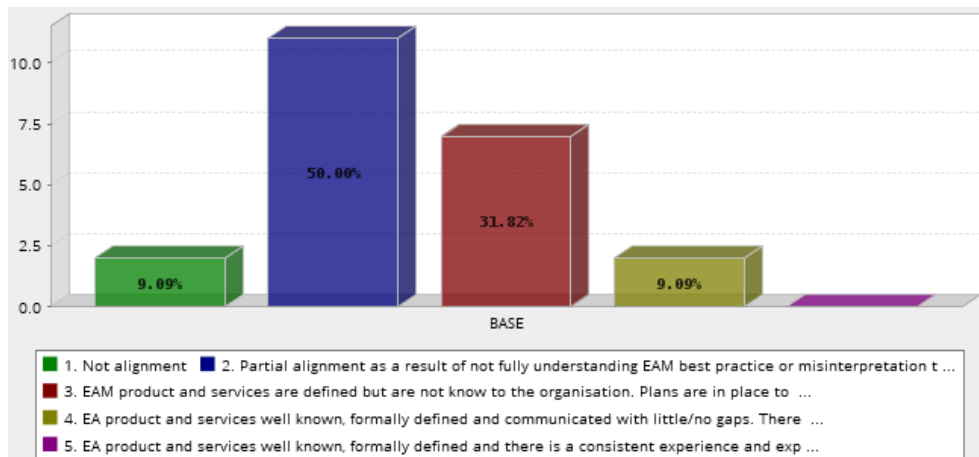
	Answer	Count	Percent
1.	Little/no strategic alignment is enforced	2	9.09%
2.	Partial strategic alignment exist but within one or two other architectural domains.	11	50.00%
3.	Partial strategic alignment exist between all architectural domains however some gaps exist and there is proactive measure in place to meet alignment expectations.	8	36.36%
4.	Strategic alignment exist between all architectural domains and there is proactive measure in place to meet alignment expectations.	1	4.55%
5.	Full goals alignment is evident.	0	0.00%
	Total	22	100%

37. To what level is execution management monitored and maintained within your EAM practice?



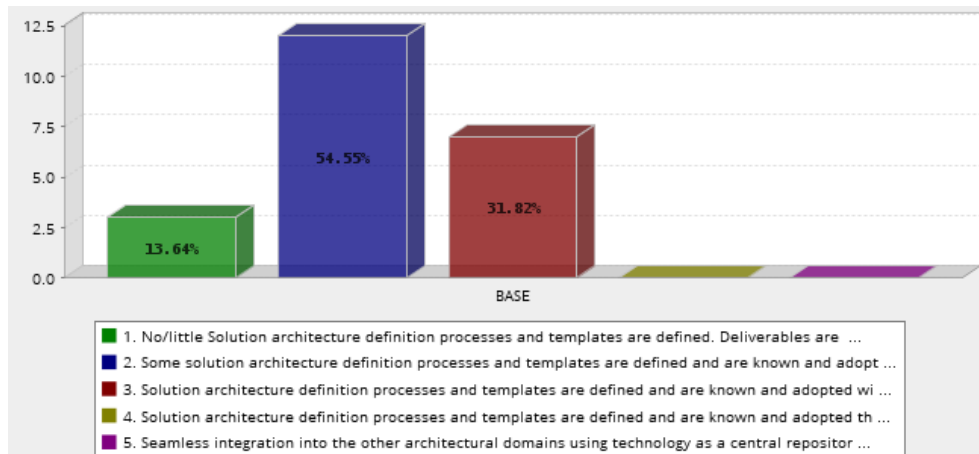
	Answer	Count	Percent
1.	No or little agreement on execution management within EAM.	4	18.18%
2.	Some execution management controls are defined but execution management controls are not known across the organisation.	12	54.55%
3.	Execution management controls are defined and controls are known across parts the organisation.	5	22.73%
4.	Execution management controls are defined in all areas and controls are known across the organisation and is widely accepted.	1	4.55%
5.	Execution management controls are defined and processes are known across the organisation and is actively being improved of efficiency and well integrated into other capabilities.	0	0.00%
	Total	22	100%

38. How well is the product and services aligned to the EAM capabilities and organisation's needs?



	Answer	Count	Percent
1.	Not alignment	2	9.09%
2.	Partial alignment as a result of not fully understanding EAM best practice or misinterpretation thereof.	11	50.00%
3.	EAM product and services are defined but are not known to the organisation. Plans are in place to social products and services.	7	31.82%
4.	EA product and services well known, formally defined and communicated with little/no gaps. There is a consistent experience and expectation of the EAM product and services.	2	9.09%
5.	EA product and services well known, formally defined and there is a consistent experience and expectation of the EA practice. Product and services changes are well managed through the change management process.	0	0.00%
	Total	22	100%

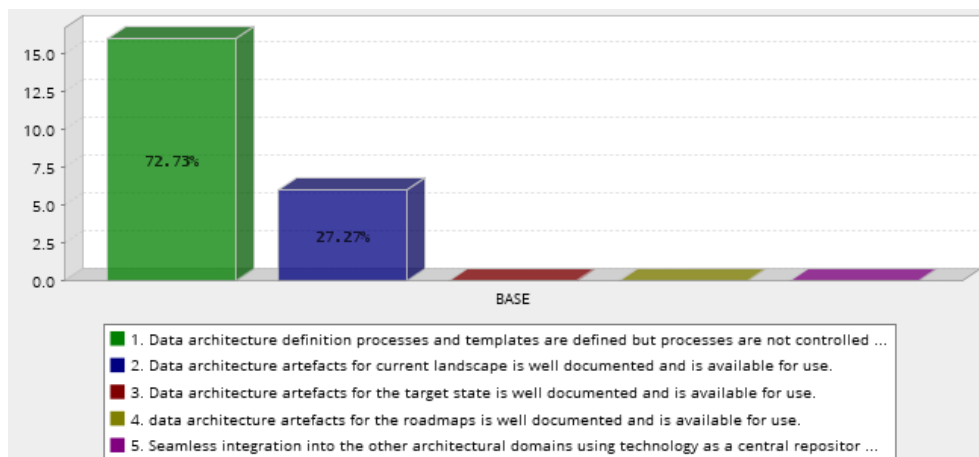
39. To what level is solution architecture artefacts created, managed and adopted within your EAM practice?



	Answer	Count	Percent
1.	No / little Solution architecture definition processes and templates are defined. Deliverables are based on individual's experience.	3	13.64%
2.	Some solution architecture definition processes and templates are defined and are known and adopted within the EAM practice.	12	54.55%
3.	Solution architecture definition processes and templates are defined and are known and adopted within the EAM practice. Some gaps exist but proactive plans are in place to fill the gaps.	7	31.82%
4.	Solution architecture definition processes and templates are defined and are known and adopted throughout the organisation. All artefacts managed through the use of technology/software.	0	0.00%
5.	Seamless integration into the other architectural domains using technology as a central repository	0	0.00%

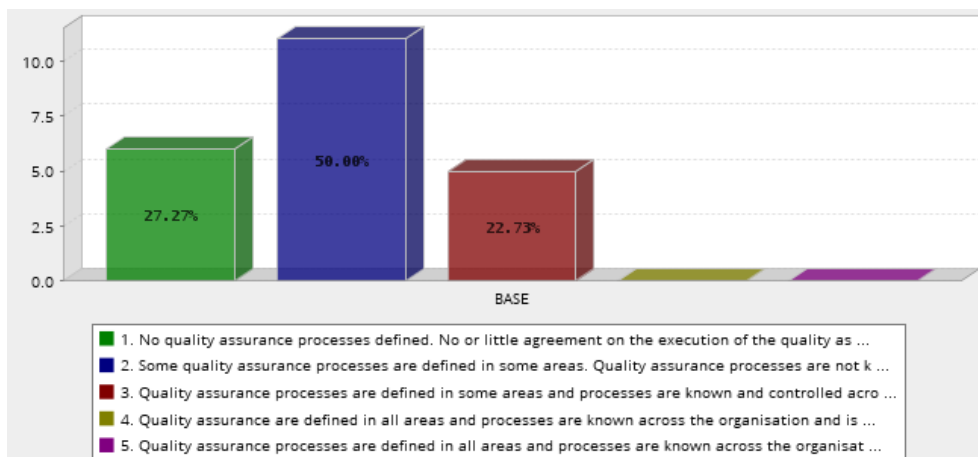
	with continuous improvements through change management.		
	Total	22	100%

40. To what level is data architecture artefacts created, managed and adopted within your EAM practice?



	Answer	Count	Percent
1.	Data architecture definition processes and templates are defined but processes are not controlled/consistent across the EAM practice.	16	72.73%
2.	Data architecture artefacts for current landscape is well documented and is available for use.	6	27.27%
3.	Data architecture artefacts for the target state is well documented and is available for use.	0	0.00%
4.	data architecture artefacts for the roadmaps is well documented and is available for use.	0	0.00%
5.	Seamless integration into the other architectural domains using technology as a central repository with continuous improvements through change management.	0	0.00%
	Total	22	100%

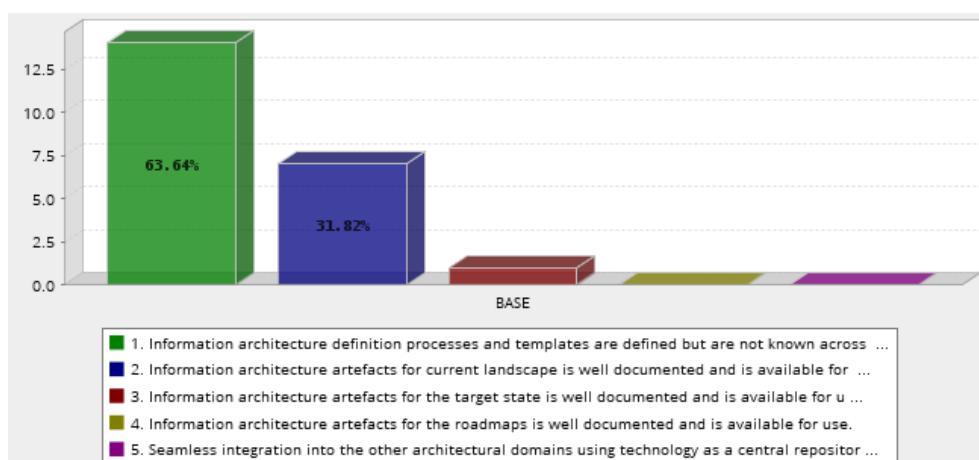
41. To what level is quality assurance processes created and maintained within your EAM practice?



	Answer	Count	Percent
1.	No quality assurance processes defined. No or little agreement on the execution of the quality assurance processes.	6	27.27%
2.	Some quality assurance processes are defined in some areas. Quality assurance processes are not known across the EAM practice.	11	50.00%
3.	Quality assurance processes are defined in some areas and processes are known and controlled across the EAM practice.	5	22.73%
4.	Quality assurance are defined in all areas and processes are known across the organisation and is widely accepted.	0	0.00%
5.	Quality assurance processes are defined in all areas and processes are known across the organisation	0	0.00%

	and is actively being improved of efficiency. Well integrated into other capabilities.		
	Total	22	100%

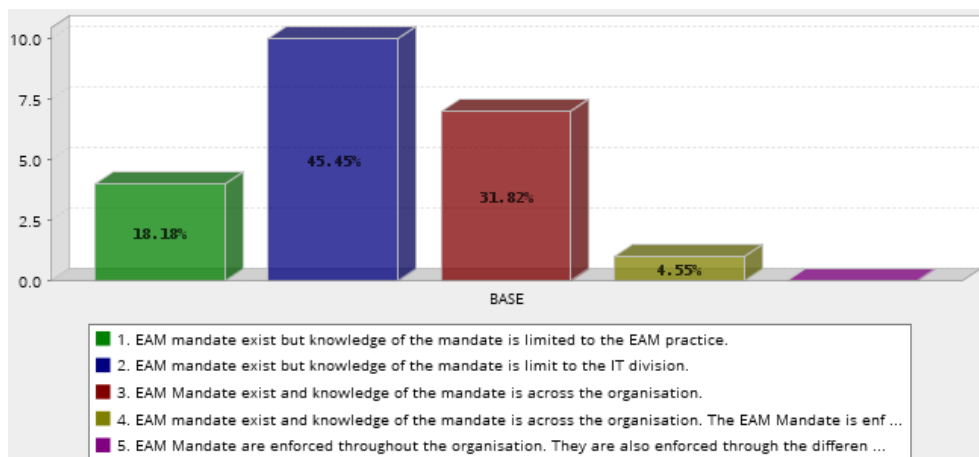
42. To what level is information architecture artefacts created, managed and adopted within your EAM practice?



	Answer	Count	Percent
1.	Information architecture definition processes and templates are defined but are not known across the organisation.	14	63.64%
2.	Information architecture artefacts for current landscape is well documented and is available for use.	7	31.82%
3.	Information architecture artefacts for the target state is well documented and is available for use.	1	4.55%
4.	Information architecture artefacts for the roadmaps is well documented and is available for use.	0	0.00%
5.	Seamless integration into the other architectural domains using technology as a central repository	0	0.00%

	with continuous improvements through change management.		
	Total	22	100%

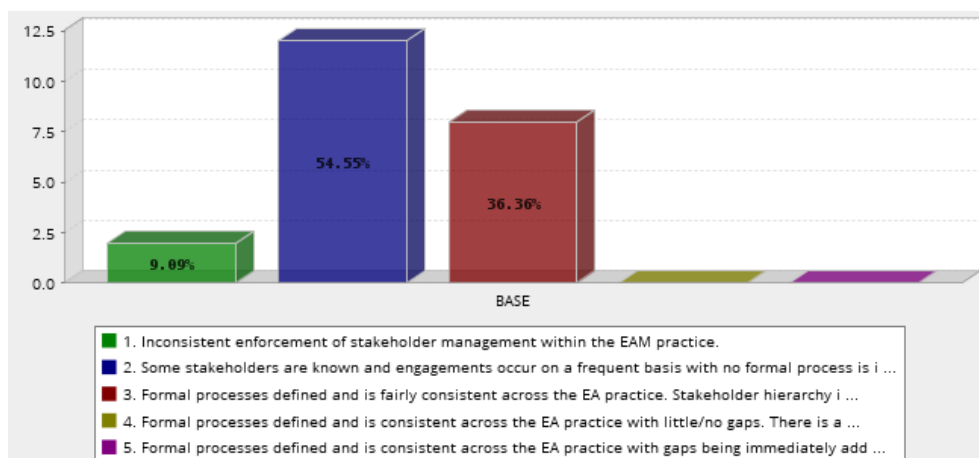
43. How would you describe the development and execution of the EAM mandate within the practice?



	Answer	Count	Percent
1.	EAM mandate exist but knowledge of the mandate is limited to the EAM practice.	4	18.18%
2.	EAM mandate exist but knowledge of the mandate is limit to the IT division.	10	45.45%
3.	EAM Mandate exist and knowledge of the mandate is across the organisation.	7	31.82%
4.	EAM mandate exist and knowledge of the mandate is across the organisation. The EAM Mandate is enforced internally and externally of the team. They	1	4.55%

	are also enforced through the different governance committees.		
5.	EAM Mandate are enforced throughout the organisation. They are also enforced through the different governance committees all the way to executive steering committees.	0	0.00%
	Total	22	100%

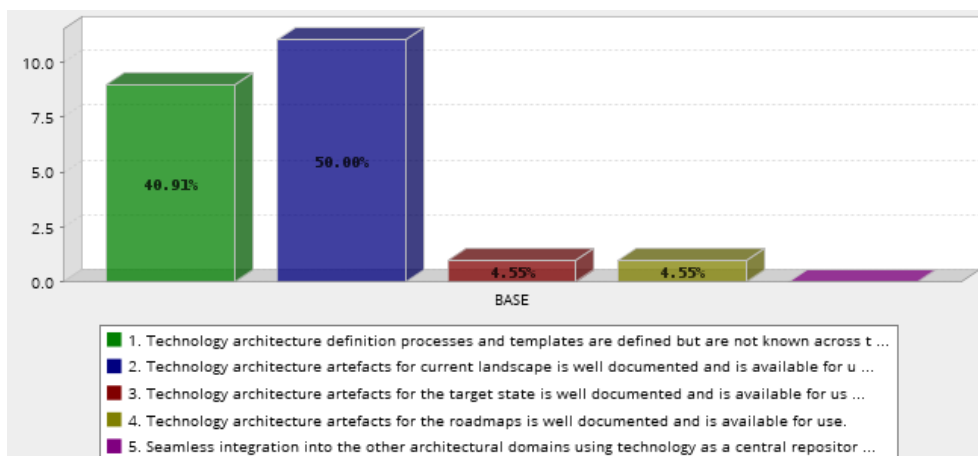
44. How will you describe IT Operations engagement in your organisation?



	Answer	Count	Percent
1.	Inconsistent enforcement of stakeholder management within the EAM practice.	2	9.09%
2.	Some stakeholders are known and engagements occur on a frequent basis with no formal process is in place to ensure consistency.	12	54.55%

3.	Formal processes defined and is fairly consistent across the EA practice. Stakeholder hierarchy is documented but some gaps exist with room for improvements.	8	36.36%
4.	Formal processes defined and is consistent across the EA practice with little/no gaps. There is a consistent experience and expectation by most stakeholder management.	0	0.00%
5.	Formal processes defined and is consistent across the EA practice with gaps being immediately addressed. There is a consistent experience and expectation by all stakeholder management.	0	0.00%
Total		22	100%

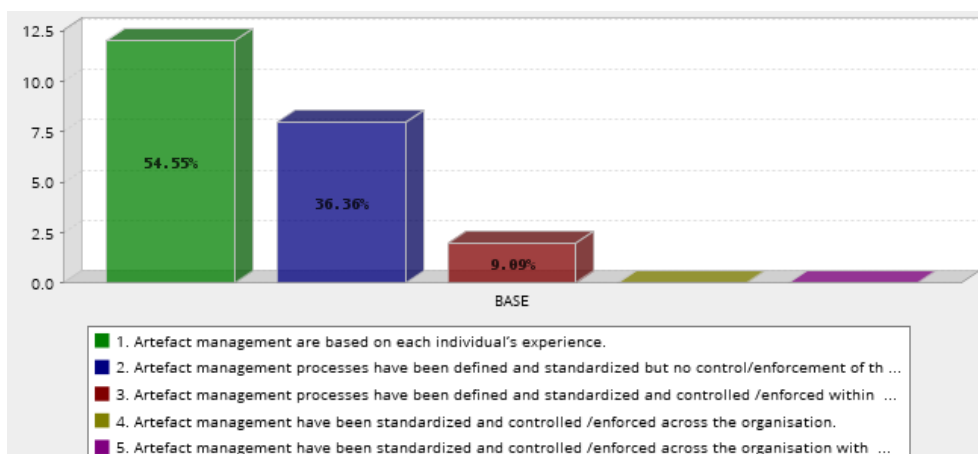
45. To what level is technology architecture artefacts created, managed and adopted within your EAM practice?



	Answer	Count	Percent
1.	Technology architecture definition processes and templates are defined but are not known across the organisation.	9	40.91%

2.	Technology architecture artefacts for current landscape is well documented and is available for use.	11	50.00%
3.	Technology architecture artefacts for the target state is well documented and is available for use.	1	4.55%
4.	Technology architecture artefacts for the roadmaps is well documented and is available for use.	1	4.55%
5.	Seamless integration into the other architectural domains using technology as a central repository with continuous improvements through change management.	0	0.00%
	Total	22	100%

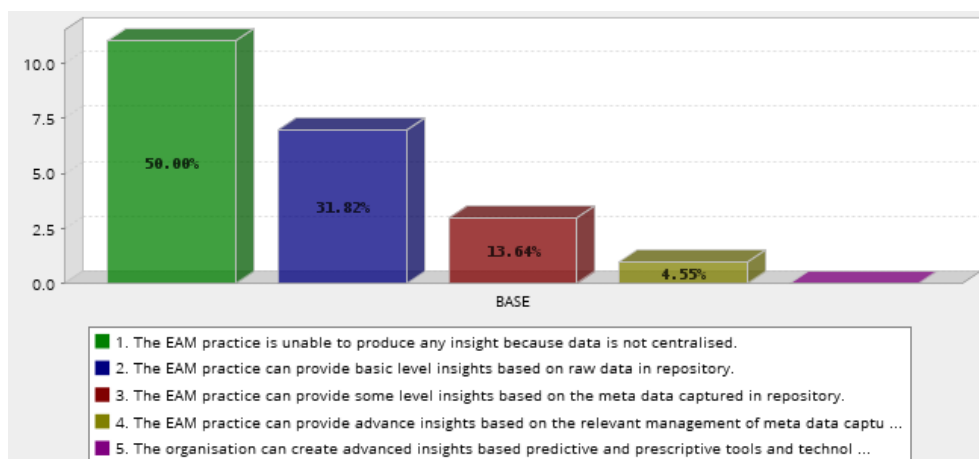
46. How effective are EAM artefacts created and managed in your organisation?



	Answer	Count	Percent

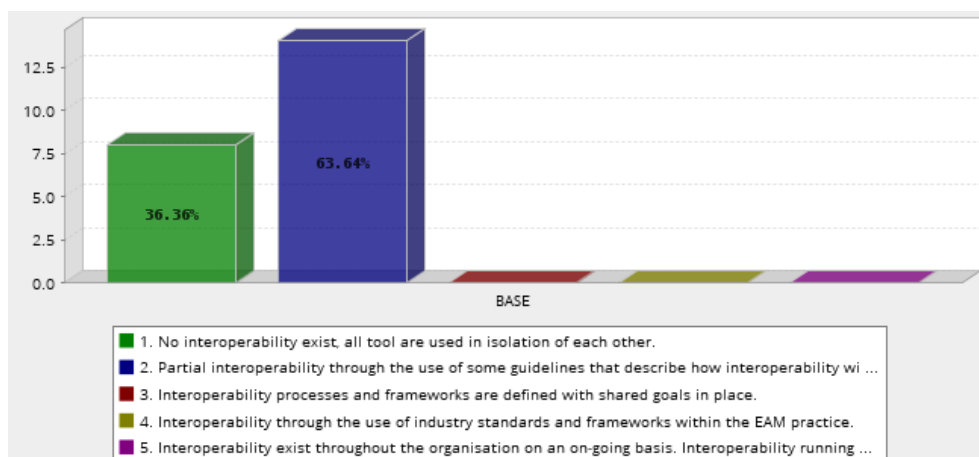
1.	Artefact management is based on each individual's experience.	12	54.55%
2.	Artefact management processes have been defined and standardised but no control/enforcement of the standards.	8	36.36%
3.	Artefact management processes have been defined and standardised and controlled /enforced within the EAM practice.	2	9.09%
4.	Artefact management have been standardised and controlled /enforced across the organisation.	0	0.00%
5.	Artefact management have been standardised and controlled /enforced across the organisation with new tools easily adopted in the organisation seamlessly through the change management process.	0	0.00%
	Total	22	100%

47. How would you rate your EAM's practice in producing insight analysis from data in their repository?



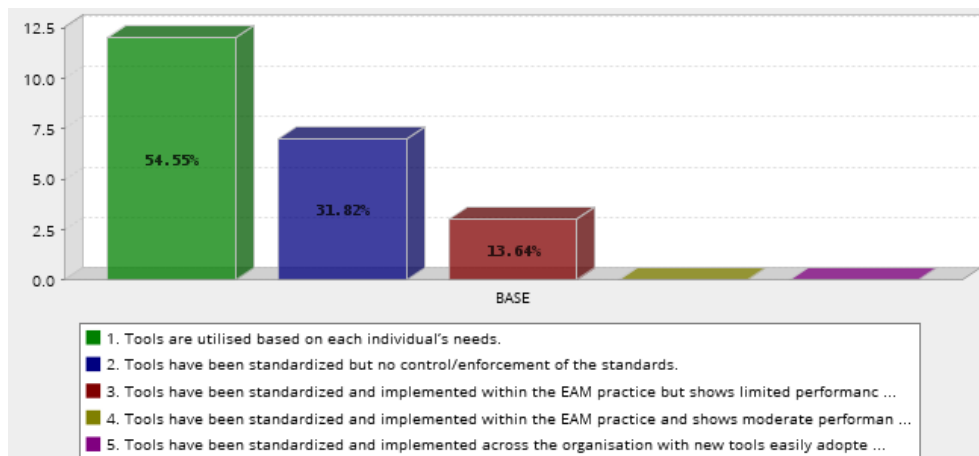
	Answer	Count	Percent
1.	The EAM practice is unable to produce any insight because data is not centralised.	11	50.00%
2.	The EAM practice can provide basic level insights based on raw data in repository.	7	31.82%
3.	The EAM practice can provide some level insights based on the meta data captured in repository.	3	13.64%
4.	The EAM practice can provide advance insights based on the relevant management of meta data captured for all artefacts.	1	4.55%
5.	The organisation can create advanced insights based predictive and prescriptive tools and technologies in place.	0	0.00%
	Total	22	100%

48. To what level is interoperability experienced in your EAM practice?



	Answer	Count	Percent
1.	No interoperability exist, all tools are used in isolation from each other.	8	36.36%
2.	Partial interoperability through the use of some guidelines that describe how interoperability will occur.	14	63.64%
3.	Interoperability processes and frameworks are defined with shared goals in place.	0	0.00%
4.	Interoperability through the use of industry standards and frameworks within the EAM practice.	0	0.00%
5.	Interoperability exist throughout the organisation on an ongoing basis. Interoperability running at optimal level.	0	0.00%
	Total	22	100%

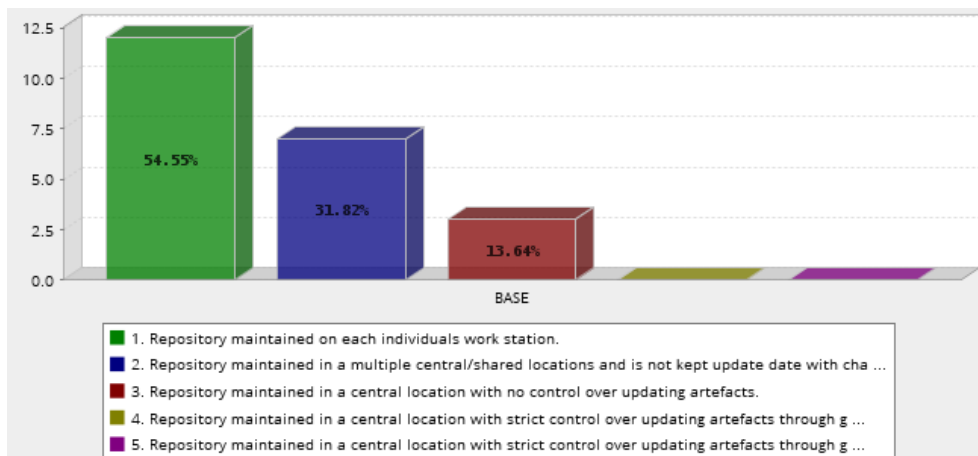
49. How would you rate the use of tools within the EAM practice?



	Answer	Count	Percent
1.	Tools are utilised based on each individual's needs.	12	54.55%
2.	Tools have been standardised but no control/enforcement of the standards.	7	31.82%
3.	Tools have been standardised and implemented within the EAM practice but shows limited performance impact.	3	13.64%

4.	Tools have been standardised and implemented within the EAM practice and shows moderate performance impact.	0	0.00%
5.	Tools have been standardised and implemented across the organisation with new tools easily adopted in the organisation seamlessly through the change management process. Maximum performance impact is gain.	0	0.00%
Total		22	100%

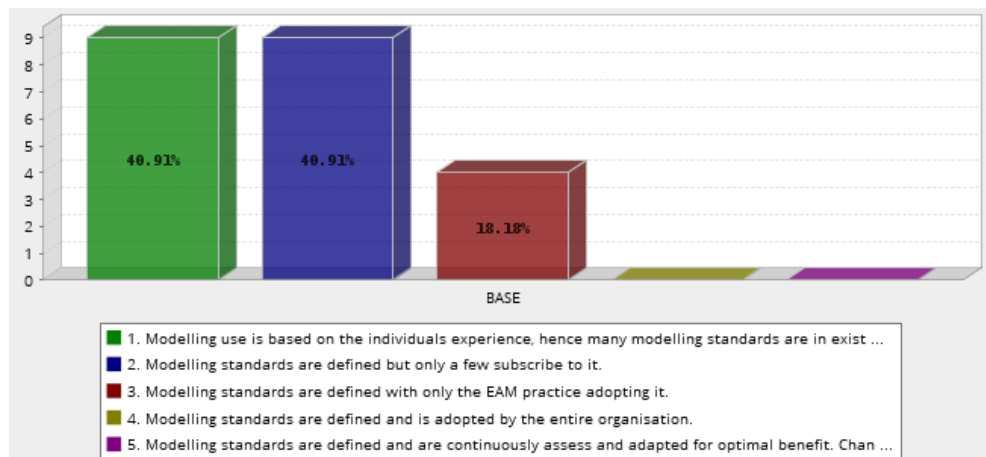
50. How effective is the EAM practice repository?



	Answer	Count	Percent
1.	Repository maintained on each individual's work station.	12	54.55%
2.	Repository maintained in a multiple central/shared locations and is not kept update date with changes or no version control in place.	7	31.82%
3.	Repository maintained in a central location with no control over updating artefacts.	3	13.64%
4.	Repository maintained in a central location with strict control over updating artefacts through governance committees within the EAM practice.	0	0.00%

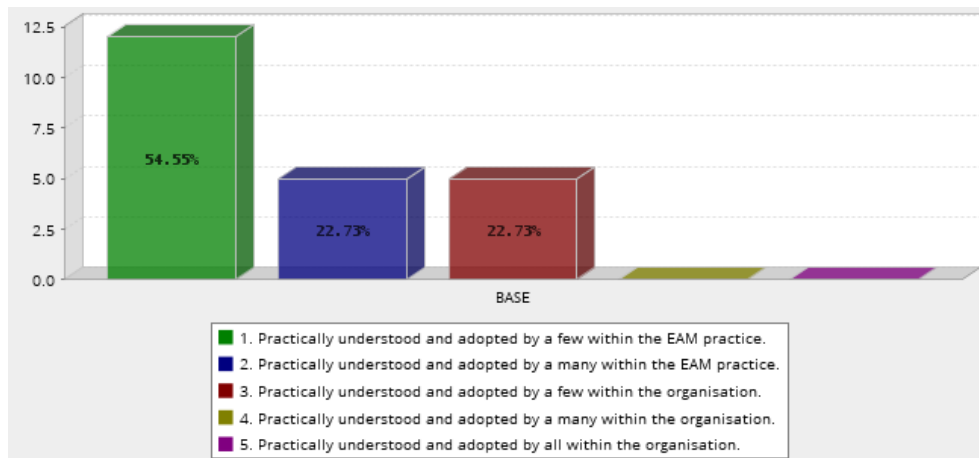
5.	Repository maintained in a central location with strict control over updating artefacts through governance committees throughout the organisation.	0	0.00%
	Total	22	100%

51. How would rate the modelling ease of use across the EAM practice?



	Answer	Count	Percent
1.	Modelling use is based on the individuals experience, hence many modelling standards are in existence.	9	40.91%
2.	Modelling standards are defined but only a few subscribe to it.	9	40.91%
3.	Modelling standards are defined with only the EAM practice adopting it.	4	18.18%
4.	Modelling standards are defined and is adopted by the entire organisation.	0	0.00%
5.	Modelling standards are defined and are continuously assess and adapted for optimal benefit. Changes managed through the change management process.	0	0.00%
	Total	22	100%

52. How practically are the chosen capabilities and artefact definitions to achieving the EAM vision?



	Answer	Count	Percent
1.	Practically understood and adopted by a few within the EAM practice.	12	54.55%
2.	Practically understood and adopted by a many within the EAM practice.	5	22.73%
3.	Practically understood and adopted by a few within the organisation.	5	22.73%
4.	Practically understood and adopted by a many within the organisation.	0	0.00%
5.	Practically understood and adopted by all within the organisation.	0	0.00%
	Total	22	100%

53. Please provide feedback if you feel that certain elements were not covered.

47849324	From a business perspective I do not have the full insight of the EA activities, processes, policies and standards, but I tried to give an opinion from a business perspective in terms of what is perceived.
47593659	You need to have an option that says "I do not know" or "I do not have enough information" or "not applicable to me". There are some things

	that I just do not know or do not have enough information to express an informed opinion, but I was forced to answer. Also, check your vocabulary and grammar as some of the sentences do not make sense.
47521585	Questions addressed some horizontal domains (business, info, data, app, tech) but appeared to omit security as an important vertical domain (I interpreted interoperability as addressing integration as the other vertical domain).
47520498	NA
47520160	No comment
47251006	All Covered
47246630	1. Perhaps questions about effectiveness and efficiency of EAM leadership could have been relevant. 2. Workload balancing 3. Work/life balance



15 APPENDIX E: CHAPTER 5 – INTERVIEW TRANSCRIPTS

Interview 1:

00:00:02 The Interviewer

Afternoon, xx.

00:00:03 The Interviewer

I think let me just do a quick introduction of myself.

00:00:07 The Interviewer

My name is Trishan Marimuthu too.

00:00:10 The Interviewer

And I stated in my previous email.

00:00:13 The Interviewer

I'm a doctoral student registered at the University of Pretoria, currently conducting research in the field of enterprise architecture management.

00:00:22 The Interviewer

And part of my research requires me to interview experts in the field of enterprise architecture and senior IT and business managers such as this off right and so this this research for me.

00:00:37 The Interviewer

This process actually is divided into 2 parts.

00:00:41 The Interviewer

The part one is the multiple choice question here is that was sent out in the previous email.

00:00:42 The Interviewer

Is the.

00:00:46 The Interviewer

Thank you very much for for completing that and Part 2 is this interview that we have set up.

00:00:52 The Interviewer

It consists of more or less 9 or 10 questions.

00:00:57 The Interviewer

It shouldn't take us more than 45 minutes, so I'm I'm confident that we can complete this in in time. Alright, so, so thank you very much for accepting the interview, I think. Please note that I am recording this conversation purely from notetaking perspective so that you know I can go back and refer to it should there be a need.

00:01:04 The Interviewee

Yeah.

00:01:17 The Interviewer

Are you OK for us to continue?

00:01:19 The Interviewee

I'm OK, yeah.

00:01:21 The Interviewer

Great, OK, so if you can also just please quickly acknowledge this quick declaration before we can begin.

00:01:29 The Interviewer

This interview is voluntary.

00:01:31 The Interviewer

No compensation has been agreed to complete it.

00:01:35 The Interviewer

The data collected during the session will be used at an aggregated level.

00:01:39 The Interviewer

Use only to identify patterns and in no way would be associated to an individual such as yourself, right?

00:01:45 The Interviewer

However, if you feel at any time you don't want to continue, you can request to leave as a participant in the research and all data collected would be discarded.

00:01:56 The Interviewer

Therefore there's no obligation for you to continue till the end one started, but Please note that your input is extremely valuable to the research process.

00:02:06 The Interviewer

Ann, I would appreciate it if you could follow through.

00:02:10 The Interviewer

OK could please acknowledge that you're aware of that statement.

00:02:14 The Interviewee

Noted yeah.

00:02:16 The Interviewer

Great.

00:02:17 The Interviewer

Do you have any questions for me?

00:02:18 The Interviewer

Before we we we we start off?

00:02:21 The Interviewee

Never done.

00:02:23 The Interviewer

Alright, perfect OK so all of the questions are related to my research area, which is enterprise architecture.

00:02:30 The Interviewer

If I could ask to please provide as much detailed as you can and know that these conversations are strictly confiden.

00:02:39 The Interviewer

All right?

00:02:40 The Interviewer

So the first the first question is a little bit of a general question, but if you can very high level describe to me how or what is your involvement in EA within your organization presently.

00:02:40 The Interviewee

Yeah.

00:02:55 The Interviewee

OK so it will have to be a bit of both from the time that I was actually in 80 and now in business because by Peter now in business has been like a few months, three months.

00:03:08 The Interviewee

But my involvement with enterprise architecture in the organization is in the dependence that we have.

00:03:16 The Interviewee

From mainly a solutions architect point of view where whenever there is a business need from the time when I was a business relationship manager, whenever there's a business need you needed the solutions architect to come in and evaluate the there and and you know, clarify the problem so that they can be able to give guidance in terms of.

00:03:30 The Interviewee

They.

00:03:38 The Interviewee

What is suitable?

00:03:39 The Interviewee

Also looking at our technology landscape and advising on the standardization of the technology and also looking into the future to say what will be possible for the organization.

00:03:50 The Interviewee

So my engagement is there with them is mainly for that guidance.

00:03:55 The Interviewee

And also the contribution towards the standardization of the technology that we need to be using in the.

00:04:04 The Interviewee

In the organization from a solutions architect point of view, from a technology point of view and a bit from the security part as well.

00:04:16 The Interviewer

Right OK so.

00:04:18 The Interviewer

You mentioned a few things there in terms of capabilities and services that they provide, right?

00:04:26 The Interviewer

Can you then leveraging off that and then some of the things you said was Technology Security Advisory and I want you to to maybe then follow that.

00:04:37 The Interviewer

Line of thought.

00:04:38 The Interviewer

Can you then describe to me what you think the level of importance of EA is within your organization?

00:04:49 The Interviewee

So we'll, uh, with the little engagement that I've had, even from my previous organization around the importance of EA.

00:04:58 The Interviewee

My understanding was that it's very important.

00:05:00 The Interviewee

Also starting from a business architecture point of view, to have that understanding of what are the actual capabilities that we have in an organization.

00:05:10 The Interviewee

So that we can then look at what we're busy with and see how is it actually fitting into the current capabilities and be able to identify.

00:05:19 The Interviewee

The gifts so that we can take it from there and say the initiatives value appraisal work from the project point of view, how do they speak to those gaps in support of the actual objectives of the organization?

00:05:30 The Interviewee

So I see that part being very important because then it.

00:05:36 The Interviewee

Read by activities.

00:05:37 The Interviewee

With busy work they actually aligned or we totally diverting from where the organization wants to be.

00:05:43 The Interviewee

And then comes the from a solution point of view with the solutions architects to say given the current challenges or the problems that their business units have.

00:05:54 The Interviewee

How do we then ensure that we have technologies that are standardized and technologies that are meeting?

00:06:01 The Interviewee

They that are actually going to meet the requirements and to ensure that we not necessarily find ourselves duplicating effort from the kind of technology will bring on board, but will bring technologies that are also going to meet?

00:06:16 The Interviewee

A greater number of those capabilities that have been identified for that organization.

00:06:21 The Interviewee

So for instance, you find that in an example that we've found ourselves in in in the bank, you find that we have a lot of departments that are asking for.

00:06:32 The Interviewee

A document management solution and we were in a situation where.

00:06:39 The Interviewee

Because the level of maturity from a solutions architect window, he was not at that level at that point when we started different organizations depending on different

departments were finding their own solutions and you find at the end of the day you will have 345 so.

00:06:56 The Interviewee

But they are meeting the same requirement, but it's in how it was actually pitched, where people just went in and ended up with SharePoint here and then something they.

00:07:07 The Interviewee

But if there was going to be a proper solutions architect exercise that was done with their standardized and looked at a solution that would meet all these requirements and this is just an example.

00:07:17 The Interviewee

There's a lot of this that is happening and that is where I feel the value comes in.

00:07:24 The Interviewee

Also, in the technologies that we currently have even looking at from legacy in terms of.

00:07:34 The Interviewee

What do we have?

00:07:35 The Interviewee

What is it that's going to, you know?

00:07:37 The Interviewee

Looking at?

00:07:38 The Interviewee

Maybe, let's suppose we have a solution that is coming to an end like end of life.

00:07:47 The Interviewee

I believe that from a technology point of view, EA can come in and help to say OK, this is where the organization is going.

00:07:55 The Interviewee

This is where the world is going as well.

00:07:57 The Interviewee

From meeting BI related capabilities and this is our understanding of the organization and its capabilities, and this is how.

00:08:04 The Interviewee

Fill those needs can be catered 4 so it's a very big drive in terms of where we are as an organization and maybe where we're going because whenever we whenever the organization will pass, this strategy is like we have in 2025.

00:08:22 The Interviewee

Strategy now and EA needs to come in and say where is the bank going so that we follow EA and they're not really lagging behind in where they the business is going.

00:08:28 The Interviewee

Little bit.

00:08:33 The Interviewer

Yeah, I think you raised quite a few key points there.

00:08:38 The Interviewer

It's it's all about setting a strategy and executing on that strategy, and that's what is all about and you spoke about tactical executions an to minimize duplication.

00:08:51 The Interviewer

I think a lot of organisations struggle.

00:08:55 The Interviewer

With those elements, so thank you for that.

00:08:57 The Interviewer

I think very valuable.

00:09:00 The Interviewer

Feedback there.

00:09:01 The Interviewer

OK so in your organization, who do you?

00:09:05 The Interviewer

Who are the main stakeholders for enterprise architecture?

00:09:10 The Interviewer

And I think more importantly what is your expectation from them at this point in time.

00:09:16 The Interviewer

From a business point of view.

00:09:19 The Interviewee

So now that I'm in business.

00:09:22 The Interviewee

Uh, I'm I'm a stakeholder.

00:09:24 The Interviewee

From a business point of view.

00:09:26 The Interviewee

Uh, because my needs will require EA to come in, and as I said previously, they actually supposed to be the ones that I have looked into.

00:09:35 The Interviewee

Where am I currently from a business point of view?

00:09:38 The Interviewee

And what is that in craft that future state to say, given your strategy, this is where you are going and they need to be guiding.

00:09:47 The Interviewee

So I missed a call that from that point of view to say then they need to help me to say because I'm not Lt and I don't need to know IIT when I have.

00:09:57 The Interviewee

But the the people in IT they need to be the ones that are guiding me. I know what I do from a business point of view, but that guidance comes from from IT. So I am a stakeholder from from that point. But at the same time, the other people that work very closely because this kind of just be achieved by just.

00:10:17 The Interviewee

Hearing this.

00:10:21 The Interviewee

Yeah, single line point of communication.

00:10:24 The Interviewee

There's a lot of collaboration across the value chain.

00:10:27 The Interviewee

If I can call it so we can be here as business in the middle, but we have dependencies from the different people that are providing us such services so it can be EA, but at the same time.

00:10:40 The Interviewee

He can just achieve and say we have done this at work achieved at the end of the day without involving your business analyst without involving your project managers and program managers without involving the solution with delivery people.

00:10:55 The Interviewee

Your security people, your technology, people from an OPS point of view, so I see this as in a circle this business.

00:11:04 The Interviewee

But there's all these other areas that are contributing to make me happy as the client in between.

00:11:13 The Interviewer

Yeah, OK, so you have mentioned quite a few stakeholders there, so do you if I get if I hear you correctly, you're saying that you do have an EA team or division within your organization.

00:11:23 The Interviewer

Jeanette

00:11:24 The Interviewee

Yes we do.

00:11:25 The Interviewer

OK perfect alright so yeah and you've already alluded to my my next question a little bit and you know when it comes to satisfying your requirement, there's a lot of engagement that needs to happen.

00:11:42 The Interviewer

But let's let's look at EA specifically now.

00:11:45 The Interviewer

Do you find it difficult to work with your current?

00:11:49 The Interviewer

EA team an as you have it now.

00:11:55 The Interviewee

Uhm?

00:11:57 The Interviewer

So, so let's see it.

00:11:58 The Interviewer

Let's look at it also from from, from an enablement perspective, are they are the processes in place?

00:11:58 The Interviewer

Obviously.

00:12:06 The Interviewer

Are there channels in place that facilitate easy communication between the two areas yourself and EA?

00:12:16 The Interviewee

Yeah, so the problem that the challenge that I currently face with having to deal with the the EA function in our organization is the fact that.

00:12:27 The Interviewee

The the function has been in existence for a while, but at the same time it's like it's being defined for a very long time.

00:12:36 The Interviewee

An there is no clarity in terms of what we need to expect from that space.

00:12:42 The Interviewee

Is from a process point of view from a delivery point of view, so it's difficult sometimes to get to understand what exactly am I getting from this functions in the in in this space in that division.

00:12:57 The Interviewee

So you will find that it depends it depending on who you're talking to in that same space.

00:13:02 The Interviewee

You get different in different informations in terms of the process.

00:13:07 The Interviewee

Different information around the expectations from a delivery point of view, so you never know what is the actual standard.

00:13:15 The Interviewee

What exactly is.

00:13:17 The Interviewee

Going to be the flow from the time we're saying engaging with EA for this kind of a deliverable and their fulfillment.

00:13:24 The Interviewee

And this is how they're actually going to to help us work with them in this whole journey.

00:13:30 The Interviewee

And it's very frustrating.

00:13:33 The Interviewer

Uh-huh so would it would, would it be fair to say that firstly the mandate is not clear and I know you spoke about processes and standards and I think that's critical as well.

00:13:44 The Interviewer

But before we even get to that, it would be fair to say that.

00:13:47 The Interviewer

That the mandate of the EA Department or division is not clear to the rest of the organization.

00:13:54 The Interviewee

Exactly, so you left your own understanding and your own assumptions around what to expect, and it's not supposed to be like that for a very important crucial function like EA.

00:14:06 The Interviewer

Absolutely, I agree with you 100%. OK, thank you for that I think.

00:14:14 The Interviewer

And.

00:14:14 The Interviewer

And I must say.

00:14:17 The Interviewer

Based on literature, those are also some of the things that have been highlighted as key areas or challenges that impede the success of a, so it's interesting that.

00:14:31 The Interviewer

Three is visible or in in practice, which means it gives us an opportunity to try and resolve it.

00:14:38 The Interviewer

That's so that's great, thanks for that.

00:14:40 The Interviewer

Uhm?

00:14:42 The Interviewer

So if I had to now flip the question around.

00:14:47 The Interviewer

And ask, do you think that that business is given EA the support that is required?

00:14:53 The Interviewer

If if you haven't, why do you think that's the case?

00:14:59 The Interviewee

I, I think I'm fortunate in the fact that even with the part of business around in, I've been working with them even in the time that I was outside of the the actual Department.

00:15:11 The Interviewee

And I I actually feel, and I even that time I felt that business has been very lenient in accommodating.

00:15:18 The Interviewee

Uh.

00:15:19 The Interviewee

From EA in our in our organization because I believe that the first time when this was pitched, there was an understanding that there is value that one can get from EA, but there's been quite a few challenges that we experienced even from EA itself.

00:15:39 The Interviewee

Whether it was from a leadership point of view, in whether it was from a capacity point of view and the actual structuring of the actual resources that are in this space.

00:15:50 The Interviewee

But there's been a lot of conflicting activities that.

00:15:56 The Interviewee

You know that that also hit that business to get to a point of trust in terms of where businesses.

00:16:05 The Interviewee

Right now they move from a point of yes, we accept that we need this this capability and to a point where they you know they're they're not.

00:16:17 The Interviewee

'cause we are now forced to accept, but given that.

00:16:20 The Interviewee

Choice business could actually do without, but it's now a point of OK, we know that we have to work the Jenny in understand that it is part of the process.

00:16:33 The Interviewee

This is what IIT, in terms of governance expects us to do.

00:16:37 The Interviewee

But I think the patient has been very stretched.

00:16:41 The Interviewee

Uh, this point so business move from a point of yes, you understand this needs to be done to a point where it's now like in instances where it can be avoided to deal with EA.

00:16:41 The Interviewer

Uh huh.

00:16:53 The Interviewee

We're gonna do it if I can give you an example within the space that I'm in where the data management working group that.

00:17:01 The Interviewee

We have initiated in our Department.

00:17:05 The Interviewee

Uh, this is meant to drive all the data management related activities in the Department in alignment with EMNBSTD. So when I was doing the terms of reference in terms of people that we need to include in in that working group, we obviously have different people that are representing the units in the Department.

00:17:27 The Interviewee

But I also wanted to include the data architects in the in the in the working group as members of that working group and also have a represented as in.

00:17:39 The Interviewee

Then

00:17:40 The Interviewee

So, but a business was reluctant to include that as important as it is, it was felt not now, and I understand why an I communicated it back to the STD to inform them that this is the position I know will still push the agenda, but this is an important function where EA was supposed to be sitting in.

00:18:01 The Interviewee

But there's this.

00:18:02 The Interviewee

There's this reluctance because every time you mention the it's aligned or it's in parallel to saying it's never gonna happen, something like that.

00:18:11 The Interviewer

Uh huh.

00:18:12 The Interviewer

So if I hear you correctly, then support at one point was given completely an overtime business.

00:18:21 The Interviewer

Now I've come to the conclusion that you know, providing the support is not yielding the benefits that they anticipated or wanted.

00:18:30 The Interviewee

Ehm

00:18:32 The Interviewer

Which then means that they go their own way and I think that that's that's the death of EA because essentially their role is supposed to be advisory to the business, and they're not doing that.

00:18:44 The Interviewer

Then you, you basically have no no function.

00:18:47 The Interviewer

So great thanks for that.

00:18:51 The Interviewer

Actually.

00:18:52 The Interviewer

Alluded to, the second part of my question, so I'm I'm going to skip that that question out completely.

00:19:01 The Interviewer

And I just need to probably recheck.

00:19:03 The Interviewer

The third one as well.

00:19:07 The Interviewer

What do you think then?

00:19:08 The Interviewer

You know, having said what you said, an EA not playing their role, and I think you alluded to it to a certain degree.

00:19:16 The Interviewer

So what?

00:19:17 The Interviewer

What would you think EA needs to do in the organization to consider them successful or to at least gain that confidence back again?

00:19:28 The Interviewee

Yeah.

00:19:30 The Interviewee

I think, uhm?

00:19:34 The Interviewee

We want to put the blame totally on EA for the lack of where we are currently, but it's also an an organizational thing.

00:19:44 The Interviewee

We we we as an organization.

00:19:49 The Interviewee

There's a lot that is happening in the in the organization itself in terms of the different projects that we are driving.

00:19:55 The Interviewee

And we are not in the culture of prioritized.

00:19:59 The Interviewee

What we supposed to be doing, hence people trying to please everyone in wanting to do everything and end up not doing anything.

00:20:09 The Interviewee

So EA is caught in that hole.

00:20:14 The Interviewee

What can I call it in in that whole mess?

00:20:19 The Interviewee

Of saying we expected to be everywhere and we want to be everywhere, but we can't do everything and then nothing gets to be done or very few gets to be done and it takes the picture because.

00:20:33 The Interviewee

You you never got to a point where you you able to prioritize but at the same time.

00:20:40 The Interviewee

He can also have their own structure because right now we're using like A1 size fits all kind of approach. There is no proper structure to say because.

00:20:52 The Interviewee

I always said even when I was in 80, that we will always.

00:20:56 The Interviewee

Give him different levels of initiatives that are coming from business and you need to be able to support those initiatives that will position you as a function or as a capability, a capability that will actually make you do have those quick wins.

00:21:11 The Interviewee

But right now we have the same approach for everything.

00:21:14 The Interviewee

If it's not tier one, we're not doing it, or if it's not part of a program we're not doing it.

00:21:19 The Interviewee

It should be smart enough to even recognize those small ones that will ensure that business gets to be happy once in awhile and even address those very quickly.

00:21:29 The Interviewee

But we're not able to get to.

00:21:31 The Interviewee

That point, and I think that this is something that needs to be.

00:21:36 The Interviewee

Put in some thought needs to be put into as well to say how do we stretch such that.

00:21:44 The Interviewee

I mean, we have very capable people right now from a solutions architect from a technology and from a security point of view such that you can afford to have some of the people doing this small thing.

00:21:56 The Interviewee

Things that actually make a big difference as well to business and not have everyone running around and doing all these complex projects that are taking too long for value to be realized by business.

00:22:13 The Interviewer

Yeah, I think you mentioned two very important two parts or aspects organization culture being on top of the list because that can break or make any organisations and the other but which you kind of alluded to towards the end was the operating model within EA I think.

00:22:25 The Interviewee

Yeah.

00:22:35 The Interviewer

That is something that is.

00:22:38 The Interviewer

All most organisations think that they can do that on the fly, but it actually requires a lot of thought process to come up with an operating model that satisfied.

00:22:48 The Interviewer

Mini scenarios I don't want to say all because it's it's sometimes impossible to satisfy all scenarios if we look at operational Zan and the strategic side of businesses.

00:22:59 The Interviewer

But yeah, I get your point.

00:23:00 The Interviewer

So thank you for that, excellent.

00:23:05 The Interviewer

I think my next question is around architectural planning.

00:23:10 The Interviewer

Do you think that your inputs are key to architectural in planning and does your?

00:23:18 The Interviewer

Is there a mechanism in place that allows for you to provide input when it comes to architectural planning and maybe not from a project level?

00:23:26 The Interviewer

But more at an enterprise level.

00:23:31 The Interviewee

I consider planning.

00:23:32 The Interviewee

I just wanted to understand in terms of.

00:23:35

So.

00:23:35

Right?

00:23:36 The Interviewer

So making enterprise wide decisions as opposed to more tactical project related decisions.

00:23:46 The Interviewer

For example, many organisations need a some sort of MDM solution, a master data management solution.

00:23:55 The Interviewer

Uhm, when considering a solution that that spans across multiple business areas.

00:24:02 The Interviewer

Uh, does business of all areas have the opportunity to to provide input into that planning?

00:24:11 The Interviewer

Or is it something that is just done by the EA team in in isolation?

00:24:16 The Interviewee

Yeah, I think I.

00:24:18 The Interviewee

I haven't seen much of that happening as an organizational thing.

00:24:22 The Interviewee

Maybe I was just not.

00:24:24 The Interviewee

I wouldn't say it doesn't happen really.

00:24:25 The Interviewee

I was just never involved.

00:24:27 The Interviewer

Uh huh.

00:24:27 The Interviewee

I've seen focus of it happening with a few structures that we tried to bring in so that we have visibility of such so that it can contribute towards making such decisions.

00:24:39 The Interviewee

But I'm not too sure how much of that is even being done, so I don't necessarily have that much visibility around the contribution and the input from everyone outside of EA, where that is consent.

00:24:56 The Interviewee

The one thing that I did notice though, was that at some stage there has been challenges where.

00:25:04 The Interviewee

From an ownership point of view where such initiatives are spinning across the different departments, there was a bit of I don't know whether it was reluctance or not.

00:25:14 The Interviewee

Understanding from an ownership point of view from a business from the business side to say if we have such initiatives, let's say the input was there and then the initiative has to be implemented.

00:25:26 The Interviewee

For instance, if you talk like you're talking, maybe we're talking document management that spins across the party.

00:25:31 The Interviewee

And then there was a challenge around who must own such an initiative, because the nature of our initiatives or the programs that we run, we need to have an owner. So I know that the way some challenges in terms of identifying that owner, because if it

was from 4-5 Department, so who owns it? And those are the few things that I've picked up during conversations.

00:25:54 The Interviewee

But

00:25:56 The Interviewee

I'm I'm I'm not too sure how much involvement and how much drive is EA bringing in so that there is also that informed and guided kind of input from the outside world being outside of IT.

00:26:12 The Interviewer

OK, no that's great.

00:26:14 The Interviewer

Thank you very much.

00:26:16 The Interviewer

I think.

00:26:18 The Interviewer

Yeah, it's it's.

00:26:19 The Interviewer

It's sometimes difficult to have that enterprise wide.

00:26:23 The Interviewer

If you, uh, if you're not sitting in a position that provides that that coverage.

00:26:29 The Interviewee

What?

00:26:30 The Interviewer

OK, so I think then from an an we we always focus on some of the negatives or the challenges.

00:26:39 The Interviewer

Let me rather say that of EA.

00:26:43 The Interviewer

As I want to find out from you, what do you think would be the top one or maybe even two things that you believe that EA is.

00:26:50 The Interviewer

Doing right.

00:26:56 The Interviewee

And hence I I sometimes brought in the fact in my responses, but it's not always sitting in AA.

00:27:05 The Interviewee

Played all this fault.

00:27:07 The Interviewee

I, I believe that there is a proper drive now in making sure that we.

00:27:14 The Interviewee

We actually from an EA perspective that there is actually some form of standardization, and you know some form of saying no that EA has brought into the culture of the organization, and I believe that is actually.

00:27:33 The Interviewee

Positioning EA to be doing what it's supposed to do, and it's in as much as the reception from maybe the different departments might be not very great, but that is a very good thing because you want to streamline on those.

00:27:49 The Interviewee

Uh, on those technologies that we have, and I believe that we are making progress from that point of view, we initially will would have gone away as business with getting whatever technology we want again.

00:28:06 The Interviewee

But in terms of governance and the different.

00:28:09 The Interviewee

Uh, questions, and you know?

00:28:13 The Interviewee

Interrogations that have been put in place to ask the Why has actually discouraged in number of solutions that will have been brought in in the absence of such governance structures, and I've seen he playing a big role way and that's what the organization needs so and also.

00:28:33 The Interviewee

Having put the right resources as well.

00:28:37 The Interviewee

That covers the the few domains that we need.

00:28:41 The Interviewee

Uh, in in the Organization Committee, a point of view, and I think even from a security point of view, we have had very good feedback as well from the different areas from a solutions architect point of view and also made contributions as well and written.

00:29:00 The Interviewee

Very good feedback from a few resources that one finds themselves working with, so it is taking the space or the funk.

00:29:12 The Interviewee

In some way from where we previously way, but there's still a lot that needs to be done.

00:29:19 The Interviewer

Yeah it it sounds like there's an active.

00:29:23 The Interviewer

I need to to improve within the the EA team, which is great.

00:29:28 The Interviewee

And more resources.

00:29:31 The Interviewer

Sorry, you're saying.

00:29:32 The Interviewee

And add more resources.

00:29:35

Yeah.

00:29:37 The Interviewer

I think resources is always a key challenge and not only need yeah, but and then any Department any area.

00:29:42 The Interviewee

Really, yeah.

00:29:46 The Interviewer

Right, and so I think too close I.

00:29:50 The Interviewer

I think I would want to understand and I know you're new to to business.

00:29:55 The Interviewer

As you said earlier in the interview, just from your perspective, what do you think you can do to help support EA?

00:30:05 The Interviewer

Deliver the benefit that the organization

00:30:08 The Interviewer

Anticipates.

00:30:12 The Interviewee

From my side with my role.

00:30:14 The Interviewee

Currently it's it's creating that visibility.

00:30:17 The Interviewee

Like I mentioned earlier I I don't want to leave EA out of the activities that I'm busy with, hence I wanted it to be represented in the data management working group because then.

00:30:30 The Interviewee

Being involved then they get to know what is happening and they're not left out and they don't become an afterthought because the one mistake that we're making is to think that EA's involvement and they're making it loosely depending on the different well, including all the different domains.

00:30:49 The Interviewee

Yeah, there was one mistake that we're making is the fact that it can only work whenever it's within a program or project and it's it's.

00:30:49

Yeah.

00:31:00 The Interviewee

It's even outside of that so.

00:31:03 The Interviewee

The activities that we're doing in the organization project or non project related.

00:31:10 The Interviewee

There needs to be visibility of what's happening in EA are the right people to be able to say.

00:31:16 The Interviewee

Yes, we know what is happening.

00:31:19 The Interviewee

This is where you are going and anano provide that that guidance.

00:31:24 The Interviewee

So from my side I don't want to leave my E colleagues outside of the activities that I'm doing because in as much as they need to assist me, I need to also be able to involve them in what I'm doing.

00:31:39 The Interviewee

So that I can get more guys.

00:31:41 The Interviewee

So that will be my contribution to say I don't leave them out.

00:31:46 The Interviewee

I always ask the right questions whenever we interventions or whatever.

00:31:50 The Interviewee

We're busy with initiatives to say.

00:31:51 The Interviewee

Did we consider this, which we know will be a contribution from an EA point of view so that we don't leave behind the important people that are supposed to be part of.

00:32:02 The Interviewee

Any conversation?

00:32:06 The Interviewer

No, that's excellent. Yeah so.

00:32:09 The Interviewer

I think thank you very much for your time.

00:32:11 The Interviewer

That actually brings us to the end of of the interview.

00:32:14 The Interviewer

I definitely got a lot of valuable input, so look forward to analyzing the data and coming up with some good insights.

00:32:21 The Interviewer

I think before we close.

00:32:23 The Interviewer

Do you have any questions for me?

00:32:28 The Interviewee

Uh, uh, no.

00:32:29 The Interviewee

I'm I think I'm OK, thank you and all the best.

00:32:32 The Interviewee

With your studies.

00:32:33 The Interviewee

I know this is not easy an yeah looking forward to seeing that first title before your name.

00:32:42 The Interviewer

Thank you so much for your time, yeah.

00:32:43

Just.

00:32:48 The Interviewer

Really enjoyed it.

00:32:49 The Interviewer

Have a great day.

00:32:50 The Interviewer

Stay safe.

00:32:51 The Interviewer

It was a pleasure interviewing you.

00:32:54 The Interviewee

You know, great kill the interview and let's talk, yeah?

00:32:57 The Interviewer

Yeah.

Interview 2:

00:00:02 The Interviewer

Thank you for for making the time.

00:00:04 The Interviewer

I think before we start let me do a quick introduction of myself an the research process and then we can get into the interview right?

00:00:14 The Interviewer

So my name is Trishan Marimuthu as stated in the previous email.

00:00:17 The Interviewer

And.

00:00:17 The Interviewer

00:00:19 The Interviewer

I'm a doctoral student registered at the University of Vic.

00:00:23 The Interviewer

I'm currently conducting research in the field of enterprise architecture management.

00:00:28 The Interviewer

And part of my research requires me to interview expert in the field of enterprise architecture as well as senior it and business managers such as yourself.

00:00:38 The Interviewer

Now this research process for this leg actually consists of two elements.

00:00:44 The Interviewer

The first element you have seen in my previous email is a questionnaire of multiple choice.

00:00:51 The Interviewer

Which you could do at your own leisure if you have done it already.

00:00:54 The Interviewer

Thank you very much if you haven't.

00:00:56 The Interviewer

If I can request that you try and make some time as it is.

00:01:01 The Interviewer

Is a critical element of the research itself.

00:01:05 The Interviewee

I'll definitely make some time.

00:01:05 The Interviewer

And there are.

00:01:07 The Interviewee

Please just remind me about it.

00:01:08 The Interviewee

Some things get lost in my inbox as a result of the number of emails that I get or the volumes I may have missed it, or forgotten about that no problem.

00:01:17 The Interviewee

I will send you an email to bring it to the.

00:01:19 The Interviewer

Top of your list.

00:01:21 The Interviewer

And then the second part also detrition here.

00:01:23 The Interviewee

Sorry, Trisha, and here's the.

00:01:23 The Interviewee

Sorry, Trisha and.

00:01:25 The Interviewee

Is the code coming in which excuse me, sorry, I'll be back in a minute I'll just mute.

00:01:27 The Interviewer

OK.

00:07:45 The Interviewee

Electrician apologies man, this was quite urgent and important, so I needed to.

00:07:49 The Interviewee

Just speak to it.

00:07:50 The Interviewer

Don't worry about it.

00:07:51 The Interviewer

Kelly, sorry, we can continue.

00:07:52 The Interviewee

Sorry, we can continue.

00:07:52 The Interviewee

00:07:53 The Interviewer

OK so so we just left off in me describing the the research process where the first part of it was the question here and the second part of it obviously is this face to face in.

00:08:06 The Interviewer

To view, which should take us approximately 30 minutes or so.

00:08:10 The Interviewer

It is about 9 questions to complete, right?

00:08:13 The Interviewer

OK, so once again thank you very much for accepting the interview, I think.

00:08:18 The Interviewer

Please note that I am recording this conversation and it's purely from a notetaking perspective so that I can refer back to it should they be in need.

00:08:26 The Interviewer

Are you OK for us to continue?

00:08:28 The Interviewee

Happy with that, no problem.

00:08:29 The Interviewer

Great and then one just one last thing, if you could just acknowledge this quick declaration and then we can go straight into the Inter.

00:08:39 The Interviewer

So this interview is voluntary.

00:08:39 The Interviewer

This is.

00:08:39 The Interviewer

00:08:41 The Interviewer

No compensation has been agreed to complete it.

00:08:45 The Interviewer

The data collected during the session will be used at an aggregated level and used only to identify patterns and in no way be associated to any individual such as yourself.

00:08:56 The Interviewer

However, if you feel the need that you do not want to continue, you can request to leave as a participant.

00:09:02 The Interviewer

In the research an any data collected during this session will be discussed.

00:09:06 The Interviewer

So therefore there's no obligation for you to continue to the N one started.

00:09:11 The Interviewer

But note that your input is extremely valuable to this process.

00:09:16 The Interviewer

If you could quickly just acknowledge that you're aware of this, then we can begin.

00:09:22 The Interviewee

Yeah, acknowledged and I'm happy to continue.

00:09:25 The Interviewer

Perfect thank you so much Kelly.

00:09:27 The Interviewer

Before we get into the questions, do you have any questions or do you need any clarity on any points?

00:09:34 The Interviewee

No, not at this point.

00:09:35 The Interviewee

I think we can start with the questions and if any clarity is required as we go along, I'll obviously request.

00:09:40 The Interviewee

Some.

00:09:41 The Interviewer

Perfect thank you.

00:09:43 The Interviewer

So all of the questions are related to my research area which is enterprise architecture.

00:09:49 The Interviewer

I think if you can please provide as much details where you can and know that this conversation is strictly confidential, right?

00:09:59 The Interviewer

Yes I did.

00:09:59 The Interviewer

So.

00:09:59 The Interviewer

00:10:01 The Interviewer

The first question is kind of a very general question leads us into the questions to come.

00:10:07 The Interviewer

Could you quickly?

00:10:08 The Interviewer

Oh, very briefly explain your role in the organization and how or what it.

00:10:15 The Interviewer

Moment with EA as it stands and it might not.

00:10:18 The Interviewer

It might be that there's no involvement, and that's OK, but just to try and get an understanding of the linkage as it stands now.

00:10:26 The Interviewee

Great, thank you.

00:10:27 The Interviewee

My current role is I'm I'm the head of infrastructure services.

00:10:31 The Interviewee

We provide all the infrastructure to the bank where that relates to.

00:10:35 The Interviewee

Projects that.

00:10:38 The Interviewee

Can implement it or delivered with an organization and or any operational requirements that require any infrastructure related to telecommunications service networks and the like.

00:10:50 The Interviewee

We do a lot of the work I think, sort of in isolation and sort of perhaps in some extent a little bit divorced from from EA, and I think it's based on the way that things have always been done in in the bank.

00:11:07 The Interviewee

So there's in many cases very little direct involvement from EA in terms of the work that we do or be it when there are large projects when EA is involved and they do.

00:11:20 The Interviewee

Come up with a specific architecture that prescribe specific technology and product's. Obviously that would then ultimately be handed over to us and be within order and

deliver that that infrastructure accordingly. I think that to some extent I think they have summarises how things currently work. I don't know if you need more clarity on that.

00:11:41 The Interviewer

No, that's perfect.

00:11:42 The Interviewer

Thank you very much for that, Kelly.

00:11:44 The Interviewer

So I think the the next question, and I understand that you say that you kind of work separate from.

00:11:51 The Interviewer

Yeah, but the next question is regarding if they if there is a need for that collaboration between yourself and anyway.

00:12:00 The Interviewer

So could you maybe then describe if you think there's a level of importance for collaboration between yourselves and enterprise architecture.

00:12:09 The Interviewee

I think there is and they should be and obviously coming from somebody who has been involved with enterprise architecture before.

00:12:16 The Interviewee

I think there has to be a certain level of synergy between what we do and what what enterprise architecture does.

00:12:22 The Interviewee

My view is that enterprise architecture has a much broader view of the entire state and landscaping organization, whereas in the case of infrastructure services, I think oftentimes our views are a bit contained and we may end up with things that are called chordomas that we don't have a view of the entire landscape.

00:12:42 The Interviewee

And that we may be, you know.

00:12:45 The Interviewee

Should have a broader understanding of where what we do fits in into the organization, but I think it largely comes down to certain.

00:12:53 The Interviewee

Print levels of detail.

00:12:56 The Interviewee

I think historically they went many uhm.

00:13:02 The Interviewee

High level architectures or logical architectures related to the infrastructure in the bank, and this is largely been left to the infrastructure team, but I think you know there are opportunities for more synergy and more collaborate.

00:13:16 The Interviewee

To ensure that whatever we do is done appropriately and that it fits in properly into the landscape, and I think what also contributes to the problem, as I said, is the levels of detail that we operate at and also the perhaps that as as abroad.

00:13:32 The Interviewee

An what's the weather is right to?

00:13:34 The Interviewee

I'm looking for the broader landscape in terms of what infrastructure services are responsible for.

00:13:40 The Interviewee

You know, when it comes down to things that are endpoints, those are largely regarded as things that are architecturally insignificant.

00:13:50 The Interviewee

And I don't think there's a proper understanding in terms of how we are meant to work together and collaborate in terms of understanding how we deal with things related to end, end, end user computing, and I think that's perhaps an aspect that needs some, some some discussion and work we've just earlier today had a discussion around, you know.

00:14:10 The Interviewee

Cloud applications and applications that are acquired that are also deemed architecturally insignificant, you know, and the question is, you know who would then deal with it and how do we make sure that we achieve synergies and alignment between what we do and what enterprise architecture does?

00:14:27 The Interviewee

And then obviously there there's to be the distinction between what, again, what enterprise architecture does, what solution architecture does, and now that sort of influences what we end up introducing into the into the environment, what has really struck me when we went through the process is in project React.

00:14:47 The Interviewee

That relates to, you know the plan, build, run operating model that BSD has.

00:14:53 The Interviewee

It was largely mentioned and.

00:14:55 The Interviewee

Said that, only BRM and enterprise architecture and some others have a role to play when it comes to the planned process and that infrastructure should largely concern themselves with the built and run process.

00:15:12 The Interviewee

I don't think that is entirely the way that it should be, but you know the way that that panned out.

00:15:17 The Interviewee

It just sort of left us to, you know, not get too much involved with that because it may end up becoming a bit of a.

00:15:25 The Interviewee

Uh.

00:15:27 The Interviewee

That's the right letter I'm looking for.

00:15:29 The Interviewee

You know a bit of a disagreement and we may end up having to agree to disagree on these things, but I think there is some room for improvement, and I think there's opportunities that need to be explored to see how we can work together to ensure that whatever we do is in the best interest of the organization.

00:15:47 The Interviewer

Perfect thanks, thanks so much for that.

00:15:49 The Interviewer

Yeah, I must agree with you so just just on the point that you said now with regards to infrastructure not being part of plan.

00:15:58 The Interviewer

Meaning.

00:16:00 The Interviewer

There is an element that comes out very strong in the case studies that say you know there's a need for process integration, whether that process integration is with operations or with strategy.

00:16:11 The Interviewer

But there is that need an even though infrastructure might not play a complete or full role in planning, they need to have that understanding and that input into that planning as well.

00:16:22 The Interviewer

I strongly agree with that with you, and that is also definitely an element that has been identified as a.

00:16:25

I'm.

00:16:30 The Interviewer

You know something that's key.

00:16:32 The Interviewer

If you want to succeed as an EA practice.

00:16:35 The Interviewer

So thank you for that.

00:16:36 The Interviewer

OK, so in in your in your organisations, are they custodians for enterprise architecture?

00:16:36

Watch.

00:16:44 The Interviewer

So So what I'm what I mean is is there an EA Department or division?

00:16:49 The Interviewer

And then you know what would be if there was collaboration in place, what would be the expectation from you?

00:16:56 The Interviewer

Out.

00:16:56 The Interviewer

Tim.

00:16:58 The Interviewee

OK, I think to answer your question, if I understand it correctly, yes we have an enterprise architecture division within the bank and they are the custodians of the architectures for the entire organization.

00:17:03 The Interviewer

Uh huh.

00:17:10 The Interviewee

Sorry, what is the second part of your question?

00:17:12 The Interviewee

I was just thinking as well.

00:17:13 The Interviewer

What would what would your expectations be from them if there was that synergy that existed between you guys in the perfect world?

00:17:24 The Interviewee

Yeah, I think they ultimately for me it it it sort of comes down to, you know, having clear roles and responsibilities and having a proper understanding of how we work together.

00:17:37 The Interviewee

I think what I have experienced of late having been involved in infrastructure.

00:17:42 The Interviewee

Now again for the past.

00:17:44 The Interviewee

10 months or so, there is a sense that sometimes you know.

00:17:51 The Interviewee

I'm I'm I'm trying to, you know.

00:17:56 The Interviewee

Verbalize this in a very diplomatic way.

00:17:59 The Interviewee

I think sometimes there's a.

00:18:00 The Interviewee

There's a the infrastructure guys feel that you know enterprise architecture sees themselves as you know, on a on a higher level, and you know they shouldn't be dabbling with these insignificant infrastructure related type things because it's sort of commodity.

00:18:09 The Interviewer

Uh huh.

00:18:19 The Interviewee

But I think in our environment, as much as we have infrastructure in our in our environment, we've always of late have had the Antichrist Enterprise Integration, Center of Excellence, and we also have the payment system support area within our environment where in many of those cases, you know.

00:18:38 The Interviewee

The guys have a very good understanding of the business of the organizer.

00:18:43 The Interviewee

And how infrastructure plays a role to make sure that that business is successful within the bank.

00:18:48 The Interviewee

And oftentimes I think some of the members of those teams would feel that they have even a better understanding of these things than what enterprise architecture does now.

00:18:57 The Interviewee

Having said that, I think there must be a room for, you know.

00:19:01 The Interviewee

Dialogue and the proper understanding and then acknowledgement of the contribution that that these guys can make in terms of arriving at tabs.

00:19:11 The Interviewee

A proper understanding of the current state, as well as having a.

00:19:15 The Interviewee

D.

00:19:16 The Interviewee

An input into what the future state would be, as opposed to the enterprise architects thinking that they have all the answers, and I think you know they just need to acknowledge that there are other people that have something to contribute and it has to be factored into their thinking.

00:19:32 The Interviewee

When these architectures are done.

00:19:36 The Interviewer

Absolutely thank you.

00:19:37 The Interviewer

Thanks.

00:19:37 The Interviewer

You actually killed three of my next questions with that one answer, which is great, so we spoke about so you spoke about some of the challenges and I think that's a big challenge.

00:19:48 The Interviewer

You know, communication between these two areas and then coming up with a definitive roles and.

00:19:54 The Interviewer

T and that.

00:19:54 The Interviewer

T and.

00:19:55 The Interviewer

Uh, to address that, I think what you said is key dialogue.

00:20:00 The Interviewer

Being able to to have that open communication between the two teams and also just being ready for for constructive criticism.

00:20:09 The Interviewer

Like you said, you know, I think EA is playing at a different level of understanding and we just need to understand that.

00:20:16 The Interviewer

Both these areas obviously come with strength and we just need to to realize how we can leverage off this trend.

00:20:22 The Interviewer

So key point that you brought up, thank you for that.

00:20:27 The Interviewer

So the next one you know, being in itme I can and working with with a lot of business people in my past, there's definitely a disconnect in terms of what is expected from EA, both from a technical perspective and a business perspective in your view.

00:20:47 The Interviewer

Currently, do you think that business so anyone sitting outside of it could be even you?

00:20:54 The Interviewer

Do you think that you are gaining or businesses gaining the anticipated value of EA?

00:21:00 The Interviewer

Or is it just something that you know we could probably do without?

00:21:05 The Interviewee

Yeah OK, that's a interesting question.

00:21:05 The Interviewee

Yeah.

00:21:05 The Interviewee

00:21:06

Yes.

00:21:07 The Interviewee

I'm going to try and respond as best I can.

00:21:09 The Interviewee

I've I firmly believe and I think I might be biased given my past history with EA, that there is a place for enterprise architecture in our organization and in any organization for that matter.

00:21:21 The Interviewee

I think the challenge that the enterprise architecture has.

00:21:25 The Interviewee

Is that specifically if you start looking at things from a business architecture perspective?

00:21:31 The Interviewee

Business architects?

00:21:33 The Interviewee

In my view, I think should be.

00:21:37 The Interviewee

Uhm, conceived if you will.

00:21:40 The Interviewee

Or how's closer to business than what it currently is because you end up with a scenario where oftentimes I think business feels a bit threatened by enterprise architects and their view of the world and the terminology specifically.

00:21:58 The Interviewee

You know I always used to say, you know, enterprise Architects should be talking more about.

00:22:06 The Interviewee

The architecture of the business what?

00:22:11 The Interviewee

Now I forget I used to phrase it.

00:22:13 The Interviewee

You know, let me just try and think how I did goodness now I can't remember.

00:22:16 The Interviewer

No worries, yeah.

00:22:17 The Interviewee

I use.

00:22:18 The Interviewee

You know architects should be talking.

00:22:21 The Interviewee

There is about the things of architecture but should be talking more about the architecture of the things.

00:22:27 The Interviewer

OK.

00:22:28 The Interviewee

And well, what I basically mean by saying that is, you know, architects use a lot of the the terminology that architects use, and in the process of using that they end up losing business in the conversations.

00:22:41 The Interviewee

Uh, I think business people should be empowered and educated more in terms of architecture and the benefits that it can bring to business.

00:22:50 The Interviewee

Because ultimately, for me, having that top down approach is ultimately what makes sure that everything else in organization comes to.

00:22:57 The Interviewee

Together and people also have to understand that the value that enterprise architecture brings is having that dualistic view and that realistic understanding of the organization.

00:23:07 The Interviewee

Whereas people, when they are contained in their separate lines of business, their view of the world is relatively contained.

00:23:15 The Interviewer

Yes.

00:23:16 The Interviewee

And for me, that is the value that enterprise architecture brings.

00:23:20 The Interviewee

The challenge that EA has on top of that is you know being introduced in the organizations the way that they are.

00:23:28 The Interviewee

They are always playing catchup.

00:23:31 The Interviewee

And there's always, you know.

00:23:34 The Interviewee

Some sort of pressure or urgency somewhere for them to focus on other things, and more often than not, you know that those focus areas are related to applications and technology and not that much related to data and information and business and the things that are really important to make sure that the business gets run properly.

00:23:54 The Interviewee

If one can find a way to balance that and then you know get the architects and enterprise architecture to have more of a focus on the business aspects before they start dabbling in the.

00:24:08 The Interviewee

And technology aspects.

00:24:09 The Interviewee

I think it would be great, but you know, given where organizations are, there's always a lot of technical depth.

00:24:14 The Interviewee

There's a lot of legacy stuff that have to be dealt with, and if you deal with people that are focused on the bottom line, you know that is where their focus would be to try and get these things out of the way as opposed to, you know, taking a top down approach where the.

00:24:29 The Interviewee

Benefits that I healed it all sort of more medium to long term as opposed to short term benefits, and I think it's ultimately striking that balance balance between dealing with things that are short term focused versus you know dealing with the things that's ultimately going to yield the most value because else we end up in a situation where we penny wise and pound foolish.

00:24:49 The Interviewer

Perfect thank you so much.

00:24:51 The Interviewer

Sorry, I'm busy scribbling you.

00:24:54 The Interviewer

You are mentioning so many key points and I I just want to make short points of it so I know that I can come back to it, but but thank you very much for that, so I must I must admit so a lot of the things that you are mentioning, so like terminology which is education, communication methods, just the whole.

00:25:14 The Interviewer

Marketing and services.

00:25:16 The Interviewer

Those are the things that are lacking an I think no matter how good an EA team is.

00:25:22 The Interviewer

If their services, their products aren't visible outside of the EA team, it doesn't make them successful because nobody knows how to consume their services and nobody knows what they are responsible for in terms of a mandate.

00:25:34 The Interviewer

So I think critical is is understanding that balance between business knowledge and what we need to do in India.

00:25:43 The Interviewer

OK, and then also then separating that between tactical and strategic, which is what is mentioned now in the long and short term.

00:25:52 The Interviewer

Select

00:25:52 The Interviewer

00:25:52 The Interviewer

So great thanks, thank thank you for that.

00:25:56 The Interviewer

So we kind of focused a lot on on some of the challenges.

00:25:59 The Interviewer

Some of the things that impede EA, which I think is great because we need to understand that in order to to to know what we need to do better.

00:26:10 The Interviewer

But then, if you had to pick one or two things that you think that EA is doing right at the moment.

00:26:16 The Interviewer

Also be just one thing, if you can, what would that be?

00:26:23 The Interviewee

Yeah, I think there's a lot of things that are being done right.

00:26:26 The Interviewee

I think it's just.

00:26:28 The Interviewee

A question of oftentimes and you know, I'm I'm glad that the most of the content that I'm sharing with will be aggregated.

00:26:34 The Interviewee

I think some of the challenges that EA faces.

00:26:37 The Interviewee

I've also I'm going back to the challenges, but I think you'll understand where I'm coming from.

00:26:41 The Interviewee

It often times relates to.

00:26:44 The Interviewee

And personalities with an organization and what their own agendas are in terms of where they are going.

00:26:49 The Interviewee

I personally think yeah is doing a great job in terms of trying to pull the entire landscape together and then you know having people understand the complexities around specifically the business within the bank because that is one of the things I think that.

00:27:05 The Interviewee

Yeah, it's pointed out quite a number of years ago already.

00:27:08 The Interviewee

Is that given the different lines of business that the organization has?

00:27:13 The Interviewee

Organization is more complex than a normal manufacturing organization would be that as a simple value chain.

00:27:20 The Interviewee

And I think just having pointed that out, and you know some of the executives getting the realization that the bank is actually more complex than a normal organization is, I think that is a great feather in the cap of enterprise architecture.

00:27:31 The Interviewee

But Fortunately I think you know the Chief Operating Officer at the time, I think at open.

00:27:39 The Interviewee

Mind in terms of engaging enterprise architecture and letting them play a role.

00:27:44 The Interviewee

Uh.

00:27:46 The Interviewee

That is obviously changed and you know, so the focus.

00:27:51 The Interviewee

Kids drawn into other areas as opposed to, you know, continuing where it was, and I think that discontinuity and lack of buy in to what EA is supposed to do as actually cost EA dearly in terms of slowing them down.

00:28:13 The Interviewee

I think what yeah is also done right?

00:28:15 The Interviewee

I think to do to an extent is having appointed and sourcing well, having sourced knowledgeable people and I think you know having had the opportunity to bring in people that are.

00:28:32 The Interviewee

Come.

00:28:34 The Interviewee

Recognized architects have made a huge difference as opposed to us having gone through an exercise to build people up from the bottom to become architects.

00:28:44 The Interviewee

Because there is a certain way of thinking that's required in a certain way of viewing the world and organization that you cannot just teach people overnight.

00:28:44 The Interviewee

Is there?

00:28:44 The Interviewee

00:28:54 The Interviewee

It's something that this sort of.

00:28:57 The Interviewee

Cultivated over a long period of time as people themselves get a bit understanding of what enterprise architecture is meant to do and how it's meant to actually aid organization.

00:29:08 The Interviewee

I just think we need more of that and we need.

00:29:15 The Interviewee

More business people.

00:29:18 The Interviewee

To actually catch on to that and drive it from a business perspective as opposed to being driven from a an IT perspective.

00:29:27 The Interviewee

And I think sorry I'm talking, I'm a bit all over the place at the moment, but I'm I'm hoping you'll get.

00:29:32 The Interviewer

It's fine, it's good.

00:29:33 The Interviewee

The general gist.

00:29:34 The Interviewer

Good points, I'm actually so you're touching on many elements that I was hoping to touch on so it doesn't matter.

00:29:41 The Interviewer

I think it's it's.

00:29:43 The Interviewer

It's good now.

00:29:43 The Interviewer

It's good content.

00:29:44 The Interviewer

It's good insights for me, I think.

00:29:46 The Interviewee

I think this is there's a.

00:29:47 The Interviewee

There's a certain level of.

00:29:50 The Interviewee

Lack of ownership from a business perspective and they abdicating responsibility towards it and that, I think also leads to a lot of the challenges that we have.

00:30:00 The Interviewee

If business as themselves were more.

00:30:04 The Interviewee

Tech savvy and wanted to have a bit understanding not only of their own rules, but how they fit into the broad organization they would have actually been themselves being the.

00:30:14 The Interviewee

The drivers or the initiators of enterprise architecture, wanting to find a way to bring it all together.

00:30:20 The Interviewee

They know in a proper way, but because that sort of gap exists, you know that is always going to be a challenge in terms of making them understand.

00:30:29 The Interviewee

You know what it is that enterprise architecture can bring to the table.

00:30:36 The Interviewer

Great, thanks so much Khalid.

00:30:39 The Interviewer

That was definitely from a different angle which I didn't really think of and it was great that you brought it up because it then something that I can start maybe focusing on to see its relevance and how we can bring it in so so great.

00:30:52 The Interviewer

Stuff and then I think one last question before we close often, and it's very much related to the first question or the answer to the first question where you responded that currently your Department is kind of divorced in the sense from from EA and and and working in in in isolation but.

00:31:13 The Interviewer

If we had to start things up again and I know this has to be a effort from the both sides from EA and from your side.

00:31:20 The Interviewer

But if you had to identify one thing that you could do in support of EA, what would that be?

00:31:26 The Interviewer

For you and your team.

00:31:30 The Interviewee

I think.

00:31:33 The Interviewee

You know, being an infrastructure and obviously living much closer to technology and in most cases basically the plumbing of the organization, if you will, I think there should be closely interaction and more dialogue with enterprise architecture so that we can have a proper view of you know what it is that enterprise architecture thinks.

00:31:43 The Interviewee

Uh huh.

00:31:43 The Interviewee

Uh.

00:31:54 The Interviewee

We should be doing and ultimately you know just having that conversation and having that.

00:31:59 The Interviewee

Dialogue will hopefully.

00:32:00 The Interviewee

Be a means to narrow the case.

00:32:03 The Interviewee

And between enterprise architecture and and and infrastructure.

00:32:07 The Interviewee

And you know, we obviously open to and very amenable to having those conversations and dialogues.

00:32:13 The Interviewee

I think it's just a question of actually finding that time.

00:32:17 The Interviewee

And more than that, it's actually enterprise architecture.

00:32:20 The Interviewee

Finding the time because enterprise architecture.

00:32:23 The Interviewee

Is so.

00:32:25 The Interviewee

Overloaded with things that are expected of them that I really don't think that they have the bandwidth for us to have these types of conversations, but I'm hoping that in the near future they will be better capacitate it and have more leeway in terms of having time available to have these conversations.

00:32:43 The Interviewee

And I think ultimately we can bring it together.

00:32:46 The Interviewee

In a in a sensible.

00:32:47

OK.

00:32:48 The Interviewer

Absolutely, and I and I like your your point.

00:32:50 The Interviewer

You made about capacity because I think as long as you don't have a clear mandate, the expectation from any team would be extremely broad and it won't make sense or it won't be achievable too.

00:33:08 The Interviewer

Satisfy everybody's needs so so that becomes a critical point and it is just understanding what is it you do so that you can say no to things that are outside of your mandate and give it to the people that are responsible for it.

00:33:19 The Interviewer

So so I like that point.

00:33:20 The Interviewer

Thank you very much for that.

00:33:23 The Interviewer

OK, great so Colin.

00:33:25 The Interviewer

Thank you so much for your time.

00:33:26 The Interviewer

That actually brought us to the end of the interview.

00:33:28 The Interviewer

I must say you provided me with a lot of insights, a lot of details I can definitely see a lot of lineages on synergy between other case studies in South Africa as well as internationally.

00:33:43 The Interviewer

And what we're going through.

00:33:45 The Interviewer

Uh, within the the organization, so I look forward to to analyzing the data for insights.

00:33:52 The Interviewer

I think before we closeout officially, do you have any other or other questions for me?

00:33:58 The Interviewee

Nothing will be added this point in time.

00:34:00 The Interviewee

Perhaps just an offer from my side?

00:34:02 The Interviewee

I am a bit of a scatter brained at the moment because it there's a lot of things going on and I'm distracted by calls and messages that are coming in.

00:34:08 The Interviewee

But I'm more than happy to have another discussion with you.

00:34:12 The Interviewee

Perhaps at another time after you've gone through all the information that you have and if you have more questions and if you require more clarity or if you want me to expand on certain aspects.

00:34:22 The Interviewee

I'll be more than happy to do that.

00:34:24 The Interviewer

Absolutely, I appreciate that Kelly, I'll definitely take you up on that if I need so.

00:34:31 The Interviewer

Alright, so I think that brings us to the end.

00:34:34 The Interviewer

Thank you very much for your time.

00:34:36 The Interviewer

I think during this pandemic stay healthy, stay safe and it was an absolute pleasure interviewing you.

00:34:43 The Interviewee

K Trischen for the opportunity and all the best with your studies.

00:34:46 The Interviewee

I hope it all goes well.

00:34:48 The Interviewer

Thank you very much.

00:34:50 The Interviewee

Have a nice day and keep take care of yourself and the family.

00:34:54

Will do.

Interview 3:

00:00:02 The Interviewer

Craig, I think firstly let me do a quick introduction of myself and set the context to this to this interview.

00:00:11 The Interviewer

My name is Trish and Mary Mitchell and as stated in my previous email, I'm a doctoral student registered at the University of Pretoria, currently conducting research in the field of enterprise architecture.

00:00:23 The Interviewer

Now my my research requires me to interview experts in the field of enterprise architecture and seniority and business managers such as yourself, right? And so this this research process. This particular leg actually consists of 2L.

00:00:39 The Interviewer

Comments the first one you were seen in my initial email.

00:00:43 The Interviewer

It's a multiple choice question.

00:00:46 The Interviewer

Yeah, if you have taken it, thank you so much.

00:00:50 The Interviewer

If you haven't, please if you can.

00:00:52 The Interviewer

If I can ask you to to make some time, it is a critical part of the interview process of the research process.

00:01:01 The Interviewer

The second part obviously is being this interview fairly quick.

00:01:05 The Interviewer

Consists about approximately 9 or 10 questions and shouldn't take us more than than around 40 minutes, so thank you very much for accepting the interview.

00:01:15 The Interviewer

Please note that I am recording.

00:01:17 The Interviewer

This conversation and it's purely from a notetaking perspective so that I can refer back to it.

00:01:22 The Interviewer

Should there be a need?

00:01:23 The Interviewer

Are you OK for us to continue?

00:01:26 The Interviewee

Yeah, that's that's.

00:01:27 The Interviewee

I suppose it depends on the questions I Trish and I'm just joking.

00:01:30 The Interviewee

That's fine.

00:01:32 The Interviewer

Absolutely yes.

00:01:34 The Interviewer

OK so Lastly, just an acknowledgement before we can begin, so this interview is voluntary.

00:01:40 The Interviewer

No compensation has been agreed to complete it.

00:01:43 The Interviewer

The data collected during the session will only be used at an aggregated.

00:01:47 The Interviewer

So use only to identify patterns and in no way be associated to any individual such as yourself, right?

00:01:53 The Interviewer

However, if at any time you feel that you don't want to continue with the interview, you can request to leave it up as a participant of the research and all data collected will be discarded and therefore there's no obligation for you to continue to the end one started.

00:02:08 The Interviewer

But note that your your your information and insights is very valuable to this.

00:02:15 The Interviewer

To this process, if you can quickly acknowledge that you're aware of this.

00:02:21 The Interviewee

Yeah, that's not a Giants fan.

00:02:24 The Interviewer

Perfect, OK, correct before.

00:02:25 The Interviewer

We begin with the formal question questionnaires.

00:02:29 The Interviewer

Is there anything any questions that you have from your side?

00:02:32 The Interviewee

Yeah, I think attrition just from a bank perspective.

00:02:37 The Interviewee

You know, have we covered the approval of of doing the research?

00:02:43 The Interviewer

Absolutely yes, so correct there is a contract drawn up by SAB legal that involves myself.

00:02:50 The Interviewer

the University obviously ends up.

00:02:54 The Interviewer

That sticks very defined outlines of you know what boundaries must be within my ethical clearance within the universities itself is tightly coupled to this in that if any of those conditions are broken, then the universities will discard this research completely.

00:03:14 The Interviewer

And none of the information will be can be used even in future in future research.

00:03:21 The Interviewer

So there is a very tight contract that's in place as it stands.

00:03:27 The Interviewee

OK great thanks.

00:03:28 The Interviewer

Happy right?

00:03:28 The Interviewer

Happy.

00:03:29 The Interviewer

OK, so so these questions are all related to the obviously the research area which is enterprise architecture.

00:03:36 The Interviewer

The idea and intent is to try and get some insights into the implications of other broader areas within the organization so I can ask you to please provide as much detail as you can and know that.

00:03:49 The Interviewer

These conversations are strictly confidential.

00:03:52 The Interviewer

So the first question will start off with this very general just sets the scene for for the next few questions to come.

00:04:00 The Interviewer

Can you then briefly describe the role that you play in the organization and what?

00:04:09 The Interviewer

Involvement does it have or how is it involved in enterprise architecture within the organization?

00:04:17 The Interviewee

Yeah, so my my role.

00:04:20 The Interviewee

I head up strategy for for the bank and so I'll I'll strategy management.

00:04:26 The Interviewee

Value Chain starts with sort of environmental analysis, scanning the environment, understanding environmental trends, the context we operating within.

00:04:38 The Interviewee

Hart relates to Armando.

00:04:40 The Interviewee

It's an and then you know with that understanding we then you know, look at the formulation of strategy based on what's happening environment and I'll objective to achieve our mandate.

00:04:56 The Interviewee

So we would then look at, you know, are there any potential.

00:05:00 The Interviewee

Gaps in our in our in our performance and our capabilities.

00:05:04 The Interviewee

What do we need to focus on?

00:05:06 The Interviewee

What are the things that will help us better achieve on?

00:05:08 The Interviewee

And it's or a more effective or efficient organization, and we formulate strategic plans based on both external and internal environmental and performance analysis, and

then so once the strategic plans all done, then we would go and start translating the strategy now.

00:05:28 The Interviewee

That is where the tricky part comes in.

00:05:31 The Interviewee

It's easier to put together a strategic plan.

00:05:34 The Interviewee

It's more difficult to translate it.

00:05:36 The Interviewee

And the translation generally happens with breaking down strategic objectives into measures of success.

00:05:47 The Interviewee

Or how do you achieve success?

00:05:49 The Interviewee

What drives those objectives and then down into where there are gaps in performance?

00:05:54 The Interviewee

You look at portfolios of initiatives to close the gap.

00:05:58 The Interviewee

And then once you know you've got your portfolio up and defined and prioritized, you then execute on it, which is more the program project management level and track and monitor the progress against the projects.

00:06:11 The Interviewee

And as they implemented you look at the performance of the programs, projects and sort of business as usual in the bank and see whether it's moving the dial on the strategic scorecards.

00:06:22 The Interviewee

So we didn't do the measurement of strategy to see if we're going in the right direction.

00:06:26 The Interviewee

So that that's more or less like the what I look after is a value stream and I think you will part of your question was well, how does it relate to enterprise architecture?

00:06:36 The Interviewee

Is that correct?

00:06:37 The Interviewer

Correct yes, yeah.

00:06:38 The Interviewer

Yes.

00:06:38 The Interviewee

So so you know, this is obviously a very important area for me, so we do work quite closely with the enterprise architecture team, because as you.

00:06:48 The Interviewee

Translating strategy down into operation.

00:06:53 The Interviewee

Your different domains and enterprise architecture, so you know whether it is your solution architecture or you're more sort of detailed RT architecture.

00:07:03 The Interviewee

It's all about translating it into you know what are solutions from a technology perspective that can support the achievement of this strategy.

00:07:12 The Interviewee

An you know and then how?

00:07:15 The Interviewee

Also taking other domains like data and information you know how do you make sure that you are designing that correctly in order to to enable business processes and then you can drive the strategic objectives or the outcomes output.

00:07:30 The Interviewee

And and you know the that connection I think, is something that we've been working quite **** ** around an understanding it.

00:07:43 The Interviewee

And as we've gone through actually realized there's another domain called business architecture.

00:07:48 The Interviewee

That is what we've always known.

00:07:50 The Interviewee

It's there, but I think we, we've realized that.

00:07:52 The Interviewee

More more that there's a bigger need for the business architecture layer, but.

00:07:56 The Interviewee

I mean the strategy and the more RT and solution architecture layers that needs to be developed to almost close the gap in the translation of that strategy.

00:08:08 The Interviewee

So more the value stream level, the capability modeling all of that before you start going down into more the solution layers, the application layer, the technology layers, and the security layers.

00:08:19 The Interviewee

So so that so without enterprise architecture for me as a as a head of strategy, we doing a bunch.

00:08:26 The Interviewee

Of I'm gonna just leave business architecture out for a second, but more sort of the RT lies of enterprise architecture.

00:08:33 The Interviewee

We could be doing a bunch of solutions that number one are not enabling the business to achieve its strategy or its mandate or two.

00:08:43 The Interviewee

We could be doing a whole bunch of things that are not.

00:08:47 The Interviewee

Aligning to an overall vision for the architecture for the bank.

00:08:52 The Interviewer

Great, thank you so much Greg.

00:08:54 The Interviewer

That was such a comprehensive on see actually lead into the second part of my question, but I think you've covered all elements that I would want to have covered in that answer.

00:09:04 The Interviewer

So great.

00:09:04 The Interviewer

Thanks for that.

00:09:06 The Interviewer

Alright so you spoke obviously about enterprise architecture and then the strong involvement and the importance of it within the organization.

00:09:14 The Interviewer

Can I ask within your organization who?

00:09:16 The Interviewer

Are your major stakeholders for enterprise architecture?

00:09:20 The Interviewer

That is, do you have a team in place, a division or Department?

00:09:24 The Interviewer

And then what is your expectation from from them?

00:09:29 The Interviewee

Yeah, so there is.

00:09:30 The Interviewee

There is an enterprise architecture an.

00:09:34 The Interviewee

Think it's called.

00:09:35 The Interviewee

A division or function.

00:09:37 The Interviewee

But yeah, there is one, and so we've gotta ahead at about enterprise architecture and then sort of.

00:09:43 The Interviewee

I think different domain leads and and we work very very closely with them.

00:09:48 The Interviewee

So they.

00:09:48 The Interviewee

Work they they actually are part of our strategy process and and then we work with them on some of the architecture.

00:10:00 The Interviewee

Artifacts you know, like this sort of you know, business model canvases or the which part of what we do as well, but that's where the connection comes in.

00:10:08 The Interviewee

And it's just.

00:10:11 The Interviewee

We work, you know, sort of, we Co.

00:10:13 The Interviewee

Create these things together, you know, sort of what we call City plans.

00:10:19 The Interviewee

The topology Maps.

00:10:21 The Interviewee

You know the the value streams the capability Maps so you know, and then I'm going.

00:10:26 The Interviewee

I'm I'm leaning a little bit towards the business architecture at the moment, 'cause once it gets I think more detailed into the solution RT architecture.

00:10:33 The Interviewee

That's when we don't work as closely with the enterprise architecture team, but yes, we do.

00:10:38 The Interviewee

Have one and we work quite closely with them, and in fact that that relationship over the last year or two is really starting to pick up so that we almost have an integrated approach on the end to end strategy value stream.

00:10:51 The Interviewee

So we work together across it.

00:10:53 The Interviewer

Yeah, I think that's great that the focus is on business architecture.

00:10:57 The Interviewer

I think where organizations typically go wrong.

00:11:00 The Interviewer

Is this focus too much on the technology aspect and.

00:11:04 The Interviewer

Don't provide enough uh detail and an don't give it enough effort on the on the business architecture side, so it's great that that you guys are obviously concentrating on that element.

00:11:18 The Interviewer

Alright, so OK, having that enterprise architecture team in place.

00:11:24 The Interviewer

If I had to ask you how you know the level of difficulty to worker, communicate with them.

00:11:29 The Interviewer

'cause now.

00:11:30 The Interviewer

Generally I think people they have very specific way of thinking, their mindset and sometimes it's difficult to relate to that in your Department in.

00:11:42 The Interviewer

That you that you lead up.

00:11:43 The Interviewer

Do you find it difficult to to work or communicate with the EA team that you mentioned?

00:11:50 The Interviewee

Ah, no, not at all.

00:11:52 The Interviewee

I.

00:11:53 The Interviewee

I think the layer of of stakeholders that we work with in the in the EA team or I think front and foremost, actually more closer to business architects there.

00:12:08 The Interviewee

Will definitely have a good balance between the technical component in the business component so so most of the the discussions you know the the three or four key stakeholders that we work with in the enterprise architecture team we talk the same language.

00:12:23 The Interviewee

They understand strategy that understand the business architecture, and in fact they have invested quite a lot of time and understanding business architecture themselves.

00:12:31 The Interviewee

So so I don't have that problem.

00:12:32 The Interviewee

I think if I had to maybe deal with the next few layers down, I think that's where it might start getting beginning very technical, so it's really good that the EA team has got that layer that understands strategy and business.

00:12:45 The Interviewer

Perfect.

00:12:47 The Interviewer

Thanks OK so.

00:12:50 The Interviewer

Then if I had to ask you, do you think that you're getting the anticipated value from EA?

00:12:57 The Interviewer

As it stands now?

00:12:58 The Interviewer

And if I could add to that question, kind of like a loaded question, what do you think that they'll need to do in addition to consider them slightly more successful?

00:13:10 The Interviewee

Yeah, so Trish and it's you know they they got.

00:13:14 The Interviewee

They've gone through a journey themselves of building capacity to to try and respond to businesses needs.

00:13:21 The Interviewee

And I think with the big Artie transformation that's going on in in the organization at the moment.

00:13:29 The Interviewee

I think a lot of our.

00:13:31 The Interviewee

The the I team got pulled into a solution architecture and RT architecture layers.

00:13:37 The Interviewee

And and could have probably spent a bit more time on the business architecture because that's the close connection with us, so they were trying to juggle time between, you know, delivering solutions or helping on the solution level and and and and trying to trade off that time with.

00:13:54 The Interviewee

Also thinking about more the strategic layers of business architecture.

00:13:58 The Interviewee

Excuse me business architecture and I think as as they've brought on more senior capacity.

00:14:06 The Interviewee

The focus is now shifting to business architecture.

00:14:09 The Interviewee

We are doing actually a proof of value around it and there are business architects being brought into the bank and I think if we can keep building that capability that will be a huge help for the strategy team because it's this translation of strategy that is the critical part.

00:14:24 The Interviewee

I mean it's it's.

00:14:26 The Interviewee

I think one is I think, but the translation is always appreciated.

00:14:31 The Interviewee

Always think you jump straight from a strategic objective and say OK, let's go and do a bunch of stuff now about how it actually draws value.

00:14:38 The Interviewee

The actual actions you doing and hard driving value and how that connects all the way back to overall.

00:14:44 The Interviewee

Strategy, I think it's underappreciated, and I think so.

00:14:47 The Interviewee

If they can keep building that business architecture layer, I think that will be a huge help for us.

00:14:54 The Interviewee

And and if not at mark nuts, it's an enterprise architecture.

00:14:54 The Interviewer

Excellent.

00:14:57 The Interviewee

Sorry, you know, we're working on this together.

00:14:59 The Interviewee

You know, maybe business architecture sits between us.

00:15:02 The Interviewee

Maybe it's it's within, maybe it's it's with us, but I think the point is that capability will hugely link strategy into enterprise architecture.

00:15:10 The Interviewee

Or the more technical components of enterprise architecture going for.

00:15:14 The Interviewer

Absolutely, I agree with that. I think a lot of the times the thing that leads to to the failure is the the lack of integration between the. If I could call it process is I wanna call it Department's right because the process is within the Department is what makes us.

00:15:33 The Interviewer

So that's that's great and I think it actually it leads very nicely into the next element, which you kind of alluded to in in one of the earlier questions.

00:15:44 The Interviewer

Which is, you know, within the EA team, a very critical part of it is architectural planning so that the road map that you know.

00:15:52 The Interviewer

What do we foresee from a technology standpoint?

00:15:55 The Interviewer

Three to five years from now.

00:15:57 The Interviewer

But in order to do that, you need that alignment with your team, the business architects, what's coming down the line?

00:16:05 The Interviewer

Uh.

00:16:05 The Interviewer

Uh, so that then becomes a very crucial input into architectural planning.

00:16:10 The Interviewer

Is that something in place now?

00:16:12 The Interviewer

And I know you you mention something to that.

00:16:16 The Interviewer

Headlines when you, when you spoke about strategic sessions that is held that both teams are Privy to.

00:16:23 The Interviewer

Could you maybe give me a little bit more information around that?

00:16:28 The Interviewee

I think I understand your question so so the the the sort of the architectural road map or what the end state looks like.

00:16:37 The Interviewee

Or you know that city plan.

00:16:39 The Interviewee

I know that's the terminology that's sometimes used.

00:16:42 The Interviewee

I think it's a work in progress, so I don't think it's completely in place yet.

00:16:46 The Interviewee

I think where we still grappling a bit is you know the definition of the eval.

00:16:52 The Interviewee

New streaming capability models the the the definition of the information.

00:16:59 The Interviewee

You know the the the sort of the information side the organization side, all of that in in in a representation that is consistent for the whole bank is something that is a work in progress, but it's not there yet.

00:17:12 The Interviewee

I think there's bits and pieces of process models and process design and a capability model there, and a half capability map there, but.

00:17:20 The Interviewee

I think pulled all together in a holistic view that can then inform and and and and guard what the the sort of tech landscape looks like for the next five years.

00:17:33 The Interviewee

I think that piece is still a work in progress.

00:17:36 The Interviewee

But it, but it is.

00:17:37 The Interviewee

It is gaining traction compared to where we were.

00:17:40 The Interviewee

You know, in in the past.

00:17:42 The Interviewer

OK, and would you say then there's mechanisms in place where you could provide input into that and evolve that that landscape that view.

00:17:52 The Interviewee

Yeah.

00:17:52 The Interviewee

So we do as a like we.

00:17:54 The Interviewee

Are working together, you know, with with the enterprise architecture team at putting those views together.

00:18:01 The Interviewee

So there is quite a big program running across the bank at.

00:18:05 The Interviewee

At defining the value streams defining the capability models, pulling it up to the bank level, looking at it from a bank, almost topology level and hard all connects together, and that's something we're working hand in hand with with the A team.

00:18:20 The Interviewer

Perfect, perfect and so I mean.

00:18:23 The Interviewer

You know when when we look at?

00:18:25 The Interviewer

We start talking about it is.

00:18:27 The Interviewer

There's generally some very negative associations with it.

00:18:32 The Interviewer

And and that's only just cause the the breadth of the coverage of it is so wide that it's very difficult to do justice to all areas.

00:18:41 The Interviewer

If you had to, maybe give me one or two things that you believe EA is doing right, because I think it's also important to never lose focus on what you're doing, right?

00:18:51 The Interviewer

So that you can continue doing it.

00:18:53 The Interviewer

What would that one or two things for you be?

00:18:57 The Interviewee

Well, I I mean you say sometimes EA is and you know it has that sort of negative Contacts and I feel the same.

00:19:02 The Interviewee

Sometimes in strategy you know we we mile wide inch deep and you you can't be everything to everybody but yeah so I I I think we feel the same pain as the EA team but.

00:19:14 The Interviewee

Yeah, I mean if they look I I don't.

00:19:17 The Interviewee

I'm not that involved with their sort of day-to-day activity, so you know how in there sort of architecture review committees and that I don't really see all the outcomes of

what they do, but you know, from what I've heard that you know, being able to one is at least guard a lot of the salute.

00:19:32 The Interviewee

Options so that we are not doing the shotgun approach.

00:19:35 The Interviewee

I think that's something that the I team has helped the bank with, but closer to me I think what they're starting to get right is this with working with us at closing the gap between the strategy level and this sort of RT.

00:19:53 The Interviewee

Levels of architecture though that you know that's that's been able to represent it in a way that we can have a consistent view of the business.

00:20:02 The Interviewee

A consistent representation of the business starting to use consistent terminology around how we describe different things.

00:20:10 The Interviewee

The business, and so I think that that is, that is starting to really take shape now.

00:20:16 The Interviewer

Great great thanks so much.

00:20:18 The Interviewer

I think it's one last question before we can wrap up and and this is more kind of a personal thing and I know you alluded to nuts.

00:20:27 The Interviewer

You know having view of what EA does in terms of deliverables and outputs, but in terms of.

00:20:36 The Interviewer

Them doing their job and you spoke about the linkage between EA and the strategic Department.

00:20:42 The Interviewer

What do you think that you could do in addition to support EA?

00:20:45 The Interviewer

Deliver the value.

00:20:48 The Interviewer

And it could be something that we've already discussed.

00:20:50 The Interviewer

I just want to know that top of mind thing.

00:20:50 The Interviewee

Yeah.

00:20:52 The Interviewee

So now I think it is that translation of the strategy, so it's it's working with with the EA team at the business architecture layer I'm I'm less interested in in the in the the detailed solution or the.

00:21:08 The Interviewee

Yeah, you know sort of application and tektek or the security architecture.

00:21:12 The Interviewee

I mean that's that's a bit out of my scope.

00:21:13 The Interviewee

But it's that it's that business architecture, so it would be your your your value stream definition your ecosystem model.

00:21:21 The Interviewee

So business Canvas is you'll capability models your info mapping and and you're sort of organizational mapping.

00:21:30 The Interviewee

You know those those main sort of outputs and then how those would then connect into you know things like our.

00:21:37 The Interviewee

You know our portfolio of initiatives because you know, I think when we when we.

00:21:42 The Interviewee

You know, defined, for example, a big strategic initiative, and we're saying that we wanted to close, you know, a gap between A and B.

00:21:50 The Interviewee

Are we really clear what that A&B is an? How's it going to actually deliver value or increased value in a step in a value stream and it's just working with them at defining that? That translation is going to be the key going forward.

00:22:06 The Interviewer

Brilliant brilliant brilliant.

00:22:07 The Interviewer

Thank you so much.

00:22:08 The Interviewer

Alright, so so.

00:22:10 The Interviewer

Great, thank you so much for your time.

00:22:11 The Interviewer

That actually brings us to the end of the interview questions.

00:22:15 The Interviewer

I must say you provided quite a bit of insight so I'm looking forward to analyzing this data thing before we close off.

00:22:21 The Interviewer

Do you have any further questions for me?

00:22:25 The Interviewee

No, no attrition.

00:22:26 The Interviewee

I think that was fun.

00:22:29 The Interviewee

Yeah, it.

00:22:30 The Interviewee

It's just interesting this you know and you know we we obviously trying to develop this.

00:22:37 The Interviewee

You know the business architecture layer and I know and I, I think sometimes and there's a lot of confusion around what actually sits under the full.

00:22:46 The Interviewee

Cool.

00:22:47 The Interviewee

Umbrella of enterprise architecture and as things like your business architecture, part of Enterprise Architecture, is that something separate?

00:22:55 The Interviewee

Is it part of strategy?

00:22:57 The Interviewee

And I think you know you do have these.

00:23:00 The Interviewee

These like Billesbach and these bodies of knowledge that are trying to define it a lot more clearly.

00:23:05 The Interviewee

So at least there's a more common approach to what enterprise and business architectures and what fits under all of these and.

00:23:12 The Interviewee

But but I think it's it's an exciting space and and I really think a massive differentiator if organizations can get this right.

00:23:21 The Interviewee

Because I mean if you just look at the stats around organizations that effectively execute their strategy like they said they were going to do it, you know it, whatever they set out to do.

00:23:33 The Interviewee

What have they achieved?

00:23:34 The Interviewee

It?

00:23:34 The Interviewee

Very few organisations actually do achieve that, and I think both business and enterprise architect.

00:23:40 The Interviewee

Yeah, it can play a really big role in improving that, yeah?

00:23:44 The Interviewer

Absolutely, and I I think you you mentioned Buzz Bakken, an one of the I think I wanna call it failures of the world of the corporate is is picking out things and adapting it for the wrong purposes.

00:24:02 The Interviewer

Biz Box is a very strategic and I agree with you.

00:24:05 The Interviewer

It falls within your area.

00:24:07 The Interviewer

It's very strategic way of thinking and it's very aligned to business architecture.

00:24:12 The Interviewer

Enterprise architecture comes kind of follows after that, and there needs to be a tight coupling between.

00:24:20 The Interviewer

Uh business architecture in EA.

00:24:23 The Interviewer

An business architecture and we'll call it business architecture in strategy because I I don't know any other term at the moment, right?

00:24:30 The Interviewer

But this book actually satisfies all of that requirements in in in business architecture.

00:24:35 The Interviewer

In strategy, as I've seen in in some of the use cases we we pretty much focus on the technology side, and that's the easy side.

00:24:43 The Interviewer

Uh.

00:24:44 The Interviewer

We we tend to adopt frameworks and methodologies Willy nilly.

00:24:49 The Interviewer

If I could, if I could use that, there isn't any framework or methodology is out there.

00:24:54 The Interviewer

That is a prescriptive in our all of it is guidelines and I think sometimes we we missed that and we take in everything in one go.

00:25:04 The Interviewer

Uh.

00:25:05 The Interviewer

I must say because of that fact my my research is leading away from the the frameworks and the methodologies and trying to concentrate more on the social technology, technology, technological factors, which is kind of the stuff things.

00:25:26 The Interviewer

Because as much as you can follow a framework or methodology, it's the culture that will make it fail or succeed.

00:25:35 The Interviewer

And so the framework that I want to put in place to test the maturity is around the softer side of things.

00:25:40 The Interviewer

You know you mentioned yourself, you know, capacity, capability, collaboration, communication.

00:25:47 The Interviewee

One of the key.

00:25:49 The Interviewer

All of my interest is visible.

00:25:52 The Interviewer

Of EA services.

00:25:53 The Interviewer

If you don't know the services that they provide, how do you consume it?

00:25:57 The Interviewer

How does it become a success of?

00:25:59 The Interviewer

Afterwards, there's there's certain softer things that we almost tend to say that we will look at it after it's implemented, but it never gets the the time of day, and so the research is focusing on creating a framework to test maturity.

00:26:15 The Interviewer

To increase EA success, if that makes sense.

00:26:22 The Interviewee

Yeah it does I I think with any you know.

00:26:26 The Interviewee

Functional discipline where that's as you say EA or strategy.

00:26:31 The Interviewee

You know you're sort of what sits above the line in in the structure.

00:26:36 The Interviewee

That process is the systems.

00:26:38 The Interviewee

All this sort of hard things are are.

00:26:41 The Interviewee

Easier to get right or then then what's below the line?

00:26:45 The Interviewee

You know the culture, the behaviors and so on, and and and and the the the delivery of of the outcomes of the output.

00:26:53 The Interviewee

This is is is more reliant on on how people work together an underlying culture, but I would say don't underestimate the power of having a clear understanding of common frameworks and mental models because like when when?

00:27:10 The Interviewee

When I think of just take business architecture, the understanding of what a value stream?

00:27:16 The Interviewee

Is is if you had to ask people across the organization, you would probably get 100 different answers. Now if you've got 100 different answers on what that is, how do you then make sure that you are defining it correctly so that you can drive the right processes underneath, which then link into you know the right enabling technologies and then.

00:27:37 The Interviewee

You know, supported by the right skill.

00:27:39 The Interviewee

So so you know, just having a clear understanding of these frameworks, these models, so you've got a common uh base to work off, you know, is is important.

00:27:51 The Interviewee

But I do agree with you that you can still have that in it.

00:27:54 The Interviewee

But if you don't have the right cultural behavior, it doesn't really mean much.

00:27:58 The Interviewer

No, so you I think that you hit the nail on the head for me.

00:28:02 The Interviewer

So education is a big thing, so it's not necessarily.

00:28:06 The Interviewer

We lose focus in those areas.

00:28:09 The Interviewer

Because that's the foundation.

00:28:11 The Interviewer

I mean, if you don't get that right, then nothing is going to.

00:28:13 The Interviewer

You know nothing is going to fall into place, but even if you, if you have a good understanding as EA and their strategy, you know your area.

00:28:22 The Interviewer

If you don't educate outwards that knowledge is still lost to your point, you know.

00:28:27 The Interviewer

So it comes down to educating, training and making sure.

00:28:30 The Interviewer

From an enterprise wide perspective that everyone is speaking the same language, I agree with you wholeheartedly there.

00:28:38 The Interviewer

Great, thank you so much.

00:28:40 The Interviewer

I mean I I really enjoyed this interview.

00:28:42 The Interviewer

I actually got so much out of it more than I anticipated and I'm definitely seeing you know I image in terms of what I need to concentrate on an I love that it actually making my my work a lot easier.

00:28:56 The Interviewer

So thank you very much for your time.

00:28:59 The Interviewee

Yeah, it's it's a pleasure trition no problem at all.

00:29:03 The Interviewer

Great.

Interview 4:

00:00:02 The Interviewer

Before before we go into the interview, let me provide a brief introduction and then get to go over some of the formalities and then we can start right so my name is Trish and Mary Matalin.

00:00:17 The Interviewer

As stated in my previous email, I'm a doctoral student registered at the University of Vic.

00:00:23 The Interviewer

Currently conducting research in the field of enterprise architecture management.

00:00:28 The Interviewer

And part of my research and requires me to interview experts in enterprise architecture and senior it and business managers such as yourself.

00:00:37 The Interviewer

Right now this research process actually consists of two elements.

00:00:42 The Interviewer

The first element you were seeing in my previous email is a multiple choice question, yeah?

00:00:49 The Interviewer

If you if you have done it already, thank you very much if you haven't.

00:00:53 The Interviewer

If you if I can ask you to please make some time, it is quite a a key part also to to the research.

00:01:00 The Interviewee

Nothing I've. I've done it.

00:01:00 The Interviewer

OK.

00:01:02 The Interviewer

Thank you very much.

00:01:04 The Interviewer

So Part 2 is this this interview it.

00:01:07 The Interviewer

It consists primarily about 9 questions.

00:01:10 The Interviewer

It wouldn't take us more than 40 minutes to complete, right?

00:01:13 The Interviewer

Right?

00:01:14 The Interviewer

So thank you.

00:01:14

OK, thank you.

00:01:15 The Interviewer

Very much for accepting the interview, I think.

00:01:18 The Interviewer

Please note that I am.

00:01:20 The Interviewer

This conversation, purely from a notetaking perspective.

00:01:23 The Interviewer

So that I can go back and refer to it should they.

00:01:26 The Interviewer

Should there be a need?

00:01:27 The Interviewer

Are you OK for us to continue?

00:01:30 The Interviewee

No, that is fine.

00:01:30 The Interviewee

Now that.

00:01:32 The Interviewer

Great alright.

00:01:34 The Interviewer

And then Lastly, if you can just acknowledge just quick declaration and then we can begin right so this interview is voluntary.

00:01:43 The Interviewer

No compensation has been agreed to complete it.

00:01:46 The Interviewer

The data connected collected during the session will be used at an aggregated level used only to identify patterns.

00:01:54 The Interviewer

An will in no way be associated to any individual, such as itself.

00:01:58 The Interviewer

Right however, if at anytime you feel that you don't want to continue, you can request to leave as a as a participant in the research an any data collected during the session will be discarded, so therefore there is no obligation to continue to the end one started, but know your input is extremely valuable.

00:02:18 The Interviewer

An it would really mean a lot to the research itself.

00:02:23 The Interviewer

If you can, please acknowledge that you are aware of this.

00:02:27 The Interviewee

OK, now that's fine with me.

00:02:28 The Interviewee

Just also just want to confirm it won't compromise anything.

00:02:32 The Interviewee

With the Bank or employer my employer.

00:02:37 The Interviewer

Know so.

00:02:39 The Interviewer

One of the things that I gotta strictly abide by is the contract set out by SAP, which involves myself, my supervisors.

00:02:50 The Interviewer

And asab itself.

00:02:53 The Interviewer

My clearance for this research by the University is also purely based on the contract, and so if anything is is breach then the research itself is null and void and an I wouldn't be able to continue.

00:03:02 The Interviewer

Preach.

00:03:02 The Interviewer

Sure.

00:03:07 The Interviewer

So as far as possible we will stick to the contract and make sure that everything is above board.

00:03:15 The Interviewee

OK, no that's fine, thank you.

00:03:18 The Interviewer

Perfect, I think if you have any further questions I can I can fill them off for now, otherwise we can.

00:03:26 The Interviewer

Get into it.

00:03:28 The Interviewee

Now I think you can can.

00:03:28 The Interviewee

Yeah.

00:03:29 The Interviewee

Thank you.

00:03:30 The Interviewer

Great.

00:03:30 The Interviewer

Right so then all of these questions are related to my research area, which is enterprise architecture management.

00:03:38 The Interviewer

If I could ask, please to provide as much detail as you can and know that these conversations are strictly confidential.

00:03:47 The Interviewer

OK, so the first question is pretty much a general question.

00:03:52 The Interviewer

Could you briefly then describe how or what is your involvement in enterprise architecture?

00:03:58 The Interviewer

As it stands now?

00:04:03 The Interviewee

OK so I am actually what people from BSTDRIT normally refer to as business, so we are normally the the Institute is of of requirement so we indicate.

00:04:22 The Interviewee

We haven't a requirement for new technology or some technology or improvement of current technology.

00:04:30 The Interviewee

From a technical point of view, so within the economics environment or the statistical environment we frequently want knew new ways to analyze the data, especially the type of data that we collect.

00:04:46 The Interviewer

Perfect, perfect and then can you and this is based on your experience and your exposure.

00:04:52 The Interviewer

Then maybe describe.

00:04:55 The Interviewer

What you think?

00:04:56 The Interviewer

The level of importance enterprise architecture provides to your organization.

00:05:04 The Interviewee

Yeah, I think what I've gathered now overtime.

00:05:10 The Interviewee

It is a process that that analyzes our requirements from a different perspective than from the users point of view to look at maybe bringing together.

00:05:26 The Interviewee

This require requirement with potentially other similar situations within the bank or to look at the requirement on a broader perspective.

00:05:40 The Interviewee

Get technical issues and maybe also how it fits into the current systems that the bank uses or the something like that.

00:05:50

Uh huh.

00:05:51 The Interviewer

And so you think that's a that's a critical part of running an enterprise, would you say?

00:06:00 The Interviewee

I think it it is an important aspect, although sometimes as a user we always want things to happen very quickly and we want it overnight.

00:06:10 The Interviewee

We wanted yesterday already so for me it sometimes I.

00:06:16 The Interviewee

I'm worried that it creates some more.

00:06:20 The Interviewee

Uh, cogs in the OR how could I put it a so a little bit more of it of a delay, but I can also see that I can also see the benefit over the long term.

00:06:28 The Interviewer

Yeah.

00:06:32 The Interviewee

I think it's just over short term I would always want very quick responses, but the long term benefit probably be.

00:06:38 The Interviewee

Is is is a is in that sense.

00:06:41 The Interviewee

I can also understand it.

00:06:43 The Interviewer

OK, perfect, so in your in your organization at the moment who are the the major stakeholders of? Yeah, in other words, do you have an E AM division Department in place and then what would be your expectation from them?

00:07:05 The Interviewee

So I actually don't know technically how it fits together.

00:07:13 The Interviewee

I know that there is a enterprise architecture kind of a team that is always involved in the projects that we are busy with.

00:07:23 The Interviewee

I am not fully aware what the structure is like to tell you the truth, just know that they fall within the scope within the bigger IT infrastructure.

00:07:39 The Interviewee

Sorry, what was the 2nd or the rest of your question about?

00:07:43 The Interviewer

Well, what is your expectation from them?

00:07:47 The Interviewee

OK, so I think what is helpful is when we have a certain requirement and.

00:07:58 The Interviewee

It can be brought to your attention that they all probably current solutions available, or what type of solutions are available, perhaps within the bank or maybe very easily accessible.

00:08:15 The Interviewee

And I also.

00:08:17 The Interviewee

I get the impression it also helps a little bit to bring a better focus too.

00:08:23 The Interviewee

Uh.

00:08:24 The Interviewee

The The business analysis.

00:08:28 The Interviewee

Uh, that is done also as part of a project.

00:08:33 The Interviewee

Uh, so it gives a little bit of more direction and perhaps more clarity of what is, uh, absolutely quiet.

00:08:36 The Interviewee

Yeah.

00:08:40 The Interviewee

Uh huh.

00:08:42 The Interviewee

To clarify certain issues.

00:08:46 The Interviewer

Great great.

00:08:46

Yeah.

00:08:49 The Interviewer

Thanks for that so so you know you you've identified a few things in that last question, right?

00:08:58 The Interviewer

So you said underwear of structure, which I think is a key key thing, and I think one of the challenges that most organisations experience is not knowing what EA does.

00:09:10 The Interviewer

And if you don't know what.

00:09:11 The Interviewer

Yeah it does.

00:09:11 The Interviewer

You can then make use of those services, so I think communication and marketing of EA is definitely an area that is lacking.

00:09:22 The Interviewer

Do you think an annoying how?

00:09:22

Yes.

00:09:27 The Interviewer

And I don't wanna.

00:09:27 The Interviewer

I don't wanna stereotype and saite people because I think a lot of people in business that comes from a very analytical.

00:09:37 The Interviewer

Area would probably have the same sort of personality that general IT staff would have.

00:09:45 The Interviewer

Do you do you working with with the EA team that you have in place?

00:09:50 The Interviewer

Do you find it difficult to communicate with them from a linguistics perspective terms?

00:09:56 The Interviewer

Just a way of speak?

00:10:01 The Interviewee

Yeah, I think I think there is a bit of a barrier.

00:10:05 The Interviewee

It's not always straightforward.

00:10:10 The Interviewee

It I've it is.

00:10:15 The Interviewee

I mean, especially when it starts becoming a little bit more technical, then it is a bit more problematic complex.

00:10:25 The Interviewee

But also depends on the individual.

00:10:29 The Interviewee

And to what extent one has worked with him previously.

00:10:31 The Interviewee

So I think that also helps.

00:10:34 The Interviewee

And and also if one has done more than one, I think especially when it's a new or when you're not quite new in the environment, it is something to get used to.

00:10:43 The Interviewee

Hum so, so from my perspective, just a map is to give you some context from that may reflecting all my answers in a way is.

00:10:43 The Interviewee

Yeah.

00:10:55 The Interviewee

In previous years or maybe years ago, let me put it that way.

00:11:01 The Interviewee

We will.

00:11:03 The Interviewee

A little bit more used to having, uh, itey people that were quite close to business and we could specify what we require and the processes required.

00:11:16 The Interviewee

Much little bit more quicker.

00:11:17 The Interviewee

They worked for our Department or close to our Department, so.

00:11:23 The Interviewee

For me, there's been a little bit more layers in the process now.

00:11:26 The Interviewee

As time has progressed, which is brought in.

00:11:29 The Interviewee

Uh, the fact that some of the IT personnel are not always full time members of the bank or their project workers or some aspects of them or project workers or not project workers.

00:11:43 The Interviewee

What do you call it?

00:11:44 The Interviewee

Contact workers and there's more people involved, such as business analysts.

00:11:49 The Interviewee

And then.

00:11:49 The Interviewee

Enterprise Architects so I can. I can understand the reasoning behind it because I think it there's a lot of department's and there's lots of.

00:11:59 The Interviewee

Very varied requirements, so one needs to be a bit more.

00:12:04 The Interviewee

Well organized in this, but for me personally, it's also brought in, but many more layers to the process.

00:12:12 The Interviewee

So as you say, it will be a good thing if the enterprise architecture is a bit more.

00:12:20 The Interviewee

Uh, is is advertised a bit better and the roles and the what they offer.

00:12:26 The Interviewee

I think it can be helpful differently, yeah?

00:12:29 The Interviewer

So I think it's very, very interesting what you said that.

00:12:34 The Interviewer

You don't understand the technical aspects of it, and I think EA is not meant to be technical in nature, and I think if it comes across that way to business, the Department itself is not doing enough to kind of close that gap rightfully so.

00:12:55 The Interviewer

As you've done things previously, you had people that are very close to business and so that that tight link between what's.

00:13:04 The Interviewer

What's needed by business and what is enabled through IT?

00:13:09 The Interviewer

You know it existed the the moment you extend that to across the enterprise.

00:13:15 The Interviewer

It kind of dilutes the knowledge within that business unit.

00:13:20 The Interviewer

Which means you need to spread yourself across multiple business units now.

00:13:25 The Interviewer

And and then that's you kinda lose focus, and that what's that word?

00:13:30 The Interviewer

That closeness to business?

00:13:34 The Interviewer

That intimacy is the word I'm looking for.

00:13:34 The Interviewee

Yes, yes.

00:13:36 The Interviewer

The intimacy with business.

00:13:36 The Interviewee

Yeah, I think that's that's the that's exactly the point.

00:13:40 The Interviewee

It's it's.

00:13:41 The Interviewee

It is somewhat sometimes a bit problematic.

00:13:45 The Interviewee

So so just as an example.

00:13:51 The Interviewee

We are on one of our projects currently with getting providers to to give us a solution for a form system.

00:14:02 The Interviewee

Now it seems sometimes that.

00:14:03

It's.

00:14:05 The Interviewee

We as users have a certain way of specifying our requirements, and then once one sees what the vendors come up with.

00:14:15 The Interviewee

It's kind of not what we what we well, it does have aspects of what we what we describe, but it's if that understanding is not fully there and.

00:14:27 The Interviewee

And that's always the issue that I have with.

00:14:31 The Interviewee

The whole process of going through a a project phase and getting vendors on board, it's it, etc.

00:14:38 The Interviewee

It's very difficult to get what we require or do what we require to stipulate it on paper and then for the person on the other side to understand what we want from that.

00:14:52 The Interviewee

And so.

00:14:55 The Interviewee

It's, it's just.

00:14:56 The Interviewee

It's just these complexities that that's all over in the in the exercise, but it also Maps comes up with technical people that's involved, such as the enterprise architecture, etc.

00:15:08 The Interviewee

So if they don't understand what what we require that can maybe change our requirements a little bit.

00:15:14 The Interviewee

Or you can try and tweak it, and in the end it's not what we wanted.

00:15:19 The Interviewee

May be technically correct, but it's not exactly what we needed.

00:15:19 The Interviewer

I.

00:15:22 The Interviewer

I fully agree with you, and I think that's that's been one of the biggest.

00:15:28 The Interviewer

Uh, that as EA people that they need to deal with because in this day and age, with technology growing so fast, sometimes when you look at things, it seems like that's the better way to do it.

00:15:41 The Interviewer

But if you don't have that, that little bit of additional knowledge it can mean.

00:15:48 The Interviewer

You know the project being successful or unsuccessful, so I definitely agree with you.

00:15:52 The Interviewee

Definitely exactly.

00:15:54 The Interviewee

Yeah, not definitely, yeah.

00:15:57 The Interviewer

Alright, thanks that that was very insightful.

00:16:00 The Interviewer

I think I definitely got some some good points out of that.

00:16:05 The Interviewer

So currently do you think that you're getting some value?

00:16:10 The Interviewer

I wanna use the word some very loosely or some of the anticipated value from EA and I and I know you.

00:16:17 The Interviewer

You said that the your knowledge on EA is limited, but I think based on your previous answers that you given me you may.

00:16:28 The Interviewer

You may, uh, provide me additional details or insights into, you know the expectation from EA.

00:16:35 The Interviewer

So do you think you're getting the anticipated value from EA?

00:16:41 The Interviewee

Yeah, I think the what I've what I've picked up from now and I'm I might confuse it because I've got so many I'm involved in so many projects, but.

00:16:52 The Interviewee

For example, we have a project that is about obtaining granular data across various departments within the bank.

00:17:04 The Interviewee

So recall an instance we BA was.

00:17:13 The Interviewee

Kind of guided by the Enterprise Enterprise Architect to be a bit more specific in certain instances about the requirements.

00:17:23 The Interviewee

So that is where I find benefit because it may be something that we don't.

00:17:30 The Interviewee

No, that's it's missing.

00:17:33 The Interviewee

So in that sense I find that these benefits.

00:17:37 The Interviewee

If there's this appropriate guidance and and that it, as I say it can sometimes be a little bit confusing.

00:17:46 The Interviewee

If for me where I am.

00:17:51 The Interviewee

May not fully understand, but why do you need to go into all those technical details?

00:17:56 The Interviewee

But I can understand the bigger picture if it will help to get to the better result in the end then that little difference would be beneficial.

00:18:05

Sure.

00:18:06 The Interviewer

Absolutely, absolutely.

00:18:06 The Interviewee

Yes.

00:18:08 The Interviewer

So if you open above what you've experienced and this is more probably from a personal note within your Department, what what is the one thing that you think that EA should do to assist you better?

00:18:30 The Interviewee

Well, I what I think is it is important if one has a more like like we've mentioned before, like that people are that are more kind of.

00:18:41 The Interviewee

But the educated about the work that we do, the type of work that they do have got a greater understanding.

00:18:49 The Interviewee

So if there could be more consistency of the individuals that that are involved that's familiar with the environment that we're working with.

00:19:02 The Interviewee

I think that will be helpful.

00:19:06 The Interviewee

I find that there is a bit more consistency at the moment, which is then beneficial for us.

00:19:12 The Interviewee

It's very difficult when a new person comes into to know whether they are.

00:19:18 The Interviewee

If they understand what we're working, what our work entails.

00:19:22 The Interviewee

So if it's somebody that's familiar with our environment.

00:19:26 The Interviewee

And has worked with it before.

00:19:27 The Interviewee

It's always helpful.

00:19:29 The Interviewer

Absolutely agree with that. That's key. I think the last thing you want is to to keep refreshing that IP with new people. That's coming on in. Go through that frustration with each individual that comes in. Yeah, it's it's. It's not the optimal way of working. 100% agree.

00:19:33

Yes.

00:19:44 The Interviewee

Definitely yeah.

00:19:47 The Interviewee

Yes, right?

00:19:48 The Interviewee

So then I think.

00:19:49 The Interviewer

You know when it comes to architectural planning, do you think that input from business?

00:19:58 The Interviewer

Reaches the enterprise architecture team and and how would those inputs get to them?

00:20:08 The Interviewee

That, uh, I actually don't know completely.

00:20:14 The Interviewee

So what I would guess is.

00:20:19 The Interviewee

Can potentially be an issue for me.

00:20:21 The Interviewee

Is that the architecture or architect can potentially think that there is a solution that is suitable, but it may not be exactly what we're looking for similar to what I explained previously for example.

00:20:40 The Interviewee

Yes.

00:20:40 The Interviewee

On the tools that are available currently within the bank could be what you call it. Is 1 called BI. What's it called an like a super we ship? What's it called by? It's like it's related to RBIE, but it's something similar. I think it's a tool that's available, but I'm not. I haven't seen it.

00:21:02 The Interviewee

A lot of it, but it might be that.

00:21:05 The Interviewee

Work is done.

00:21:06 The Interviewee

Is it OK?

00:21:06 The Interviewee

This is going to be a kind of a very good solution for you and that might not be exactly what we want.

00:21:11

Uh huh.

00:21:12 The Interviewee

I'm so I I just I'm just wary of that aspect.

00:21:16 The Interviewer

So I think, yeah, that's that's more at a solution architecture level.

00:21:23 The Interviewer

So what I'm what I'm probably when I get more information around is at an enterprise level, so you know, typically the EA team is responsible for creating a road map for technology over three years.

00:21:29 The Interviewee

OK.

00:21:38 The Interviewer

Five years, uh, a period.

00:21:41 The Interviewer

And the only way to to comfortably do something like that if they understand you know what is in the road map from.

00:21:50 The Interviewer

From a business perspective.

00:21:51 The Interviewer

And generally these sessions come or these types of inputs come through strategic sessions that get held where either one party.

00:21:59 The Interviewee

Yeah.

00:22:03 The Interviewer

Is the participant in each others or are the ones strategic session and that way then you know.

00:22:14 The Interviewer

Either party gets an idea of what's coming down the line and could plan accordingly.

00:22:18 The Interviewer

Is are those type of things happening in the organization.

00:22:24 The Interviewee

I don't think adequately, but I also was thinking as you as you were talking.

00:22:30 The Interviewee

It's probably going to be quite difficult.

00:22:33 The Interviewee

It would be ideal if we could have a very, uh.

00:22:39 The Interviewee

Good interaction in that regard, B.

00:22:44 The Interviewee

But I think even within one Department such as ours, they are quite a few varied.

00:22:52 The Interviewee

System requirements, in a way or different systems already used, but it would be good if there was this.

00:23:02 The Interviewee

Very thorough.

00:23:05 The Interviewee

Enterprise.

00:23:09 The Interviewee

Mapping or that may be already.

00:23:11 The Interviewee

Map for the Department and then I just I.

00:23:15 The Interviewee

I discussion on where do we see changes going to happen?

00:23:20 The Interviewee

In future, so I think we are missing something like that in a broader context, although I know that at our strategic planning we do sometimes have representatives from ITV, but I think not adequately.

00:23:38 The Interviewer

Great great thanks.

00:23:39 The Interviewer

So I think yeah without getting into too much of the detail of it, So what you're referring to there?

00:23:47 The Interviewer

The enterprise map.

00:23:48 The Interviewer

Bing is the technology landscape and and that's a very critical element in EA. It's something that every organization needs as a as an extreme baseline in order for you to do anything, and if that's not in place, then yes, everything else can be extremely difficult to achieve. So I agree 100%.

00:23:52 The Interviewee

Yes.

00:24:00 The Interviewee

Yes, yes.

00:24:10 The Interviewee

Yeah, now I think that's something that you would like that would be nice, as would actually be.

00:24:11 The Interviewer

All right?

00:24:15 The Interviewee

Good way of approaching that you have something that was visible or that one can then say OK and then one can have a discussion at the strategic session that is dedicated to that awesome.

00:24:28 The Interviewee

I think there's not enough dedication to that aspect.

00:24:34 The Interviewer

Right, yeah, so I think we we we down to our last question now so.

00:24:40 The Interviewee

Right?

00:24:40 The Interviewer

I hope it wasn't too bad off and interviews.

00:24:42 The Interviewee

Yeah, that's right.

00:24:45 The Interviewer

I think the last question is kind of like a softer one and and it's almost to try and get an understanding of what can be done in addition.

00:24:54 The Interviewer

So from your point of view, what do you think?

00:24:58 The Interviewer

That can be done from a business perspective that would assist EA in delivering or adding more value or being successful in their practice.

00:25:11 The Interviewer

And it and it can come in, you know, in support and you spoke about it a little bit that you you want to see more engagement between a business and it can come from that, but anything more than that, do you see?

00:25:19 The Interviewer

Yeah.

00:25:19 The Interviewee

It is.

00:25:25

Yeah.

00:25:29 The Interviewee

Yeah, I think.

00:25:30 The Interviewee

Basically what I mentioned that the the interaction that we have, I think it's it's difficult for for.

00:25:40 The Interviewee

Group of people to set the and to think or do to discuss their technology needs without having.

00:25:49 The Interviewee

A bit of a map that is valuable there and some guidance and say OK, This is why we OK.

00:25:56 The Interviewee

This is what you've got.

00:25:58 The Interviewee

You know what your plans?

00:26:00 The Interviewee

You know that kind of thing.

00:26:01 The Interviewee

I think that's something that.

00:26:03

That

00:26:05 The Interviewee

I can definitely see that there's some requirement on that that will specially as we go go in interview into the future, it's going to become a bigger issue.

00:26:16 The Interviewee

And.

00:26:18 The Interviewee

So, but I.

00:26:22 The Interviewee

I don't know how easy that can be done.

00:26:25 The Interviewee

As I said, there's quite a few systems within our Department as a whole, and that perhaps would also require.

00:26:34 The Interviewee

Maybe more of a dedicated.

00:26:37 The Interviewee

An arm or whatever of enterprise architecture that's.

00:26:37

Yes.

00:26:43 The Interviewee

That has got a bigger focus on our Department as a whole.

00:26:48 The Interviewee

So if I can suggest maybe is too.

00:26:52 The Interviewee

And I don't know how possible that is.

00:26:57 The Interviewee

To to have a bit more of dedicated arms or legs or whatever that goes to the different departments.

00:27:04 The Interviewer

Uh huh.

00:27:04 The Interviewee

With individuals at work with, as I mentioned previously, with a bit more understanding of our environment, ET cetera, ET cetera.

00:27:11 The Interviewee

But yeah, I don't know if that is that is what the bank is going to want to aim for, because it probably just creates more people.

00:27:20 The Interviewer

But yeah, most certainly I think that would help, because that's a key element you need.

00:27:26 The Interviewer

You need somebody dedicated to that business.

00:27:30 The Interviewer

That business unit as such.

00:27:33 The Interviewer

Yeah.

00:27:34 The Interviewer

Otherwise you cannot think from a strategic point because you don't have the larger picture at mine.

00:27:40 The Interviewer

If you're going to keep working on technical solutions.

00:27:43 The Interviewer

Yes.

00:27:43 The Interviewer

It's very difficult to look broader than just what you're focusing on. So 100% agree with that.

00:27:48 The Interviewee

You know what? What I'm what I'm thinking of is for example, like international institutions like the BIS and stuff like that. We've got systems in place, and they've they've done. Or I always get there.

00:28:06 The Interviewee

Impression that is somebody that's knowledgeable that can guide the users inside OK.

00:28:12 The Interviewee

They all better systems out there.

00:28:16 The Interviewee

Maybe you have to consider this going forward in the next five years or whatever.

00:28:20 The Interviewee

Uh huh.

00:28:20 The Interviewee

'cause from a from a user perspective it's sometimes difficult to know that we need to now start thinking of replacing or going a different route or whatever the case may be, so I missed that a little bit this as if it's about the user and the user has to say.

00:28:31 The Interviewee

Absolutely.

00:28:37 The Interviewee

Our systems are falling over.

00:28:38 The Interviewee

We can't cope anymore.

00:28:40 The Interviewee

We need something new.

00:28:42 The Interviewee

It's I'm missing that aspect of proactiveness kind of thing and better planning.

00:28:52 The Interviewer

Absolutely got it.

00:28:54 The Interviewee

OK.

00:28:56 The Interviewer

Schools so that brings us to the end.

00:28:59 The Interviewer

Thank you so much for for your time.

00:29:01 The Interviewer

I I definitely look forward to analyzing this data.

00:29:05 The Interviewer

You've actually identified many elements that I need to dig into.

00:29:11 The Interviewer

But yeah, do you have any closing questions for me before?

00:29:14 The Interviewer

Before we wrap up.

00:29:16 The Interviewee

No, thank you.

00:29:17 The Interviewee

I'm I know I may have come over come over but critical, but I just wanted to give an honest opinion about my experience of of it and I pray that can assist you on your studies.

00:29:31 The Interviewer

Yeah, I think the only thing I can ask for Danny is that you be over over Kritikal.

00:29:36 The Interviewer

If I could say that because that's the only way it'll it provides us with an opportunity to see how we can, we can overcome that, so I appreciate.

00:29:38

Yeah.

00:29:44 The Interviewee

Yeah, yeah.

00:29:47 The Interviewer

Uhm?

00:29:49 The Interviewer

Your candidacy.

00:29:50 The Interviewee

Yeah no, that's fine.

00:29:50 The Interviewer

Success.

00:29:52 The Interviewee

No, that's fine, thank.

00:29:54 The Interviewer

You so much and it was an absolute pleasure interviewing you.

00:29:58 The Interviewee

Knock knock a pleasure.

00:30:00 The Interviewee

Hope it's this app is gonna help you in and also thank you for your work that you've done so far for us.

00:30:07 The Interviewee

Uh.

Interview 5:

00:00:03 The Interviewer

Before we begin, let's begin.

00:00:06 The Interviewer

And as well as provide a little bit of context into the next couple of minutes.

00:00:11 The Interviewer

My name is Trish and Marimuthu and as stated in my previous email, I'm a doctoral student registered at the University of Pretoria, currently conducting research in the field of enterprise architecture management.

00:00:25 The Interviewer

Part of my research then requires me to interview experts in the field of enterprise architecture and senior ITN business such as yourself, right?

00:00:33 The Interviewer

Such as.

00:00:34 The Interviewer

So this is actually a two part research.

00:00:38 The Interviewer

The first part you have seen in the previous email.

00:00:40 The Interviewer

It's a survey question here.

00:00:45 The Interviewer

If you have done it already, thank you so much for it.

00:00:48 The Interviewer

If you haven't.

00:00:48 The Interviewer

If I can ask you please just try and make some time if possible.

00:00:52 The Interviewer

It is a a important part of the of the research.

00:00:56 The Interviewer

And then there's Part 2, which of course is this.

00:01:00 The Interviewer

Here a couple of questions shouldn't take us more than about 30 minutes to complete.

00:01:06 The Interviewer

I'll try and make it as succinct as possible, and then, yeah, that's it.

00:01:12 The Interviewer

So once again, thank you so much for accepting this interview, I think.

00:01:15 The Interviewer

Please note that I am recording this session and it's purely from a notetaking perspective.

00:01:20 The Interviewee

Sure.

00:01:21 The Interviewer

I said I can go back and, you know, refer to the notes.

00:01:24 The Interviewer

Should there be a need?

00:01:25 The Interviewer

Are you OK for us to continue then?

00:01:27 The Interviewee

Yes, please let's go ahead.

00:01:29 The Interviewer

Great, so one last thing before we get into the interview.

00:01:33 The Interviewer

Just a quick acknowledged.

00:01:35 The Interviewer

This interview is voluntary.

00:01:37 The Interviewer

No compensation has been agreed to complete it.

00:01:40 The Interviewer

The data collected during the session will be used at an aggregated level and use only to identify patterns and in no way be associated to any individual such as yourself, right?

00:01:50 The Interviewer

However, if you feel that if you feel the need at any time too.

00:01:50 The Interviewee

Yes.

00:01:56 The Interviewer

Interview you can request to leave as a participant and all data that's being collected will be discarded and therefore there's no obligation for you to continue to the end once you've started.

00:02:07 The Interviewer

But Please note that your your your insight and information is valuable to this research, right?

00:02:13 The Interviewee

No prob.

00:02:15 The Interviewer

Perfect quick acknowledgement.

00:02:16

Awesome.

00:02:16 The Interviewer

Alright before we begin, then Delisa is there any questions that you you want to maybe clarify with me before we get into it?

00:02:25 The Interviewee

No, let's go ahead.

00:02:26 The Interviewer

Perfect alright, so all of these questions are related to the field of enterprise architecture.

00:02:31 The Interviewer

If I can ask you to provide as much detail that you can wherever possible, and know that this conversation is strictly confidential.

00:02:39 The Interviewer

Right?

00:02:40 The Interviewer

So the first question is kind of like a general question, just to get us into it.

00:02:44 The Interviewer

An all of the questions thereafter would would obviously leverage or expand off this if you can briefly then describe to me your role in the organization and how.

00:02:55 The Interviewer

What is your involvement in EA at the moment, and they could very well be that you're not involved.

00:03:02 The Interviewer

And that's perfectly fine, but just to kind of get a an understanding of your role and its linkage or its relation to enterprise architect.

00:03:11 The Interviewee

Sure, yeah.

00:03:12 The Interviewee

Yeah, so my my role it's titled Head of Business Enablement Division so it's a division that is mainly client facing 'cause in my division we've got business relationship managers.

00:03:29 The Interviewee

We've got a customer.

00:03:32 The Interviewee

Support managers we have also business analysts and we also have the newly established the RPA team which is the.

00:03:44 The Interviewee

But missing their team so.

00:03:45

Hey.

00:03:47 The Interviewee

So how I interact with it is through the work that we do with the business relationship management just.

00:03:59 The Interviewee

Is our business relationship managers are responsible for demand.

00:04:02 The Interviewee

So we we gather demand from business, we discuss those demands with Enterprise Architect, a tool for the purpose of checking.

00:04:14 The Interviewee

I still have the demand number 1 #2 to check whether there isn't already an existing technique that could be used to supply for that particular team and we also interact through the business analyst.

00:04:18

I think.

00:04:20 The Interviewee

To supply.

00:04:27 The Interviewee

Space because I mean with that we also have the responsibility to gather requirements in our gathering of requirements.

00:04:35 The Interviewee

I mean this also in enterprise architect element where we interact with them through that particular function.

00:04:44 The Interviewee

So generally I mean only high level.

00:04:46 The Interviewee

This is, this is how I interact.

00:04:50 The Interviewer

Perfect.

00:04:51 The Interviewee

And yeah.

00:04:53 The Interviewee

And Lee.

00:04:55

And.

00:04:57 The Interviewee

Ensuring that we we keep aligned in terms of methodology's in terms of tools and and and so forth.

00:05:05 The Interviewer

Perfect thank you so much.

00:05:07 The Interviewer

Great so then and so you've mentioned that there's quite a bit of engagement between your your team and enterprise architecture, right?

00:05:17 The Interviewer

In your view, do you see the importance for enterprise architecture?

00:05:21 The Interviewer

So is there a need for enterprise architecture within your organization?

00:05:26 The Interviewer

So now.

00:05:26 The Interviewer

Looking at your team as well as their as the wider enterprise.

00:05:32 The Interviewee

Yeah, very good question.

00:05:33 The Interviewee

I think from my side there is definitely a need.

00:05:39 The Interviewee

And that need is mainly because the organization is still somehow.

00:05:47 The Interviewee

Finding itself being in in a developmental state, we are.

00:05:52 The Interviewee

We are building new applications.

00:05:54 The Interviewee

We are building new technologies.

00:05:55 The Interviewee

We are introducing new technologies.

00:05:56 The Interviewee

Need to get.

00:05:57 The Interviewee

And and and because of that, definitely there is a need A at this edit at at the evening, bigger scale than currently we have.

00:05:57 The Interviewee

Yeah.

00:06:09 The Interviewee

I mean, currently we do have a around I think around 10 but we we still need to build more within within the organization.

00:06:20 The Interviewer

Perfect so you actually lead into my my next question of whether there is an enterprise architecture division in the organization and great to hear that yeah.

00:06:31 The Interviewer

Yet you do have it.

00:06:33 The Interviewer

Then what would be you know your expectation from that team and this is within, you know your area what what would be your expectation?

00:06:44 The Interviewee

Very good question.

00:06:46 The Interviewee

There is a foundation that needs to be built for for all the departments that are within the bank and when I'm talking foundation, I'm talking about making sure that the skeleton exists in terms of the architect of the technology that should be built in.

00:07:03 The Interviewee

In the organization.

00:07:04 The Interviewee

Jesus.

00:07:06 The Interviewee

And that means I mean, in the architecture must build that skeleton. How this also impact my space is that the business analysts always find themselves building a or mapping process is adding the level 234. However we miss the.

00:07:27 The Interviewee

Upper part of the the documentation, which is the business what we call it.

00:07:32 The Interviewee

Business.

00:07:35 The Interviewee

Hey man.

00:07:37 The Interviewee

Business capabilities the the operating model of all these different Department.

00:07:43 The Interviewee

I mean because the organization is called over 20 departments and for each and everyone of them we need to have this business.

00:07:51 The Interviewee

I mean operating model, we need to have the business capabilities defined.

00:07:57 The Interviewee

So that every time we do a requirements or we mapping process is we're updating processes, we don't just work from the bottom, but we work from the top as well.

00:08:07 The Interviewee

So we we currently do not have those particular components which should be.

00:08:12 The Interviewee

It's like a text.

00:08:14 The Interviewer

Absolutely. I think that's a critical point that you brought up there. So so you're looking for that Birdseye view and also the linkages between that that view and exactly what

we need to achieve from a business perspective. And then following through to the enablement of that using technology so 100% agree. That's a good point.

00:08:35 The Interviewer

Thank you for that.

00:08:37 The Interviewer

Alright so I.

00:08:38 The Interviewer

Think so. You mentioned a couple of things. Like you said, business capabilities, operating models that skeleton View, or that Bird's eye view of the enterprise. What would you say are some of the challenges in meeting those expectations? Because the one thing that is very clear is that.

00:08:59 The Interviewer

Different Department within the enterprise have different expectations and sometimes and you mentioned it yourself that we need to build that team that you have in enterprise architecture.

00:09:08 The Interviewer

Which means that there is a definite.

00:09:11 The Interviewer

Resource restraint, So what are some of the challenges you can that we experience that impedes us from actually delivering these expectations?

00:09:24 The Interviewee

There's a few things.

00:09:25 The Interviewee

It's a historical thing.

00:09:27 The Interviewee

Number one.

00:09:28 The Interviewee

The organization has been has been existing for a long time.

00:09:32 The Interviewee

Anyway, celebrating 100 years next year.

00:09:35 The Interviewee

However, from the IT side, there has never been any investment in enterprise architects, never.

00:09:43 The Interviewee

I mean, it is something has recently just mushroom term and I think with our new CIO as well coming on board.

00:09:50 The Interviewee

But I mean I think it's mushroom around 5 to 6 seven years ago when we started looking at getting an enterprise architect and when we got those established it was not enough.

00:10:04 The Interviewee

An an from the top as well.

00:10:07 The Interviewee

It was established without any clear direction on where and how it should.

00:10:12 The Interviewee

It should be.

00:10:13 The Interviewee

It should happen or it should operate.

00:10:16 The Interviewee

So we are at a stage where we're defining that we're making sure that we know how it is going to operate.

00:10:23 The Interviewee

We know the basics that are needed for for enterprise architects to exist.

00:10:27 The Interviewee

And so that we.

00:10:29 The Interviewee

Get the capacity.

00:10:31 The Interviewee

I think the other bigger challenge is also recruiting.

00:10:33 The Interviewee

Right?

00:10:34 The Interviewee

The bank the bank is unable to to compete with other other organizations in terms of salaries.

00:10:42 The Interviewee

For those, I mean we were looking for best of the best, but I think because restricted by how with modeled our career path as well in an.

00:10:54 The Interviewee

How would we compensate?

00:10:56 The Interviewee

We then get stuck in that you're not getting the the right people that we're looking for all the time, so yeah, that's that's that's the other challenge.

00:10:58

Uh huh.

00:11:04 The Interviewee

This is.

00:11:05 The Interviewee

I mean, this scarcity of skill becomes a challenge as well.

00:11:11 The Interviewer

Perfect I think.

00:11:12 The Interviewer

Yeah, release quite some key elements that is also seen in some of the case studies that was researched overseas and I think we we tend to focus so much on the theoretical aspects which is the frameworks and methodologies.

00:11:13 The Interviewer

This.

00:11:29 The Interviewer

But we neglect the softest.

00:11:32 The Interviewer

Stuff which is the skills, the capabilities you know, the investment, you know.

00:11:40 The Interviewer

We take it for granted and it's one of the things that we that is high on the list in terms of getting the buy in.

00:11:46 The Interviewer

But we don't give it that enough effort and an.

00:11:52 The Interviewer

Work so the work effort, meaning that you know marketing it we we we lack there there.

00:11:58 The Interviewer

If I ask any of the organisations or any people in the organization, in many organisations they don't even know what EA is.

00:12:04 The Interviewer

So yeah, smoke these things.

00:12:04 The Interviewer

Yeah.

00:12:06 The Interviewer

Education is is key and then we.

00:12:08 The Interviewer

Fail at that great.

00:12:09

Yeah.

00:12:10 The Interviewer

Uh.

00:12:11 The Interviewer

OK, so if you have.

00:12:12 The Interviewer

To list them from you personally.

00:12:14 The Interviewer

Now what would you see as the benefits that you would like to see out of EA?

00:12:20 The Interviewer

That's currently not in place.

00:12:23 The Interviewee

Number one, as I spoke to them, it is if I wake up and find that the organization has defined for each and every Department and operating model.

00:12:37 The Interviewee

For for that Department, if defined the business capabilities.

00:12:42 The Interviewee

And.

00:12:44 The Interviewee

And have clear links between those top two into the the business processes that would be 1.

00:12:52 The Interviewee

OK.

00:12:53 The Interviewee

The second one I think for me is is a clearly defined and.

00:12:58 The Interviewee

Price architectural tools that also accommodate a the business analysis.

00:13:05 The Interviewee

But

00:13:06 The Interviewee

And so it is an enterprise architectural tool, but one that is also providing saying, what is this functionality for the business analysts?

00:13:06

So.

00:13:18 The Interviewee

That's the second one.

00:13:19 The Interviewee

I mean, I think 'cause the two always work close, I mean closely.

00:13:22 The Interviewee

Closely so.

00:13:23 The Interviewee

So we definitely need one tool instead of splitting the tools.

00:13:26 The Interviewee

I mean, we have to convert this into the other.

00:13:29 The Interviewee

So it's clear one that's that's the second one.

00:13:29

No.

00:13:31 The Interviewee

I think the the last one from my side.

00:13:34 The Interviewee

It's it's the it's the it's for this organization to capacitate the the space we we we struggle with new demands that are coming now and again from business and and that struggle is mainly sometimes be 'cause there is no capacity.

00:13:54 The Interviewee

If we could, we could make sure that we we capacitate the organization, and that actually adds to my fourth thing that says.

00:14:04 The Interviewee

Then when this organization has been incapacitated, let's see how we can build.

00:14:11 The Interviewee

Scale from junior into that space because currently I mean we, we look for the experts good, we need them now, but I think as as.

00:14:21

D.

00:14:22 The Interviewee

Guys this I mean I'm talking EA now we need to then start identifying students that will throw into this space and build them.

00:14:32 The Interviewee

Through you know the real on the job training and make sure that there is programs that that talks to that and and and then Lastly make sure that this it is also knowledge transfer to to those particular students, yeah.

00:14:50 The Interviewer

Yeah, I must admit I really love your your third and 4th which is build a team and then build the capacity internally.

00:14:57 The Interviewee

Yes, all right.

00:14:59 The Interviewer

Because that's something that you know IP, an an experience from within the organization you can't get from anywhere else, so that's that's a very important point.

00:15:06 The Interviewee

Definitely yes.

00:15:08 The Interviewer

Yeah, OK, so my next one is is a little bit of a loaded question, but it's always important, I think, to just get an outside view of.

00:15:08 The Interviewee

Correct?

00:15:18 The Interviewer

What the real?

00:15:20 The Interviewer

Or what what the perception is, right?

00:15:22 The Interviewer

And and EA.

00:15:24 The Interviewer

Generally they expected to do quite a bit and sometimes out of that, because the expectation is so broad and and so much.

00:15:36 The Interviewer

It's very easy to focus on the things that you we we don't or EA doesn't deliver on right?

00:15:41 The Interviewer

So from your perspective, do you think business is getting value from EA at the same way it is at this stage?

00:15:51 The Interviewee

Yeah, I know I have to clear my throat.

00:15:55 The Interviewee

Look

00:15:58 The Interviewee

We are we are in an organization that is fast.

00:16:05 The Interviewee

And and I do sit in meetings where I have had.

00:16:10 The Interviewee

And in the recent days had good feedback coming into the EA space.

00:16:19 The Interviewee

Good recognition.

00:16:20 The Interviewee

I mean from from executive level of what the EA is doing, but we are establishing and then at this stage.

00:16:28 The Interviewee

Honestly, I think we we we have done what we could possibly do with what we have.

00:16:34 The Interviewee

So the question is, is business a reaping any benefits?

00:16:34

Uh huh.

00:16:39 The Interviewee

Is a level it off where we are in at the level of establishment.

00:16:44 The Interviewee

There is some benefits that business is getting.

00:16:46 The Interviewee

I think if I could mention a few.

00:16:49 The Interviewee

I mean I've seen the models that have been defined.

00:16:52 The Interviewee

I mean, I've seen the security and what we call it framework that has been built I've seen.

00:16:59 The Interviewee

It receiving very good, you know.

00:17:03 The Interviewee

A reception I've seen the cloud strategy that has been build. I mean there was a lot of input from EA in that. I mean these are. These are things that small pieces, but I mean they are building towards a good future so we are benefiting not 100% yet. But business will benefit.

00:17:13 The Interviewee

But I'm.

00:17:22

So.

00:17:23 The Interviewee

As as we we grow within this space from where we come from, I mean have we had zero?

00:17:30 The Interviewee

And an to where we are.

00:17:31 The Interviewee

I mean, I think in the space of a yeah I remember that I was in a meeting with this year or was not happy at all and said I'm giving you three months to establish.

00:17:39 The Interviewee

Tend to make sure that you put things together.

00:17:42 The Interviewee

Otherwise I'm taking over this EA and I'm running it.

00:17:45 The Interviewee

So we've managed to get a S what the?

00:17:50 The Interviewee

Expects to come on board and help us build what we need.

00:17:54 The Interviewee

We need to.

00:17:55 The Interviewee

Field we will catch there I think.

00:17:58 The Interviewer

Absolutely. I think the key that you mentioned is it's a journey, right? It's not something that you switch on and everything works great. The next day you gotta take these small wins and build and continually build on them. It's a never ending job. So I agree with you 100% there. Alright so.

00:18:18 The Interviewer

Great, thanks so much for that.

00:18:20 The Interviewer

Uhm OK, so up until this point we kind of focused a lot on some of the challenges and the negatives of EA, which is great because now we need to identify these things in order for us to improve.

00:18:32 The Interviewer

But equally important, that think is just identifying the one or two things that that we do right?

00:18:38 The Interviewer

And and you've mentioned quite a few of them, so I think we may.

00:18:41 The Interviewer

We can skip this.

00:18:42

Mean.

00:18:43 The Interviewer

Yeah, in the previous question you mentioned quite a few things that EA is doing right, so that's great.

00:18:46 The Interviewer

Yeah.

00:18:49 The Interviewer

OK, great.

00:18:49 The Interviewee

Yeah.

00:18:52 The Interviewer

OK, so the last.

00:18:52 The Interviewer

Question then, and there's also kind of a very light question in your view and thinking about you, you and your Department.

00:19:02 The Interviewer

Ann

00:19:02 The Interviewer

So what would be that one thing or the two things that you could do from your team site in support of EA for them to deliver those anticipated values?

00:19:14 The Interviewee

Yeah, something that OK?

00:19:17 The Interviewee

There's a few things.

00:19:17 The Interviewee

Number one is.

00:19:19 The Interviewee

I've offered the the head of EA.

00:19:22 The Interviewee

Some of my senior business analysts.

00:19:26 The Interviewee

There is a.

00:19:28 The Interviewee

There is an interest in them getting into the solution.

00:19:32 The Interviewee

So let's see.

00:19:32 The Interviewee

Solution enterprise, so I mean so machine in architect space they they they are willing to learn from.

00:19:37 The Interviewee

Yes.

00:19:41 The Interviewee

The basics going up they they have reached the ceiling in terms of the business analysis, so all they're looking for is an opportunity to say what causes.

00:19:51 The Interviewee

Can we go to?

00:19:53 The Interviewee

How can we learn the the enterprise?

00:19:55 The Interviewee

I mean the solution architect space?

00:19:57 The Interviewee

Or is it their business architect space?

00:19:58

This.

00:20:00 The Interviewee

So any of those?

00:20:01 The Interviewee

And make sure that we build some skill using their signal business analyst, so that's the first thing I think the the second one for me, I mean.

00:20:08

OK.

00:20:13 The Interviewee

Our involvement in into the.

00:20:14 The Interviewee

And.

00:20:17 The Interviewee

It.

00:20:18 The Interviewee

We call this thing that is being established.

00:20:20 The Interviewee

The community image of practice.

00:20:23 The Interviewee

We will definitely be involved there from my BA site.

00:20:27 The Interviewee

We will contribute in whichever way or form we.

00:20:32 The Interviewee

We are looking forward to see how it looks like, but with the mindset of saying, what can we learn?

00:20:37 The Interviewee

What can we contribute and how can we establish a working relationship that will benefit the the organization at a bigger scale?

00:20:47 The Interviewee

I think Lastly is the whole.

00:20:50 The Interviewee

A improvement of the handshakes between our team, which is the business analyst, actually from the PRM's business analyst into the EA space. I think there is some shady process that needs to be to be cleared there in terms of.

00:20:54 The Interviewee

Team

00:21:09 The Interviewee

Who does what, when and then how do we hand over an went we hand over?

00:21:15 The Interviewee

And when we have handed over, how do we know that things are happening on the other side?

00:21:19 The Interviewee

So the whole integration of the processes that we both are working on would have to be to be redefined and and and mapped correctly.

00:21:31 The Interviewer

Great so much so I just want to quickly say that first one that you.

00:21:35 The Interviewer

It was around a clear progression into EA, specifically on business architecture so that I think that's great. The next three was around engagement and alignment, together with roles and responsibilities. So I 100% agree that these are areas that would definitely benefit.

00:21:47 The Interviewee

Right?

00:21:50

Yes.

00:21:56 The Interviewer

Yeah, well and as well as yourself, so thank you so much for that.

00:21:57 The Interviewer

Yes.

00:21:59 The Interviewee

Correct, definitely definitely.

00:22:03 The Interviewer

Alright, so thank you so much for your time.

00:22:05 The Interviewer

That actually brought us to the end of the interview.

00:22:08 The Interviewer

I must say you provided me with quite a bit of insights and I can already see quite a bit of relation between what.

00:22:20 The Interviewer

Important together with some of the case studies that's happening overseas, but it's very, very important, just kind of pick up on.

00:22:29 The Interviewer

You know some of the learnings from them and adopt them, so I definitely can see some sort of linkage there.

00:22:35 The Interviewer

So thank you very much for that.

00:22:36 The Interviewer

I actually look forward to analyzing this data.

00:22:39 The Interviewee

Synagogues.

00:22:40 The Interviewer

Before we close out, then is there any final questions, thoughts from from yourself?

00:22:46 The Interviewee

Yeah, I I.

00:22:47 The Interviewee

I enjoyed the interview and I think it actually was a good reflection from my side as well.

00:22:49 The Interviewee

There was a quote.

00:22:51 The Interviewee

I mean, you know sometimes.

00:22:52 The Interviewee

Do you have things in your mind?

00:22:55 The Interviewee

But I'm in the mood.

00:22:55 The Interviewee

You have questions to answer.

00:22:57 The Interviewee

Then you start realizing oh, this is what I mean.

00:23:00 The Interviewee

I'm actually going to also reflect and even put some of the points down for my engagement further with with the head of EA so that we have so so I can convert this into actually plan, even if it said.

00:23:14 The Interviewee

A year or two year plan and use it.

00:23:16 The Interviewee

But yeah, definitely enjoy the interview and all the best to you.

00:23:20 The Interviewee

On on, on on putting together this study now looking forward to see how it looks like.

00:23:26 The Interviewee

At the end.

00:23:27 The Interviewer

Thank you very much now.

00:23:28 The Interviewer

I'll definitely share the research once or once I'm done.

00:23:33 The Interviewer

In fact, to to be quite honest, the first part of the research will be presented in the beginning of next year in a in a London conference.

00:23:41 The Interviewer

So once that is done I can make it available to the larger team.

00:23:46 The Interviewer

And the participants, just to kind of get a sense of, you know what's happening out there and we can.

00:23:47 The Interviewee

Great.

00:23:51 The Interviewee

Me.

00:23:52 The Interviewer

And we can create relations to.

00:23:54 The Interviewer

What are some of the things that we are experiencing and try to do to fix them.

00:23:58 The Interviewer

So thank you so much for that.

00:24:00 The Interviewer

It was absolute pleasure right from my side interviewing you.

00:24:02 The Interviewer

I think I've got so much out of these sessions, even one or two gems, some some new.

00:24:07 The Interviewer

Uh, topics and elements that came out of it, so thank you very much for that.

00:24:12 The Interviewee

Thanks and.

00:24:13 The Interviewer

Yeah.

00:24:14 The Interviewer

Stay safe and healthy.

00:24:15 The Interviewee

Yeah.

00:24:17 The Interviewee

Thanks, thanks and you too man.

Interview 6:

00:00:02 The Interviewer

Uh xx, for for this interview, I think, uh, firstly, a very good morning.

00:00:09 The Interviewer

Let me just quickly do a quick introduction of myself, an introduction of the session and then we can begin.

00:00:16 The Interviewer

My name is Trish and Marimuthu and as stated in my previous email, I'm a doctoral student.

00:00:22 The Interviewer

Registered at the University of Victoria.

00:00:24 The Interviewer

Currently conducting research in the field of enterprise architecture management.

00:00:28 The Interviewer

Now part of my research actually requires me to interview experts in the field of enterprise architecture as well as senior IT and business managers such as yourself.

00:00:39 The Interviewer

Right now, this research process actually consist of.

00:00:43 The Interviewer

Two different elements.

00:00:44 The Interviewer

The first element you would have seen in my first email or my previous email.

00:00:50 The Interviewer

Which is a link to a question here. Multiple choice if you have taken it already. Thank you very much. If you haven't, please can I ask you just to make some time as it is a crucial part of this research. The second part is this interview. It consists of more or less 910 questions. Shouldn't take us more than about 30.

00:01:12 The Interviewer

35 minutes so we should get through this fairly quickly.

00:01:17 The Interviewer

So once again, thank you very much for accepting this interview, I think.

00:01:20 The Interviewer

Please note that I am recording this conversation, but it's purely from a notetaking perspective so that I can refer back to it.

00:01:27 The Interviewer

Should there be a need right?

00:01:29 The Interviewer

Are you OK for us to continue with this?

00:01:31 The Interviewee

Yeah, yes Sir, we can continue and and just for your information, I did complete the question.

00:01:38 The Interviewee

Yeah, I think it was a few weeks back already.

00:01:41 The Interviewer

Thank you very much for that, that's excellent.

00:01:44 The Interviewer

Alright, so just a very quick acknowledgement of this declaration and then we can begin right?

00:01:50 The Interviewer

So this interview is purely voluntary.

00:01:53 The Interviewer

No compensation has been agreed to complete it.

00:01:56 The Interviewer

The data collected during the session will be used at an aggregated level and used only to identify patterns and in no way be associated to any individual such as yourself, right?

00:02:07 The Interviewer

However, if you feel that you don't want to continue any anymore, you can request to leave as a participant in the research.

00:02:15 The Interviewer

And then all data that was collected will be discarded and so therefore there's there's no obligation once you started with this interview process to continue to the end.

00:02:26 The Interviewer

If you, if you wish to.

00:02:28 The Interviewer

If you don't whistle, but please understand that your insights is valuable to this interview process.

00:02:35 The Interviewer

If you can.

00:02:38 The Interviewer

Just confirm that you are aware of this declaration and OK to to continue.

00:02:42 The Interviewer

Then we can begin.

00:02:44 The Interviewee

Yeah, I confirm and we can continue.

00:02:46 The Interviewee

Thank you.

00:02:47 The Interviewer

Great stuff, I think.

00:02:49 The Interviewer

Before we we goes to the to the questions.

00:02:52 The Interviewer

Are there any questions for me at this stage?

00:02:55 The Interviewer

Any clarity?

00:02:57 The Interviewee

Uh, no, nothing at this stage.

00:03:00 The Interviewer

Perfect, perfect all right.

00:03:01 The Interviewer

So all of these questions are related to the research area, which is enterprise architecture.

00:03:07 The Interviewer

It does have a very business plan on it, so it's not extremely technical.

00:03:13 The Interviewer

Please try to provide me as much details as you can and know that.

00:03:18 The Interviewer

These conversations are strictly confidential.

00:03:20 The Interviewer

All right?

00:03:21 The Interviewer

So let's start off with the kind of a general question.

00:03:25 The Interviewer

I think if you can just provide me with a quick description of your role in the organization and how or what is your involvement with with enterprise architecture.

00:03:36 The Interviewer

If there's any at the moment.

00:03:40 The Interviewee

OK, so.

00:03:43 The Interviewee

My name is xx, I do.

00:03:44 The Interviewee

I'm the senior manager within the data management unit that is housed within the Economic Statistics Department.

00:03:54 The Interviewee

So my key responsibility responsibility is.

00:04:00 The Interviewee

And.

00:04:01 The Interviewee

To ensure that there is proper data management guidelines and principles along the statistical values.

00:04:08 The Interviewee

Along.

00:04:10 The Interviewee

Pain when within the Economics Department, Statistics Department and and that entails various things, right?

00:04:19 The Interviewee

So we look looking at collection.

00:04:23 The Interviewee

The collection of data, the tools or solutions that we would want to use, the frameworks that would be in place.

00:04:31 The Interviewee

At the collection point.

00:04:33 The Interviewee

And the frameworks and methodology that would be used within the process and analyze and then what is the best practice to follow in terms of dissemination?

00:04:45 The Interviewee

So in a nutshell, that that is the role the data management function we can look at.

00:04:52 The Interviewee

The key knowledge areas and that could stem from data quality.

00:05:00 The Interviewee

Reference master data.

00:05:02 The Interviewee

The security reference architecture.

00:05:07 The Interviewee

And.

00:05:08 The Interviewee

So, so all that's within the ambit of data management.

00:05:12 The Interviewee

So I'm also the program owner of the OESD renewal, which is a Tier 1 program within within the bank.

00:05:24 The Interviewee

And so therefore my relationship with enterprise architecture is a very close one.

00:05:30 The Interviewee

And in that I need to sit with the relevant architectures or the and.

00:05:38 The Interviewee

And engage with it to ensure that the blueprint that is provided fits both the Department and the bank.

00:05:51 The Interviewee

So that's my role and link with the enterprise architecture.

00:05:55 The Interviewer

Excellent perfect, thanks for that.

00:05:57 The Interviewer

I think you mentioned quite a few key elements, data management, blueprint frameworks, methodologies.

00:06:06 The Interviewer

In line with that, then, can you then briefly describe to me what you think the level of importance for EA is within your organization?

00:06:17 The Interviewer

Is it something that you depend on quite considerably, or is it something that you could potentially live without?

00:06:27 The Interviewee

So, so I think the importance of EA comes for me.

00:06:31 The Interviewee

The crucial point of EA comes in terms of the capacity and the support we receive from our BST Department, right?

00:06:43 The Interviewee

So, So what do I mean by that, if if?

00:06:47 The Interviewee

The solutions that.

00:06:48 The Interviewee

We

00:06:49 The Interviewee

Uh, undertake or implement within the Department if it's not for me.

00:06:56 The Interviewee

If it's not part of the enterprise stack and it hasn't been given the the stamp of approval from that point of view, then we always had a risk in terms of maintaining and upkeeping these solutions.

00:07:12 The Interviewee

So there's there's never enough resources because it was never an enterprise solution from the start.

00:07:20 The Interviewee

So so for me it has to to fit within the enterprise framework and the rules and regulations an and.

00:07:31 The Interviewee

So, so that's why it's important for me, and that's why I'm I'm always in favor that we go down the enterprise route architecture route and not try and do things in isolation outside of that framework.

00:07:48 The Interviewer

Perfect, that's it.

00:07:49 The Interviewer

Thank you so much.

00:07:50 The Interviewer

So you mentioned in your previous answer, you engage a lot or you like the one of the reasons is that you engage with EA team.

00:08:01 The Interviewer

So the assumption is that there is an EA team in your organization.

00:08:07 The Interviewer

Can you then tell me?

00:08:08 The Interviewer

What is your expectations over and above some of the more common stuff?

00:08:13 The Interviewer

What is your expectation from the A team?

00:08:17 The Interviewee

So, so the my expectation of the EA team is not not to provide us with solutions, but provide us with the landscape of how the environment looks, so they should be providing us with advice of so we as business have a fairly good idea.

00:08:37 The Interviewee

Of the tools we're looking at in terms of what we expect the tool to do, where the tool fits within our value chain.

00:08:46 The Interviewee

What we then asking of enterprise architecture is.

00:08:50 The Interviewee

Does this tool or solution that we're looking for fit within the standards and frameworks of the enterprise?

00:08:58 The Interviewee

What support will we be getting if we go down this route and how does it fit into the bigger landscape?

00:09:05 The Interviewee

Or does is there existing tools that may already exist that we could make use of?

00:09:10 The Interviewee

So, so that's that's the advice and overview we look.

00:09:14 The Interviewee

Or if you re looking for from an enterprise architect.



00:09:16 The Interviewer

Chip

00:09:17 The Interviewer

Excellent, so you know there's there's generally this conversation that you know.

00:09:25 The Interviewer

Enterprise Architects are very technical with that in mind, do you?

00:09:31 The Interviewer

Do you think it's it's difficult to work with, or to communicate with the people in the division?

00:09:37 The Interviewer

Do you find it?

00:09:38 The Interviewee

In the enterprise space.

00:09:40 The Interviewer

Yes.

00:09:42 The Interviewee

Uh.

00:09:44 The Interviewee

The thing is, these two parts right? So if you don't have an idea of enterprise architecture an an, its role and its mandate an if you're not. If you're not in your day to day job involved in IT.

00:10:05 The Interviewee

Uh, lingo and and and the terminology.

00:10:10 The Interviewee

Then it it, yes it can be very technical, so it's for me if if enterprise architecture were to have a.

00:10:17 The Interviewee

General conversation with the broader business team.

00:10:22 The Interviewee

Many of the business team members would get lost in in the discussion.

00:10:28 The Interviewee

So it yes it can be very technical an an and it can be quite foreign.

00:10:34

Yeah.

00:10:37 The Interviewee

The in terms of what is being said and how it's being presented.

00:10:44 The Interviewer

Yeah, so I.

00:10:45 The Interviewer

I guess if they.

00:10:47 The Interviewer

If something like a like a dictionary or some look up table that exists which is easy to to access was available, it could make things slightly more easier so that you don't hold up things.

00:11:02 The Interviewer

And if you really wanted to go back and an, I'll get an understanding of what something is, you could go back to that.

00:11:08 The Interviewer

Day.

00:11:09 The Interviewer

So some sorts.

00:11:12 The Interviewer

So yeah, I agree.

00:11:13 The Interviewer

I think sometimes it gets a little bit technical.

00:11:16 The Interviewer

The assumption is that that knowledge is known by everyone and I think it's a poor assumption to make so so good point you raised there with regards to language and terminology.

00:11:29 The Interviewer

At the moment, do you think that you're getting the value the anticipated value from EA?

00:11:37 The Interviewer

So link back to you know the previous questions of what your expectations are are you are.

00:11:44 The Interviewer

Are those expectations being met or what else can we do to to kind of satisfy your needs?

00:11:51 The Interviewee

So so remember, it's it's one thing buying into the ideology of enterprise architecture and that's in itself is quite a daunting task from the enterprise team to to get by on just to to to sell the value of Y.

00:12:07

Miller

00:12:11 The Interviewee

We need enterprise market.

00:12:12

Sure.

00:12:13 The Interviewee

And any takes it takes quite a lot of effort, right?

00:12:16 The Interviewee

And then you but the problem for me is you do all of that work.

00:12:20 The Interviewee

You get business buying and then when it is time to deliver on that mandate, there is no resources.

00:12:29 The Interviewee

So for me that the biggest stumbling block in in the current environment is.

00:12:34 The Interviewee

The lack day off in the incapacity so so we as business have bought into the idea then we put our hand up and say OK please now can come in and assist.

00:12:45 The Interviewee

We have these several projects on the horizon we we desperately need your advice.

00:12:51 The Interviewee

Ice an the capacity so thinly spread that if and when the resource does come on board, it's it's a very high level wishy washy kind of advice because that person has to jump onto several other projects that he or she may have.

00:13:12 The Interviewee

And so for me day in lies the problem.

00:13:15 The Interviewee

So the confidence that you have built and the buying that you've gotten can quite easily be lost because you don't have the resources to service your clients.

00:13:27 The Interviewer

Yeah, I think that's a very important point.

00:13:32 The Interviewer

Generally, EA is seen as very good at coming up with a plan and the strategy, but if it's not tightly aligned with the solution delivery execution is always an issue, and I think that is one of the most critical parts in the entire EA operating model.

00:13:52 The Interviewer

Is how do we get it to?

00:13:54 The Interviewer

Almost hold hands with the other Department sandplay nice across the enterprise as true to its name enterprise architecture.

00:14:02 The Interviewer

I think that's the that's the one element that is lacking.

00:14:05 The Interviewer

Thank you for that.

00:14:06 The Interviewer

I think that that's actually provide some good insights there.

00:14:12

OK, so.

00:14:14 The Interviewer

At the moment, so we kind of touched on this a little bit, so maybe I should skip this that question and move on to the next one.

00:14:22 The Interviewer

I think for EA architectural planning is is crucial for the organization, right?

00:14:28 The Interviewer

You know, coming up with that like you said that landscape view, but then extending that landscape view?

00:14:34 The Interviewer

To a three year plan and a five year plan.

00:14:38 The Interviewer

Do you think?

00:14:39 The Interviewer

Your inputs are instrumental to that planning, uh?

00:14:45 The Interviewer

Let's call it strategy or session and an how.

00:14:48 The Interviewer

How do you get your inputs into that?

00:14:52 The Interviewer

Planning that that is done by EA?

00:14:56 The Interviewee

So this this two ways, right?

00:14:58 The Interviewee

So the idea is that EA is invited to our departmental strategic plan.

00:15:07 The Interviewee

In in, in that EA should then pick up on on projects that are in the horizon for our specific Department.

00:15:18 The Interviewee

So that's one way of looking at it to say hey guys, this is our plan.

00:15:23 The Interviewee

Please take it into consideration when you're doing the.

00:15:27 The Interviewee

The broader enterprise.

00:15:30 The Interviewee

That's the one and two.

00:15:35 The Interviewee

There is no and and I think this is an important point, so there is no continuous of frequent forum where business is invited for engagement.

00:15:49 The Interviewee

So it's always we knock on the door of enterprise architecture.

00:15:55 The Interviewee

When we want something.

00:15:56 The Interviewee

Yeah, but for me it should be two way communication.

00:16:00 The Interviewee

Enterprise architecture should also have you if you want to call it these town Hall sessions.

00:16:07

Uh huh.

00:16:07 The Interviewee

Why they in stakeholder engagements, it could be a once a quarter.

00:16:13 The Interviewee

If that's too frequent twice a year.

00:16:16 The Interviewee

So every six months to say.

00:16:18 The Interviewee

This is our thinking.

00:16:19 The Interviewee

This is where we at what I, our key stakeholders, points an and and for me that engagement is lacking so we always see enterprise architecture when when we initiate some sort of a project or approach.

00:16:36 The Interviewee

Graham, but it's never the other way around.

00:16:42 The Interviewer

Absolutely.

00:16:43 The Interviewer

I think some some good points there.

00:16:47 The Interviewer

If I could then paraphrase that.

00:16:52 The Interviewer

Some things or elements that is missing in in the current EA practices a constant Rd shows some sort of marketing strategy that just identifies what are the services that exist.

00:17:09 The Interviewer

Uh, with EA so that it's known and that you guys can make use of those services as and when it's needed.

00:17:16 The Interviewer

I'm not sure if you have a view into some of the services that EA provides at the moment within the organization.

00:17:24 The Interviewee

So, so I mean, it's it's.

00:17:27 The Interviewee

It's a very.

00:17:27 The Interviewee

It's a very.

00:17:28

So.

00:17:31 The Interviewee

So so, given the fact that I've been involved in a lot of projects and programs, I understand the role that they should be playing.

00:17:39 The Interviewee

The question then is are they doing aligning to those roles so we know that.

00:17:48 The Interviewee

Uh.

00:17:50 The Interviewee

That that that is sometimes EA is bypassed because of the slow reaction that we get from enterprise architecture.

00:18:01 The Interviewee

And I suppose these two things the the fact that people feel that it's a very slow wheel that turns an and we can do things quicker.

00:18:13 The Interviewee

An added that could be an issue from the enterprise architecture side in and I've mentioned this already, could be the lack of resources there in.

00:18:22 The Interviewee

All enterprise architecture doesn't have that blueprint yet.

00:18:27 The Interviewee

So when business does come to them, there is no clear plan that they can put in a table and say there's our vision.

00:18:35 The Interviewee

There's our three year plan and if you want to embark on such a program, this is where you would fit in.

00:18:44 The Interviewee

So for me, that's you know that's missing at this moment, so there's a lot of.

00:18:49 The Interviewee

A loose over.

00:18:52 The Interviewee

There's a lot of balls in the air, but without any concrete basket that shows where all of these balls when they do fall in which basket they would fall into.

00:19:07 The Interviewer

Alright, perfect yeah, I think I get that.

00:19:14 The Interviewer

There's there's just so much happening at moments that it's easy to kind of lose track of what the end goal is and deviate into something else, and you end up just following this part of getting involved with everything, but almost delivering.

00:19:33 The Interviewer

Nothing type of thing and you're always on the back foot because of.

00:19:36 The Interviewer

But

00:19:37 The Interviewer

So yeah, I think I can relate to that.

00:19:41 The Interviewer

Yeah.

00:19:41 The Interviewee

I think another important point it attrition is that.

00:19:46 The Interviewee

Because of the loosely defined plan that may or may not exist within a year, if a major Tier 1 program comes on board with substantial capital expenditure attached to it.

00:20:04 The Interviewee

My view is that.

00:20:07 The Interviewee

That program can.

00:20:10 The Interviewee

Then influence enterprise architectures thinking.

00:20:14 The Interviewee

And for me that shouldn't be the case.

00:20:17 The Interviewee

If EA has a well defined plan three to five year strategy, no major program that comes on board should, should you know?

00:20:28 The Interviewee

You guys are always refer to enterprise architecture as being town planning.

00:20:35 The Interviewee

How then, can a major development or newer state on the block change the entire pipes and electricity grid data state should fit into the current map, but I get a feeling that when a major program does come on board, it tends to sway the entire architecture.

00:20:58 The Interviewee

Be cause of the lack of a defiant strategy.

00:21:02 The Interviewer

Absolutely, and I think your analogy hit the nail on the head.

00:21:07 The Interviewer

We we often iase refer to town planning and city planning.

00:21:12 The Interviewer

Yeah, and that shouldn't be the case when you when a big project comes on, we shouldn't be moving.

00:21:19 The Interviewer

You know the plumbing, sewer systems and.

00:21:22 The Interviewer

Unless I mean at times it does happen.

00:21:25 The Interviewer

Be the exception and not the norm.

00:21:27 The Interviewer

So definitely agree with that, right?

00:21:32 The Interviewer

So bring us to the end just the last question.

00:21:35 The Interviewer

I think we we kind of focused a lot on some of the negatives of EA, which is which was my intention because I think it's crucial to understand what we're not doing right in order for us to correct it.

00:21:48 The Interviewer

But it's equally important to understand what we're doing, right?

00:21:51 The Interviewer

So that you know that you can continue doing it.

00:21:53 The Interviewer

So what would be your top one or two things that you think that is doing right?

00:21:59 The Interviewee

So for for me and at the top of the list, what year is doing right is to streamline and consolidate the the the solutions that type of solutions.

00:22:16 The Interviewee

To cater for a wider range of business needs, and I think that's important.

00:22:26 The Interviewee

Secondly,

00:22:28 The Interviewee

What we?

00:22:30 The Interviewee

I suppose what what they do then bring to the party is this view of.

00:22:38 The Interviewee

Where you fit in in the bigger picture and why it's important to see where you fit in.

00:22:45 The Interviewee

So so business understands the priority, their priority in the bigger picture and so.

00:22:58 The Interviewee

We we know then how we can plan and what we should be planning towards.

00:23:05 The Interviewer

Perfect.

00:23:07 The Interviewer

Alright, xx, thank you so much for your time.

00:23:10 The Interviewer

That actually brings us to the end.

00:23:13 The Interviewer

I think I must say I have.

00:23:15 The Interviewer

I've picked up so many crucial bits of pieces of information that is that ties in very nicely with some of the literature and case studies that was done previously.

00:23:24 The Interviewer

So thank you very much for that.

00:23:26 The Interviewer

Actually look forward to analyzing this data.

00:23:29 The Interviewer

I think before we close out, do you have any further questions for me?

00:23:34 The Interviewee

Uh.

00:23:35 The Interviewee

Not really, but but the the input that you now gather from these interviews are you going to make a recommendation eventually when your studies are done to the enterprise architecture team within the bank?

00:23:49 The Interviewee

Or is it independent?

00:23:51 The Interviewer

So the information will be shared with all parties that is interested.

00:23:58 The Interviewer

The aid Department within the bank has communicated or expressed interest in the results.

00:24:07 The Interviewer

The result is based on.

00:24:09

A.

00:24:10 The Interviewer

Development of a framework which then identifies what should be some of the softer, more crucial elements over and above what theory tells us about frameworks and methodologies and artifacts.

00:24:24 The Interviewer

So some of the softer side you know like culture and you kind of alluded to some of them in your questions you mentioned role of EA.

00:24:32 The Interviewer

A mandate comes up quite quite often in these in these sessions.

00:24:40 The Interviewer

Poor execution, so these are the elements that we need to focus on in order to make the practice of EA successful, and I think that's been lacking previously because we are almost under the impression that it will grow and mature on its own with time.

00:24:57 The Interviewer

But we've seen from past case studies that.

00:25:00 The Interviewer

That's not the case, so this is all.

00:25:03 The Interviewer

All in the slide of trying to create a framework that will help the any organization mature.

00:25:10 The Interviewer

The EA and the sub would be one of the guys that were interested, so will will obviously make that that knowledge.

00:25:17 The Interviewer

Yeah.

00:25:18 The Interviewer

And to be quite honest, it's going to be tested within the Department itself as well, so they will get full full leverage of the knowledge that comes out and the insights that comes out of this.

00:25:31 The Interviewee

OK, no thank you.

00:25:33 The Interviewee

I guess I don't have any further questions.

00:25:36 The Interviewer

Perfect then thank you so much for your time.

00:25:39 The Interviewer

I think stay safe and help.

00:25:43 The Interviewer

Healthy and it was absolute pleasure interviewing you.

00:25:48 The Interviewee

Thanks fission and then good luck with the completion of this.

00:25:52

Research.

00:25:53 The Interviewer

Thank you very much.

Interview 7:

00:00:05 The Interviewer

Yeah, OK, so so good afternoon xx.

00:00:09 The Interviewer

I think firstly let me just take this opportunity to quickly introduce myself as stated in my previous email.

00:00:16 The Interviewer

I am a doctoral student registered at the University of Victoria, currently conducting.

00:00:22 The Interviewer

Research in the field of enterprise architecture management.

00:00:26 The Interviewer

Part of my research requires me to interview experts in the field of enterprise architecture as well as senior ITN business managers such as yourself, right and so this process research process rather consists of two elements.

00:00:39 The Interviewer

The first one is a multiple choice questionnaire which was sent out in.

00:00:45 The Interviewer

The origin.

00:00:46 The Interviewer

So meeting requests.

00:00:48 The Interviewer

I hope you had a chance to to fill that in.

00:00:52 The Interviewer

If you haven't, please try and just dedicate some time.

00:00:56 The Interviewer

It is a pretty crucial part of the of the research as well.

00:01:00 The Interviewer

The second part obviously is this interview.

00:01:03 The Interviewer

It consists of more or less 9 or 10 questions.

00:01:06 The Interviewer

It shouldn't take us.

00:01:08 The Interviewer

More than 35 minutes to complete, OK?

00:01:11 The Interviewee

OK, so should I just want to note that I did fill in the questionnaire so hopefully you did receive it.

00:01:16 The Interviewee

I'm not sure if you can check in some way, but if you haven't, just let me know please.

00:01:21 The Interviewer

No, no, it's great.

00:01:22 The Interviewer

If you done it, it's perfect.

00:01:24 The Interviewer

It's totally anonymous.

00:01:25 The Interviewer

I wouldn't know whether you did it.

00:01:26 The Interviewee

Huh, yeah I did complete it.

00:01:26 The Interviewer

Or not or not?

00:01:28 The Interviewee

OK, OK?

00:01:30 The Interviewer

Excellent, OK, so thank you very much for accepting this interview, I think.

00:01:30 The Interviewer

Excellent.

00:01:34 The Interviewer

Please note that I am recording the conversation, it's purely from a perspective or that I can go back to the nodes.

00:01:42 The Interviewer

Should there be a need.

00:01:43 The Interviewer

Are you OK for us to continue?

00:01:45 The Interviewee

Yes my sexy.

00:01:47 The Interviewer

Great stuff OK.

00:01:49 The Interviewer

And then Lastly, just if you can, if we can go to through this acknowledgement, I'm just going to read a quick declaration and if you can acknowledge that you are way off this then we can proceed OK.

00:02:00 The Interviewer

So this interview?

00:02:02 The Interviewer

Is voluntary and no compensation has been agreed to complete it.

00:02:06 The Interviewer

The data collected during the session.

00:02:08 The Interviewer

Will be used at an aggregated.

00:02:10 The Interviewer

Devils used only to identify patterns, and in no way will be associated to any individual such as yourself, right?

00:02:18 The Interviewer

However, if at any time you feel that you don't want to continue, you can request to leave as a participant in research and any or all data collected during this session will be discarded and therefore there is no obligation to continue.

00:02:32 The Interviewer

Once you've started.

00:02:34 The Interviewer

But Please remember, your input is really valuable and I would appreciate it if we could go to it's completion right.

00:02:42 The Interviewer

If you can acknowledge that you're aware of this.

00:02:44 The Interviewee

Yes, acknowledge and I'm happy.

00:02:47 The Interviewee

I agree to to all the terms, I'm happy.

00:02:49 The Interviewer

OK great great great great.

00:02:51 The Interviewer

Is there any questions that you have for me before we started the.

00:02:56 The Interviewee

Nuts

00:02:56

Hello.

00:02:57 The Interviewee

I just want to make a note to say that obviously from a business perspective I would be able to provide inputs, but I'm a bit nervous about the technical questions, so hopefully I'll be able to add value to the process and the interview so where it becomes a bit technical and just let you know that obviously it's not in my field of expertise but from a business perspective, I will be able to.

00:03:19

This.

00:03:20 The Interviewer

Absolutely, so there's no pressure for you to answer any question.

00:03:23 The Interviewer

I think whatever.

00:03:26 The Interviewer

Input you can provide will be valuable.

00:03:28 The Interviewer

I do understand that not all questions can be answered, and that's perfectly fine also, right?

00:03:35 The Interviewer

Right, so so these questions are all related to the research area, which is enterprise architecture.

00:03:41 The Interviewer

Like you said I, I know that they certain elements that you wouldn't be able to answer, but I tried to make it.

00:03:47 The Interviewer

As business related as I can so so please try and provide as much detail as you can and know that this conversation is strictly confidential, right, perfect?

00:03:59 The Interviewer

Excellent, so let's start off with something a little bit general if you can briefly give me an understanding of how or what is your involvement in EA within the organizer.

00:04:12 The Interviewer

Question.

00:04:14 The Interviewee

Well from business side I'm a senior economist, so that's quite a senior level in our operational environment and we are involved in various projects usually.

00:04:26 The Interviewee

Usually it's PhD Project, ICT projects and as the subject matter expert, I'm usually involved in these projects so.

00:04:36 The Interviewee

Like usually served on the the project teams also on the committees or working groups etc.

00:04:44 The Interviewee

Where you know these types of topics are discussed.

00:04:48 The Interviewee

So that's basically my involvement.

00:04:50 The Interviewer

Perfect, perfect, and can you tell me in your view, what is the level of importance of enterprise architecture within the organization?

00:05:01 The Interviewer

And this is purely from your understanding it.

00:05:03 The Interviewer

It doesn't need to correspond to any framework or methodologies that exist out there.

00:05:09 The Interviewer

It's just trying to figure out.

00:05:11 The Interviewer

If there is an important.

00:05:14 The Interviewer

Or is it something that can that we can live without?

00:05:17 The Interviewee

No, I think it's definitely important, and I think we've been able to see the change because the focus hasn't been in the bank specifically.

00:05:25 The Interviewee

The focus hasn't been on an ETF, you know, in the boss and things were done quite haphazardly where I think we are starting to see that change with this.

00:05:38 The Interviewee

Renewed focus or or you know, starting to focus on EA.

00:05:43 The Interviewee

So for me it's kind of bringing everything together, making sure that you get fit for purpose solutions, ensuring that standardization and alignment.

00:05:52 The Interviewee

So I think it's quite crucial and I think you can actually see that in the bank with some of the.

00:05:59 The Interviewee

Problems and challenges that we are experiencing current.

00:06:02 The Interviewee

The the reason why you need that, because I think if we started to focus on this and implemented a bit earlier, we probably wouldn't be at this juncture.

00:06:12 The Interviewee

But I also understand that it takes some time to reach a level of maturity, you know, to implement and to to set up the structures, etc to get the expertise so.

00:06:24 The Interviewee

Yeah, I'm not sure if that helps you attrition.

00:06:26 The Interviewer

Absolutely now.

00:06:27 The Interviewer

I mean you're doing great.

00:06:28 The Interviewer

I think you mentioned so many things that are seen as key elements.

00:06:35 The Interviewer

In EA, but is not in any of the frameworks or methodologies.

00:06:40 The Interviewer

You know you mentioned fit for purpose.

00:06:42 The Interviewer

That's a key thing.

00:06:44 The Interviewer

You know.

00:06:45 The Interviewer

Focus on on implementing strategic projects.

00:06:50 The Interviewer

That's also something that you know we almost take for granted and and these are the roles that key roles of years so that.

00:06:58 The Interviewer

Great so I like the answers that you gave him.

00:07:02 The Interviewer

We're gonna come back to some of them.

00:07:03 The Interviewer

In any event, in some of the.

00:07:04 The Interviewer

Subsequent questions OK now.

00:07:06 The Interviewer

So if I can ask.

00:07:07 The Interviewee

I mean generation.

00:07:08 The Interviewee

Also a big component of that is also the documentation.

00:07:11 The Interviewee

Obviously that goes with that hand in hand with that.

00:07:14 The Interviewee

Because that's also something that's lacking is, you know, documenting the processes, the structures, the you know any documents.

00:07:24 The Interviewee

Because whenever we want to refer back to something that was done years ago, there is no existence of that or nothing to fall back on.

00:07:33 The Interviewee

So I think documentation in this whole process also plays.

00:07:36 The Interviewee

An important role.

00:07:37

No.

00:07:38 The Interviewer

Absolutely, absolutely critical. I agree with that. So within your organizations, who are your stakeholders when it comes to EM? So, So what? I'm trying to get at is, is there any a division in your organization an? What is the expectation of that division?

00:08:00 The Interviewee

Yes, there is, uh, I know that we meet some of the I don't think the marketing of the division or if it's a Department or obviously I meet the role players at meetings, project meetings or at working groups, etc.

00:08:17 The Interviewee

We haven't been formally introduced to say or there hasn't been like, you know.

00:08:21 The Interviewee

And no, just going out or.

00:08:23 The Interviewee

Circular or something to say this is the EA team or this is where they are housed.

00:08:29 The Interviewee

These are the different role players I think from my experience we get to meet the team members you know as you engage on certain projects or working groups or or and you know obviously then people would explain.

00:08:45 The Interviewee

Do they all what their roles are, etc.

00:08:48 The Interviewee

But it would actually be nice too.

00:08:50 The Interviewee

I'm not even sure on the Internet or somewhere if there is a place that kind of explains it a bit better to to show the overall structure.

00:08:59 The Interviewee

There are key the the roles, the.

00:09:02 The Interviewee

The objectives and you know that would be good, some to formalize it a bit.

00:09:09 The Interviewer

Great, so exactly so.

00:09:14 The Interviewer

It's it's.

00:09:14 The Interviewer

It's funny that when you have these conversations with the different people within the organization and I had a few already would with it and the answers that you get.

00:09:26 The Interviewer

It's so different, but they all speak to the same thing and I like that because it it it.

00:09:33 The Interviewer

It creates some sort of synergy and some sort of insights to follow in terms of what we need to correct and collaboration.

00:09:40 The Interviewer

Communication is a key element that is missing in EA and I agree with that.

00:09:47 The Interviewee

My statement the way that you communicate, you know?

00:09:47 The Interviewee

All right?

00:09:49 The Interviewee

I mean, maybe marketing.

00:09:50 The Interviewee

I think we we don't market enough.

00:09:53 The Interviewee

We don't that visibility or you know.

00:09:55 The Interviewee

Explaining and giving that background that helps people to understand roles and responsibilities and.

00:10:03 The Interviewee

I think that's it.

00:10:03 The Interviewer

Yeah, and just some of the services that is offered from them so that if if ever there's a need, you know that you can contact that team.

00:10:06 The Interviewer

Thank you.

00:10:12 The Interviewee

Exactly exactly like with financial services.

00:10:13 The Interviewer

For that service, yeah, absolutely.

00:10:16 The Interviewee

If you have a query on your mortgage loan or whatever, you can go and finance, you'll get there.

00:10:21 The Interviewee

These are the people working with this.

00:10:23 The Interviewee

This is what they do, so that's why I'm saying maybe somewhere I'm not sure if it is on the on the our Internet or it would be good.

00:10:31 The Interviewee

If there's a place that actually explains that a bit better.

00:10:35 The Interviewer

Cool, so yeah, so let's let's have on on communication for a bit right?

00:10:40 The Interviewer

Do you find it difficult to work or communicate with the EA division or people in specific an any reasons why you think that's the case?

00:10:52 The Interviewee

Not the EA people that I have dealt with specifically are actually.

00:10:59 The Interviewee

Like communicating with them because they bring in new ideas, new ways of thinking.

00:11:03 The Interviewee

You know.

00:11:04 The Interviewee

So unlike that enlightened way of you know, catching up and being in the 20th century so.

00:11:10

And.

00:11:16 The Interviewee

Obviously they are different personalities.

00:11:17 The Interviewee

It's a trap, but I personally have been fun in communicating with the EA team.

00:11:24 The Interviewee

Sometimes it's a bit unclear in terms of the roles, and you know who you should talk to in terms of who reports to or who you know that structure.

00:11:34 The Interviewee

Yeah.

00:11:35 The Interviewee

But overall, no I I I haven't experienced any problems.

00:11:40 The Interviewer

Yeah, I think that that last point actually relates to the previous point that you made around roles and services.

00:11:47 The Interviewer

Maybe the understanding the operating model within the division itself, so I think that's key.

00:11:51 The Interviewer

Yeah, and typically yeah.

00:11:56 The Interviewer

I wanna say technical people because technical you mainly find technical people in the A-Team. They've a little bit harder to to communicate with because of their set way of thinking. So it's it's nice that you feel comfortable that you can have these conversations, or at least maybe the people in the team.

00:12:17 The Interviewer

Communicating in a way that is, uh.

00:12:20 The Interviewer

A lot more easier to.

00:12:21 The Interviewee

Not necessarily attrition.

00:12:23 The Interviewee

It maybe also depends on you know who you are interviewing.

00:12:26 The Interviewee

Because I'm the type of person, if I feel that it's too technical, I don't understand, I will make it clear and I would ask for clarification.

00:12:35 The Interviewee

And whereas some people may not feel comfortable to do that and will just sit through probably a meeting without.

00:12:42 The Interviewee

Maybe understanding exactly what was discussed so that could also, you know, have an an impact.

00:12:49 The Interviewer

Absolutely right now.

00:12:52 The Interviewer

Yeah, I think it sounds like also you you have a technical thinking in nature so so that two types of individuals then joins very nicely together.

00:13:04 The Interviewee

Yeah.

00:13:04 The Interviewer

So I I do agree with that, right?

00:13:08 The Interviewer

So do you do?

00:13:09 The Interviewer

Do you believe that business has given an bad business?

00:13:12 The Interviewer

Someone I'm referring to you now and you kind of alluded to it in any event.

00:13:17 The Interviewer

But let's just go through the question.

00:13:19 The Interviewer

In any event, do you believe that business has given EA the support that it's required?

00:13:25 The Interviewee

Yes, I really hope so.

00:13:26 The Interviewee

I think especially from our unit specifically.

00:13:29 The Interviewee

I think money and banking.

00:13:30 The Interviewee

Our unit is very involved with very active, very proactive.

00:13:34 The Interviewee

So I think we kind of, you know we drive.

00:13:38 The Interviewee

We ask we if I just think of some of the projects that's ongoing at this stage it's due to the fact that we strive to find that fit for purpose solutions.

00:13:48 The Interviewee

And sometimes we will make enough noise too, and but also in the process.

00:13:53 The Interviewee

Whenever we have to engage and we have to put dissipated and obviously it's sometimes it's difficult to strike a balance between operational activities that you're involved.

00:14:02 The Interviewee

Then and still providing, you know, the necessary inputs and requirements if you're working, for example on a project.

00:14:11 The Interviewee

But I think we might for my team specifically, I feel quite comfortable with the support that we have provided to them.

00:14:22 The Interviewer

Yeah.

00:14:22 The Interviewer

That's great.

00:14:23 The Interviewer

I mean, I think that's one of the elements that actually results in it.

00:14:29 The Interviewer

Let me just say the death of it is when they don't have the full commitment from the Business School.

00:14:35 The Interviewer

Business is the first leg of it, and so it's great that that you're providing that that support to them.

00:14:42 The Interviewer

Uhm?

00:14:42 The Interviewee

Exactly, and I think Trish and it's also, I think sometimes to be realistic from business side you have to two way Street.

00:14:51 The Interviewee

You know you have to meet each other halfway to ensure that the product at the end of the day is of the highest quality.

00:14:56 The Interviewee

So and for that you need commitment from both sides so.

00:15:01 The Interviewer

Is it?

00:15:01 The Interviewer

It's absolutely refreshing hearing that.

00:15:06 The Interviewer

But you're absolutely right.

00:15:08 The Interviewer

Yeah so.

00:15:11 The Interviewer

I think with that support and and from what it sounds like, it's it sounds like you you're getting some sort of value, uh, from EA at the moment.

00:15:24 The Interviewer

What do you think?

00:15:27 The Interviewer

EA can do to provide that little bit extra to to get them to be more successful.

00:15:36 The Interviewee

I think at this moment there's a lot of things happening and different things happening, and you know in this changing environment I wouldn't say standardization or alignment or or maybe just explaining the bigger picture with the direction you know the border.

00:15:56 The Interviewee

Direction the strategic view.

00:15:58 The Interviewee

It's a dresser that you know when you're looking or focusing on one specific thing where it fits into the broader picture.

00:16:04 The Interviewee

Yeah, I think that can definitely be helpful, and as I said, also you know just explaining the the structures and the setup of the unit.

00:16:14 The Interviewee

What is it cool?

00:16:15 The Interviewee

Is that the unit is a Department?

00:16:17 The Interviewee

What is it called trischen?

00:16:24 The Interviewer

So it's normally a Department, right?

00:16:27 The Interviewee

At Department, OK, the unit, but you know, getting clarity on on that Department what the structure looks like, what.

00:16:34 The Interviewee

What also maybe just making it clear what the expectations are, because obviously we're a bit mibiz my team.

00:16:44 The Interviewee

You know, we kind of push it to the agent, will ask and will ask many questions, but it would be good to know what all the services.

00:16:52 The Interviewee

What can we?

00:16:55 The Interviewee

What type of assistance can we obtain from EAM?

00:16:59 The Interviewee

Perhaps there are some services that's available that we're not even aware of, because you know, it's not been visible, so that would be our recommendation.

00:17:09 The Interviewer

Yeah.

00:17:09 The Interviewer

It goes back to your.

00:17:11 The Interviewer

Yeah, I think it goes.

00:17:12 The Interviewee

Days.

00:17:13 The Interviewer

Back to your your comment about marketing.

00:17:15 The Interviewer

I think the.

00:17:16 The Interviewee

Most definitely.

00:17:17 The Interviewer

It would definitely.

00:17:18 The Interviewer

It's a key part of its success, so yeah.

00:17:22 The Interviewee

And then just I just wanna ask.

00:17:24 The Interviewee

I'm not sure but also I think something that's important in such an environment.

00:17:25

It.

00:17:29 The Interviewee

And I know this is Def.

00:17:30 The Interviewee

Pickle is regular turnover or changes in install thing and that for me I think from a business side that is a big issue because you just start, you get to work with someone you you know you build up a relationship and then somebody changes position or they leave or.

00:17:51 The Interviewee

I'm not sure there was a stage where the bank focus on contract workers etc, but I think for for this specific function you need that continuity that you know.

00:18:02 The Interviewee

Because it can.

00:18:03 The Interviewer

Absolutely.

00:18:04 The Interviewee

Yeah, it can cause a lot of issues if you have to stop, go start all over again.

00:18:10 The Interviewee

So yeah.

00:18:12 The Interviewer

And is that IP that that the guy builds up during that time and it's just, you know, not all departments, areas function the same, and sometimes there's a learning curve in understanding how the Department operates in to restart that every single time?

00:18:26 The Interviewee

Exactly.

00:18:29 The Interviewer

Yeah, definitely.

00:18:29 The Interviewee

Not not definitely.

00:18:31 The Interviewee

So yeah, that would be a suggestion.

00:18:35 The Interviewer

OK, alright and and and so we we know that obviously business input into architectural planning is a crucial element, right?

00:18:46 The Interviewer

Are you aware of or are there any mechanisms in place that allows you to input to provide some level of?

00:18:55 The Interviewer

Input into the architectural planning?

00:18:57 The Interviewer

Or are you aware of any, uh, let's say?

00:19:03 The Interviewer

Forums that does that would allow you to do that.

00:19:07 The Interviewee

No, not like stay, you know.

00:19:09 The Interviewee

Obviously we have discussions and we've got meetings and we'll.

00:19:13 The Interviewee

I think sometimes it can get technical.

00:19:17 The Interviewee

So I I suppose there should be different levels of involvement when you involve business because you also don't want to be involved in, for example, in a platform where there will be lots of technical discussions and you will be lost, but there should be, I think, level.

00:19:33 The Interviewee

Which you know where business comes together to provide those inputs, so I know obviously there's meetings etc, but I don't think there's a standard even I was thinking of software.

00:19:45 The Interviewee

Maybe there could be some type of software or things that can be used to do that, but I'm not aware of the the use of that or the existence of.

00:19:55 The Interviewee

But

00:19:56 The Interviewer

OK, so so are they not any stretch sessions that happens within business with involvement of EA.

00:20:07 The Interviewee

They do it.

00:20:08 The Interviewee

Didn't, for example, we just had a strategic planning session.

00:20:13 The Interviewee

They do attend, but it's not an active involvement, it's not.

00:20:16 The Interviewee

Like is a dedicated time slot or you know.

00:20:21 The Interviewee

Obviously we discuss some of the projects etc, but not specifically focusing on that function and it's you know, in impact or or objectives or strategies for the new year etc.

00:20:31 The Interviewer

Yeah.

00:20:37 The Interviewee

They do it.

00:20:38 The Interviewee

There are involved in that regard, but not actively involved.

00:20:43 The Interviewer

OK, alright and so in your view, what do you think?

00:20:49 The Interviewer

Is that the top one or two things that he is doing right?

00:20:52 The Interviewer

'cause a lot of the focus is on the challenges, but it's also important to leverage of what we're doing, right?

00:20:59 The Interviewer

So that we can continue doing that Dragons.

00:21:03 The Interviewer

So what would?

00:21:04 The Interviewer

In, in your view, be the the top one or two things that you believe that EA is doing right.

00:21:10 The Interviewee

Well, I think the the thought process that we follow that sometimes frustrates and annoys business.

00:21:19 The Interviewee

I think because if you do, there's very.

00:21:24 The Interviewee

And sometimes it can be.

00:21:25 The Interviewee

Not sure if it's a pro or con, but they're very strict procedures and process is in place and all of them are in place for a specific reason because.

00:21:34 The Interviewee

It it brings you to that end result that you you know have to follow and if that is standardized you can actually apply it for any project or any you know anything that you're working on.

00:21:46 The Interviewee

So I think the introduction of that which is also brought in things like documentation etc.

00:21:52 The Interviewee

And then also this it feels for me.

00:21:55 The Interviewee

It's a bit more to more modernized, view and focus.

00:22:00 The Interviewee

You know, thinking not just thinking.

00:22:04 The Interviewee

How can I say it's not that Silo thinking it's a more border thinking it's it's, you know, hard yes enterprise wide so for for me that's that's quite important.

00:22:11 The Interviewer

Express line.

00:22:17 The Interviewee

And also what I can see is, you know, for example with this enterprise view is being able to leverage from from things that other departments for example are doing and.

00:22:27 The Interviewee

Also knowing about that.

00:22:30 The Interviewee

So now these loves that yeah is doing right.

00:22:32 The Interviewee

Most definitely.

00:22:34 The Interviewer

Excellent thanks, thanks for that and then Lastly I think to end it off in a positive note.

00:22:41 The Interviewer

So what do you think that you could do in addition to support EA?

00:22:48 The Interviewer

And its success.

00:22:51 The Interviewee

Well, yeah, that's an interesting question.

00:22:54 The Interviewee

Obviously I'll always continue to provide the the input from business from a business perspective, but maybe if EA could also make it clear you know their expectations from.

00:23:07 The Interviewee

From business or from from stakeholders if they can actually indicate what would help them and assist them in in their goals and objectives, then obviously I would be willing to say listen.

00:23:21 The Interviewee

But if I if you need that and I can do that, I would be willing to contribute and commit.

00:23:25 The Interviewee

And so from my side.

00:23:28 The Interviewee

It's commitment, it's, you know, working together, collaborating, being open.

00:23:33 The Interviewee

Mind, that being, you know, yeah, not sure if that helps.

00:23:38 The Interviewer

Yes.

00:23:39 The Interviewer

Now perfect, I'm just scribbling as your eye as you're talking.

00:23:43 The Interviewer

You're saying the some of the key things that I think are quite important, and they're recording.

00:23:49 The Interviewee

Being open to change also because you know sometimes people can be stubborn and an change is not easy.

00:23:55 The Interviewer

My pass.

00:23:56 The Interviewee

So I think being open to that change and willing to embrace it and work together as a team, I think that's what you as business can do to assist you.

00:24:08 The Interviewer

Absolutely open to change.

00:24:09 The Interviewer

That's a key one that I haven't haven't heard of before.

00:24:12 The Interviewer

So important one, alright?

00:24:14 The Interviewee

And also I do think your business expertise you know our subject matter expertise, because some of us like myself up in the bank for how many training seven years or something 20 plus years.

00:24:25 The Interviewee

I mean using those expertise to bringing that.

00:24:29 The Interviewee

That's why I'm saying this is really a partnership.

00:24:31 The Interviewee

If you bring those expertise.

00:24:34 The Interviewee

You bring the EA team together.

00:24:36 The Interviewee

I mean you know you can really deliver excellent product and and come up with great initiatives.

00:24:42 The Interviewee

If you put those two together, but you know, then bodies need to be committed because sometimes business can.

00:24:48 The Interviewee

Also, you know being in the bank for so many years you know things you there's that as you say that I'd be also from business site an I think if you bring that.

00:24:58 The Interviewee

To the party and you're willing to contribute positively and proactively that that can also assist EA.

00:25:07 The Interviewer

Yeah, that that's I think that's the main ingredient.

00:25:10 The Interviewer

I mean, without that the EA won't one exists.

00:25:14 The Interviewee

In fact.

00:25:14 The Interviewer

And yeah, we we need to take all of these things into consideration.

00:25:19 The Interviewer

Yeah, definitely.

00:25:20 The Interviewee

I think it's that view.

00:25:22 The Interviewee

It's not, you know.

00:25:22 The Interviewee

Sometimes I think business can just sit back and think, OK, but this is ECS responsibility, they should.

00:25:28 The Interviewee

But that's it it.

00:25:29 The Interviewee

This is a partnership and I think it should be promoted as that you know of borders.

00:25:35 The Interviewer

Yeah, so a very very big part of enterprise architecture is business architecture and that's the business related capabilities and we we don't generally have a big competency in that in that area in organization, so it's a very key part to build up because it leads into everything else.

00:25:58 The Interviewee

Exactly exactly.

00:26:03 The Interviewer

Right, thank you so much for your.

00:26:05 The Interviewer

Time, xx.

00:26:06 The Interviewer

I think this brings us to the end of the interview.

00:26:09 The Interviewer

Definitely look forward to an amazing the data for for Insights thing before we close.

00:26:15 The Interviewer

Do you have any other questions for me?

00:26:17 The Interviewee

No, just thank you for being able to participate and good luck with the rest of the process, stration.

00:26:18 The Interviewee

Thank you for.

00:26:23 The Interviewer

No, absolutely thank you for your time.

00:26:26 The Interviewer

It was an absolute pleasure interviewing you for pleasure.

Interview 8:

00:00:02 The Interviewer

Mr xx, I think let me first introduce myself. My name is Trish and Marima too. And as as I stated in my previous email, I'm a doctored student registered at the University of Pretoria, currently conducting research in the field of enterprise architecture management.

00:00:21 The Interviewer

My research actually requires me to to interview experts in the field of enterprise architecture as well as senior it and business managers such as this often. So this research process.

00:00:34 The Interviewer

Actually consists of 2 elements. The first elements you would have seen in my initial email, a link with the question year that contains multiple choice questions.

00:00:47 The Interviewer

To be pulled out.

00:00:49 The Interviewer

If you have pulled it out, thank you very much. If you haven't, please try and fill it out as it's also quite a key part of the research process. And of course the second part is this interview. It consists about 9 or 10 questions, so it won't take us more than 3035 minutes to to complete.

00:01:10 The Interviewer

Right, so thank you very much for accepting this interview, I think. Please note that I am recording the conversation, but this is purely from a note note taking perspective so that I can go back and refer to it if there's a need. I okay for us to continue.

00:01:25 The Interviewee

You should rest.

00:01:27 The Interviewer

Excellent. Okay so I'm gonna read out the declaration quickly if you at the end can just acknowledge that you are aware of it and then we can get straight to the questions right? So this interview is voluntary and no compensation has been agreed to complete it. The data collected during this session will be used at an aggregated level.

00:01:49 The Interviewer

Used only to identify patterns and in no way associated to any individuals, such as yourself. However, if at anytime you feel that you don't want to continue, you can request to leave it as a participant. An any data collected during this session will be discarded and therefore there is no obligation for you to continue to the end once you started. But Please note that your data is critical and extremely valuable to the process, so I would.

00:02:18 The Interviewer

Employ you to try and and see it through to the end. If you can just acknowledge that that you weren.

00:02:25 The Interviewer

We can be in it.

00:02:25 The Interviewee

Nope.

00:02:27 The Interviewer

Great stuff. Do you have any questions for me xx before we continue?

00:02:32 The Interviewee

I just want to ask now the questions, is it going to be focused on on the soar past as as an organisation you preferred to that you don't link it to the person with whom you have the interview, but we also need to be cognizant that that we both within a specific institution.

00:02:55 The Interviewee

And I don't know whether you interview stretch across other institutions also, so we just need to be mindful of.

00:03:04 The Interviewee

Of institutional information.

00:03:07 The Interviewer

Absolutely. So it is focused on this organisation as a case study. You don't need to refer to the organization at any point in the organ. In the interview we can make reference to it as financial institutes. I am bound by a contract set out by the organization.

00:03:31 The Interviewer

And yeah, I have to comply to that. So in by know means with this come out in in the exercise or in the data would be making reference to either the Department or the organisations. I will simply refer to it as financial services or Institute.

00:03:48 The Interviewee

Okay, thank you.

00:03:50 The Interviewer

Alright, so um.

00:03:53 The Interviewer

As you would have picked up already, this is a an interview based on enterprise architecture and my questions will be around that if I can please ask you to give me as much detail as you can and know that this conversation is strictly confidential.

00:04:13 The Interviewer

Even though it is enterprise architecture, it's got a lot of focus on the softer side of enterprise architecture in terms of the engagement between the 2 areas, so it's not very technical. If you find that certain questions are difficult to answer, you're more than welcome to skip that.

00:04:32

Test.

00:04:33 Speaker 3

What?

00:04:33 The Interviewer

Alright, so we can start a little bit of a general question, ANAN you can answer in terms of not you, but as an individual, but you as the business right? So can you please describe to me how or what is your involvement in enterprise architecture within the organization?

00:04:56 The Interviewee

I would say from my perspective I don't see myself as an expert on enterprise architecture.

00:05:03 The Interviewee

So I'm not in the mighty solution space. I'm in the business space where I'm looking for solutions for business problems.

00:05:13 The Interviewee

And at that level, to get to the solutions one need to in, to engage with enterprise architecture specialists to get a fit for one solution within the bigger scheme of things of the institution that one operating.

00:05:33 The Interviewer

Excellent, absolutely yes.

00:05:36 The Interviewer

So within the organization at at this stage, can you maybe from within your own experience, briefly describe what you think is the level of importance? Or do you think there is a level of importance within enterprise architecture and the organisation? Is there any?

00:05:55 The Interviewer

Before it.

00:05:56 The Interviewee

Yeah, if I think in a big organisation and perhaps even medium size and smaller organisations where you've got very multitude of business units, they will all have different business problems that needs IT solutions.

00:06:15 The Interviewee

And I think my perception is the purpose is to try and find a bring solutions into an institution or organisation that can serve as.

00:06:29

Is.

00:06:30 The Interviewee

Hopefully a multitude of needs, although so you you applied in different ways to the different needs, because one must be mindful not to bring too many products and the diversity into your organization that in the end creates a problem in terms of maintaining all of these products, servicing the solutions and then when you get to the end of life where you need to start.

00:06:58 The Interviewee

Replacing a multiple or a multitude of solution so it makes business sense to try.

00:07:06 The Interviewee

Get an alignment of products and services and to keep that to have a poo. Laura diverse pool of products available but also to manage it not to get out of hand.

00:07:22 The Interviewer

Yeah, absolutely. I think that's 1 of the biggest roles is to manage technical debt. And the last thing you want is to obviously have a multitude of solutions, all providing the same things at different business levels, so 100% agree alignment is key.

00:07:42 The Interviewer

Your organization then.

00:07:44 The Interviewer

Do you have an EA Department or division an? If you do what? What? What is the expectation from them at the moment?

00:07:53 Speaker 3

00:07:54 The Interviewee

You're a little bit. We do have such an apartment and you're my expectation of them is exactly what we've discussed now.

00:08:03 The Interviewee

To ensure alignment within the organization, but within those boundaries still to deliver on my specific business needs.

00:08:15 The Interviewee

So weird, so weird. A conflict with attention now comes is that.

00:08:21 The Interviewee

A business unit? Can I have a specific need that need to be fulfilled within a short or a relative short time frame within the itey?

00:08:32 The Interviewee

Oh, and if your enterprise architecture Department.

00:08:39 The Interviewee

Did they? Their response time in terms of.

00:08:43 The Interviewee

Then knowledge of what is the universe out there? What is the universe of the niche within the organisation and to find that match for you as a business in a short space of time? That that is my expectation because what you will find most probably in.

00:08:53 Speaker 3

00:09:00 The Interviewee

In practice, is that despite we all agree on the alignment at.

00:09:07 The Interviewee

Do a time this alignment through enterprise architecture outfit can lengthen your time frame in which you can get your solution up and running by quite an extensive period of time. So it's this trade off between alignment.

00:09:25 The Interviewee

I'm done till delivery.

00:09:28 The Interviewer

Yeah, an execution is something that kind of you know, slows things down a bit, especially if you have multiple stakeholders wanting that same need or capability. So I agree with you 100% there.

00:09:42

Yes.

00:09:46 The Interviewer

OKA, so that's great. Can you tell me then, you know, would that team in place, either personally or through through the Department itself? Do you find it difficult to to work? Communicate with the Department, or?

00:10:02 The Interviewer

People, and why do you think if you do find it, what do you think is the reason for that?

00:10:09 The Interviewee

No, I don't. We didn't say when find it difficult to to communicate with once a party solution colleagues.

00:10:18 The Interviewee

And I suppose some business unit it could be a problem becausr.

00:10:26 The Interviewee

It think in disguise. It will depend on.

00:10:31 The Interviewee

I'm out the difficulty. He added the degree of difficulty of such communication with the paint on. To what extent the solutions?

00:10:41 The Interviewee

I dissolution stuff knows the business environment.

00:10:45 The Interviewee

Save this I degree of knowledge of the business environment and if the business itself is somewhat IP savvy.

00:10:46 Speaker 3

00:10:53 The Interviewee

I think then the communication is fairly good and one could get to the endgame quite fast. And yeah, I would say in the circumstances that I experienced, I would say we operate in that space, but most probably in other areas there could be some disconnect if either business is not knowledgeable about enough. In terms of what they need from IT POV and if the IP specialists are not knowledgeable above.

00:11:22 The Interviewee

Enough about the specific business environment and their needs.

00:11:27 The Interviewee

But you're going to experience it as a problem.

00:11:31 The Interviewer

Yeah, I must agree. I think you know the test of of the cultures and and the manner in which you think I find that.

00:11:43 The Interviewer

Technical people normally engage a lot easier word, more analytical type of people.

00:11:49 Speaker 3

00:11:50 The Interviewer

It's when they go to the creative side and the marketing side. That's where the language doesn't line up, and that's what causes that communication gap. So it's great that you know, you find yourself in that situation where it's easy to communicate, because I think that's that's.

00:12:04 The Interviewer

Key thank you for that.

00:12:08 The Interviewer

Case, um, something more related to home. Do you believe that that you know as business? You've given EA the support that it's required?

00:12:21 The Interviewee

Ya, I hope so because we always try to open the engage on our needs. Try to be as specific as one can be on once requirements and business guys because I think that is.

00:12:37 The Interviewee

That is what one can bring to the party and then also to be involved in when you get to proof of concepts.

00:12:47 The Interviewee

In terms of.

00:12:50 The Interviewee

Working with a with them to get to. Hopefully the the based solutions.

00:12:57 The Interviewer

Yeah, yeah no, absolutely. And I think then the follow up question to that. I mean, because it's absolutely critical that the 2 areas gel the follow up to that would be, then you know would you giving the support? Do you feel at the moment that you getting that that value?

00:13:15 The Interviewer

Value from EA? Or is there something that just a little bit more that you you expecting?

00:13:16

Daniel.

00:13:23 The Interviewee

Yeah, I would say that.

00:13:27 The Interviewee

From my perspective, perhaps with what?

00:13:30 The Interviewee

What what? What I'm worried about that one getting in big organisations is that.

00:13:38 The Interviewee

How can I put it if one if one starts looking for a solution?

00:13:44 Speaker 3

00:13:45 The Interviewee

Am I fine did that?

00:13:51 The Interviewee

Almost as if your enterprise architect at teams would gravitate towards going to the gardener, and you've got other account. Remember all the names of 4 instead of all of those workers that the first port of call is to go to the most known solution and service provider.

00:14:02 The Interviewer

Forest faster yeah yeah.

00:14:16 The Interviewee

The big names in the industry.

00:14:16 Speaker 3

00:14:19

Yeah.

00:14:20 The Interviewee

Oh, and they usually.

00:14:23 The Interviewee

I don't know my. My perception is if.

00:14:29 The Interviewee

That that will give you also the most costly outcome.

00:14:34 The Interviewee

And I sometimes wonder if there's not other solutions out there that is not in those big ticket buckets that can actually do what you want to do. Much cheaper, much quicker and with much less effort.

00:14:55 The Interviewee

Um?

00:14:56

00:14:57 The Interviewer

Yeah, I absolutely.

00:14:59 The Interviewee

So so so so much. Almost sometimes I get the feeling it's overkill in terms of what you want to accomplish as to what you tried to deploy to accomplish that now it.

00:15:12 The Interviewee

If one reason free Pepsi question of.

00:15:17 The Interviewee

Also, shifting the blame if there's none, if the delivery or the project doesn't.

00:15:27 The Interviewee

In successfully that you can say okay, I've gone for the base product. The most well known service provide.

00:15:33 The Interviewee

I did and this organization just couldn't deliver, so it's no fault of mine. I've picked the best.

00:15:42 The Interviewee

I'm.

00:15:44 The Interviewee

But but my point of view, what I've seen over the years is also if you really get these big names, I don't know where I'm at, the section is wrong to tender for things. They

will get the perception that I will tender for anything because they will afterwards go and try and find the stuff that hopefully can do it.

00:16:04 The Interviewee

Um?

00:16:06 The Interviewee

Yeah, so for instance, if you if you look at at at the this acquired software and products relative to say somethings that you can develop with open source software, I think this salute solutions to some of one's business problems that lies in the open source area. If you were to get some of your own programmers and stuff to put it together, one can deliver it much more quickly, less sophisticated.

00:16:37 The Interviewee

Go to my time to the point and not with overkill.

00:16:41 Speaker 3

00:16:42 The Interviewee

But but that's just the perception. I can't say whether my perception is right or wrong.

00:16:47 The Interviewer

Yeah, no. So there's definitely some some good points to what you're saying. I know open source is something that is key and it is great in the organization. I think it when in sorry in the industry. I think it comes with its own pros and cons and what makes sense to business at the end of.

00:17:08 The Interviewer

Today, but you are right. I think we tend to focus too much on the gardeners and the Foresters of the world without actually thinking that these guys are concentrating cause it's not possible to wait a product across its spectrum and these guys. Normally they focus on something very specific.

00:17:34 The Interviewer

Which in some cases then if somebody really wants a product, they can find something out there that you know where that manufacturer is the leading edge, and that's how we select them. And it's not necessarily the right right organization vendor to select. So yeah, I agree with you 100% there, alright?

00:17:57 The Interviewer

Okay, then, um.

00:18:00 The Interviewer

I think when it comes to architectural planning, right?

00:18:04

Would you say?

00:18:05 The Interviewer

That you contribute or the business contributes adequately into that leg, and how would you get those inputs into them?

00:18:17 The Interviewee

Yeah, I think that's that's so my sense he's, you know, asking should business be more involved in enterprise architecture?

00:18:30

Yeah, so it's.

00:18:31 The Interviewer

Definitely the answer is yes. What I'm trying to get a sense of is what is that level of involvement so you know how much input do we do you get from business in order to make those architectural decisions.

00:18:47 The Interviewee

Yeah, yeah, it's a difficult one, but that's really one outrage into the speciality. My expectation is that.

00:18:59 The Interviewee

I should not as business be too much involved there. I must be able to state my problem, my requirements and my business case.

00:19:10 The Interviewee

And.

00:19:13 The Interviewee

Because that's the field where my expertise ought to be.

00:19:17 The Interviewee

And then leave it to the specialist in the in the enterprise architecture environment to apply their specialist knowledge as to their knowledge of the product States and solutions out there.

00:19:30 The Interviewee

Do and there are constraints or limitations within keeping.

00:19:32 Speaker 3

00:19:38 The Interviewee

The menu of things within an organization.

00:19:41 The Interviewee

As lean as possible and lined and so young so that is more a think.

00:19:50 The Interviewee

Well, one big business should not get too involved in that because one needs to acknowledge and give the other pro players in the space to do what I need to do and what they specialise.

00:20:02 Speaker 3

00:20:05 The Interviewer

Now absolutely I agree with that.

00:20:09 The Interviewer

I don't think so much of you know business getting involved in the EEA capability, but I do believe that what you mentioned you know defining the problems, at least making those elements known to EA so that when they do solution and when they do architectural planning for 5 years, 3 years, whatever the case may be, that they take those things into consideration so that there is a wide.

00:20:40 The Interviewer

Coverage of the solution an. The implications of it and on business. So I mean generally those things come in with the strategic sessions. You may have that in place.

00:20:57 The Interviewer

And it it doesn't matter what site it it. It happens at as long as there is representation of either party at those sessions. So yeah.

00:21:10 The Interviewer

I'm not sure if.

00:21:11 The Interviewer

You are, if you have something like that.

00:21:14 The Interviewee

Bought it.

00:21:15 The Interviewer

Yes, so it's sort of like a stretch session where you involve all elements or all departments just so that they are aware of what's happening and they can use that as they input into planning both from a business side and the technical side you.

00:21:31 The Interviewee

Will win one? Does you annual strategic planning for for your Department? Then the invites go fairly wide and includes store from one.

00:21:44 The Interviewee

The should I Department as well as HR training and so forth because I think it's important that they do attend the sessions to get a bit of a different feel of where the business environment is going and how it operates. So hopefully those types of exposures once a year.

00:22:08 The Interviewee

Hopes they may, in the conduct of their own activities.

00:22:15 The Interviewer

Yeah, no, absolutely that's great. I think that's a step in the right direction if anything, because that's key to the EA practice success. If I could say that, alright?

00:22:17 Speaker 3

00:22:29 The Interviewer

We kind of like hovered around some of the negatives of EA or the negative implications of EA. In your view. Can you name maybe one or 2 things that you think that EA is doing right in your organization?

00:22:44 Speaker 3

00:22:47 The Interviewee

That's a good one.

00:22:51

Yeah, it's.

00:22:52 The Interviewer

So, so I think I think the question comes out from understanding what the EA practice in general does, right? So that we don't forget about those things when we start concentrating on the things that we do lack. So it's important to acknowledge what we're doing right so that we can continue doing that.

00:23:11 Speaker 3

00:23:12 The Interviewee

From her

00:23:15 The Interviewee

I think the intent is always the right intent to get the best alignment for the organization to keep the product menu as concise and lean as possible, and in the process. Also due to address the business need.

00:23:37 The Interviewee

So I think those basic things are all in place and and they work well. The only place where I think we're the problem comes in is what one has discussed already and I think that is most probably prevalent everywhere.

00:23:52 The Interviewee

8.

00:23:53 The Interviewee

Is A is the time that is consumed.

00:23:59 The Interviewee

Add boy and EA outfit.

00:24:04 The Interviewee

To present business with a solution.

00:24:08 The Interviewee

That fits all of their criteria.

00:24:11 The Interviewee

Um, that is most probably some mostly a frustration for business and then also what we've discussed previously. The other frustration is sometimes that one feel that the solutions.

00:24:26 Speaker 3

00:24:27 The Interviewee

The offered of some, sometimes a bit of overkill for what you want to accomplish.

00:24:34 The Interviewee

That it's too expensive, too difficult to deploy where they could pass. Possibly be something easier said that done it says on the on the improvement site. Yo no other side. As I've said, I think the intent is David tried to get their alignment. I try to keep things lean and mean and from their perspective to get the best fit. So that's over the one conosko.

00:25:01 The Interviewer

Excellent, thanks for that and then one last question. I think you equally.

00:25:08 The Interviewer

Challenging question as the last one. What do you think?

00:25:13 The Interviewer

If you had to name one thing that you could do in addition to support EA in its journey, what would that be?

00:25:22 Speaker 3

00:25:24 The Interviewee

One thing to support him.

00:25:26

Yeah.

00:25:27 The Interviewer

To give them that extra support so that they can do their job better or be successful in the practice.

00:25:34 The Interviewee

Yeah, I think the only thing that business can do is to be very clear and precise on.

00:25:41 The Interviewee

What they want to accomplish? What they propose this problem is.

00:25:46 The Interviewee

What is it that I want to solve?

00:25:49 The Interviewee

A and do actively and Tommy asleep participate in the process.

00:25:55 The Interviewee

Cause they need to.

00:25:58 The Interviewee

As as a process involves from when you have a problem until you eventually go live with the solution.

00:26:05 The Interviewee

Each and usually that's where you find the issue that.

00:26:11 The Interviewee

That you are the side of things are dedicated people that you contract in and work on to get to the in point, whereas your business stuff that need to participate in this.

00:26:24 The Interviewee

It is almost like fixing a plane in the air while in.

00:26:28 The Interviewee

Write a because. Will you engaging with this dedicated team that we need to get to a solution. You must also go on with business as usual.

00:26:39 The Interviewee

So it's not the same level of focus and you do have the necessary diamond skills and staff available to facilitate that process from business side.

00:26:52 The Interviewee

Cause I would think that that is where perhaps a business again frustrates the 80 people.

00:26:52

Because sex.

00:27:05 The Interviewer

KI'm just sorry, just shutting down some stuff quickly. Yeah alright excellent so. Thank you very much. I think that brings us to the end of the interview. I definitely look forward to analysing this data. There's there's quite a few things that came out here that I'm quite excited about. Do you have any other additional questions for me before we close off?

00:27:28 The Interviewee

No, no, I'm fine on my side tradition.

00:27:32 The Interviewer

Excellent then thank you so much for your time xx. Please stay safe and happy. It was absolute pleasure interviewing you.

00:27:41 The Interviewee

No, it was.

Interview 9:

00:00:02 The Interviewer

All right, good morning Mr xx, let me do a quick introduction before we begin.

00:00:08 The Interviewer

As I stated in my previous Mail.

00:00:11 The Interviewer

I'm a doctoral student registered at the University of Victoria, currently conducting research in the field of enterprise architecture management.

00:00:20 The Interviewer

Research.

00:00:20 The Interviewer

As me to interview experts in the field of enterprise architecture as well as senior ITN business managers such as itself right this this research process actually consists of two elements.

00:00:33 The Interviewer

The first one is a multiple choice questionnaire which you would have seen in my previous email.

00:00:40 The Interviewer

If you have completed it.

00:00:41 The Interviewer

Thank you very much.

00:00:42 The Interviewer

If you haven't please.

00:00:44 The Interviewer

If you if I can ask you to to make some time, it is a a key element of the research.

00:00:50 The Interviewer

An I would appreciate that.

00:00:52 The Interviewer

Part 2 obviously is this interview.

00:00:54 The Interviewer

It consists roughly about 9 questions.

00:00:57 The Interviewer

It shouldn't take us more than than 40 minutes to complete.

00:01:01 The Interviewer

So thank you very much for accepting the interview, I think.

00:01:05 The Interviewer

Please note I am recording the conversation and it's purely from a notetaking perspective so that I can refer back to it.

00:01:12 The Interviewer

Should there be a need I OK for us to continue?

00:01:16 The Interviewer

Yes, continue.

00:01:18 The Interviewer

Thank you very much and then just Lastly, if you can acknowledge this quick declaration and then we can begin with the questions right.

00:01:27 The Interviewer

This interview is voluntary.

00:01:30 The Interviewer

No compensation has been agreed to complete it.

00:01:33 The Interviewer

The data collected during the session will be used at an aggregated level.

00:01:37 The Interviewer

And use only to identify patterns and in no way associated to any individual such.

00:01:43 The Interviewer

Itself, however, if you feel that at anytime during this process you want to leave as a participant, you can request that an all data collected during the session will be discarded and therefore there is no obligation to continue once we've started, but your input is extremely valuable, and I applaud you to see it through.

00:02:05 The Interviewer

If you can do a quick acknowledgement that you're aware of this, then we can begin.

00:02:11 The Interviewee

That's fine, I'm aware of it.

00:02:13 The Interviewee

Again, thanks.

00:02:14 The Interviewer

Thank you, thank you xx.

00:02:16 The Interviewer

Just before we begin then is there any questions that you would like to to ask me any clarity?

00:02:25 The Interviewee

No, I just wanted to.

00:02:25 The Interviewee

It's it's, uh, so this has been recorded with the with the sub that you've been given approval.

00:02:33 The Interviewer

Yes, so it has been recorded with *** uh, the formal contract has been signed between the supervisors myself and ***

00:02:43 The Interviewer

And to further that part of my ethical clearance within the Institute, the University is that if I break any clauses in the contract in this study will be terminated.

00:02:58 The Interviewer

So the clause on my clearance is based on the contract.

00:03:03 The Interviewee

OK, that's fine.

00:03:04 The Interviewee

Huh?

00:03:05 The Interviewer

All right, so all of my questions are related to the research area, which is enterprise architecture.

00:03:11 The Interviewer

Please try and provide as much detail as you can and know that this these conversations are strictly confidential, right?

00:03:21 The Interviewer

I start off with a very general question and then we can go into some of the more specific ones.

00:03:27 The Interviewer

Can you briefly describe how are you involved in enterprise architecture or what is your involvement in enterprise architecture at present?

00:03:37 The Interviewee

So my current my current involvement with Enterprise architecture is largely because I deal with strategy.

00:03:45 The Interviewee

And strategy and architecture are closely linked.

00:03:49 The Interviewee

Uh, so essentially from an ID strategy perspective, one needs to understand in terms of what what is a technology road map?

00:03:58 The Interviewee

Uh, that the bank is, you know, in visiting and going through, and this certainly is dependent on on on enterprise architecture.

00:04:09 The Interviewee

Providing that strategic road map.

00:04:13 The Interviewee

Yeah, just read the technical road map.

00:04:16 The Interviewer

Excellent OK and so previously an in in.

00:04:16

Thanks.

00:04:23 The Interviewer

Over literature at the moment there's this debate around the value that enterprise architecture can bring.

00:04:30 The Interviewer

Can you then, in your own words in based on on your experience, then describe to me what do you think the level of important enterprise architecture plays in the organization?

00:04:44 The Interviewee

Yeah, it's it's.

00:04:45 The Interviewee

It's been a debate for for for many years in in terms of the value of enterprise architecture, but I think it is.

00:04:53 The Interviewee

We're moving into, you know, is we have moved into the digital era.

00:04:58 The Interviewee

I think the importance of of understanding the the entire ecosystem of an organization from its.

00:05:08 The Interviewee

Business capability right is the technology road map or an engine.

00:05:14 The Interviewee

Components will certainly drive house.

00:05:16 The Interviewee

Digitalization gets rolled out an as organisations, uh, drive digital in different parts of the business and they would certainly rely on.

00:05:29 The Interviewee

On on on some architecture and design to be able to ensure that they can run, it can deliver this within acceptable frameworks in quality.

00:05:39 The Interviewee

I think the problem with this being with enterprise architecture is it was always viewed as somebody that you know a capability that that adds no value.

00:05:50 The Interviewee

They probably, uh.

00:05:53 The Interviewee

Becomes a bureaucratic process and I think the most important thing is it's how it it.

00:06:01 The Interviewee

It provided guidance unit report also provide agility.

00:06:08 The Interviewee

So there needs to be a level of proactive from their side.

00:06:11 The Interviewer

Yes, absolutely. Thank you.

00:06:16 The Interviewer

OK.

00:06:17 The Interviewer

So in your.

00:06:18 The Interviewer

Organization are there custodians of enterprise architecture management that is, do you have an an EA Department division and then what would be some of your key expectations from them?

00:06:32 The Interviewer

If they do exist.

00:06:34 The Interviewee

Yes, yes.

00:06:35 The Interviewee

So we do have an enterprise architecture division and it said the division that has been formed a few years ago and still maturing.

00:06:45 The Interviewee

My expectation from your enterprise architecture is certainly to come with a, you know, enter or you know or future plans.

00:06:54 The Interviewee

Uh, around uh capability around technology in applications, data and other technologies that we provide those card rails within which we redeploy solutions acquire solutions.

00:07:14 The Interviewee

Great.

00:07:14 The Interviewer

I like that guardrails instead of the the standard principles and and standards or the guardrails is actually a good synonym for what you're trying to achieve in EA.

00:07:26 The Interviewer

What would you say then?

00:07:27 The Interviewer

Is some of the challenges that?

00:07:31 The Interviewer

Impede us from from meeting these expectations.

00:07:36 The Interviewee

Uh.

00:07:38 The Interviewee

It's probably having a that that press in depth of experience and probably trying not.

00:07:46 The Interviewee

You know, we we always try and do things on a very wide scale, which you would never achieve.

00:07:52 The Interviewee

It takes much time, is probably too deep to to develop these incrementals.

00:07:58 The Interviewee

Uh, but also have a a good view in terms of what are those dependencies?

00:08:04 The Interviewee

So as we it's it's a learning process.

00:08:07 The Interviewee

You know when we start talking about enterprise White Plains and that these are not elements that happen overnight.

00:08:14 The Interviewee

They take awhile.

00:08:15 The Interviewee

But once gotta start somewhere in in, build on it.

00:08:19 The Interviewee

And I think this is a challenge that we find is that we always try and deal with this.

00:08:24 The Interviewee

On

00:08:24 The Interviewee

For very wide scale, which takes us a lot of time, deal with it in a piece meal base and build on it.

00:08:31 The Interviewer

Yeah, absolutely. I think it's it's. It's somewhat of a balancing act between because it's not something that like you said, happens overnight. It's more A5 year or three to five year type of planning, and even then we don't get what we expect because there's so much of changes that happen within that five years. So that breaking down into.

00:08:53 The Interviewer

Into smaller eloma.

00:08:55 The Interviewer

Into into achievable pieces rather is critical to success. I agree 100%.

00:09:02 The Interviewer

Great, so you actually kind of let me into the next question, which is what can we do to over overcome that?

00:09:10 The Interviewer

And I think you've answered that as well, so I'm going to skip that.

00:09:13 The Interviewer

What would you list as the values of benefits that you want to see from EA?

00:09:20 The Interviewer

The key value and benefits from yeah over and over and above what you mentioned, which is the future planning the road Maps the sound, the softer stuff.

00:09:31 The Interviewee

Yeah I think to me the.

00:09:34 The Interviewee

You know the value from EA and my expectations is certainly around.

00:09:39 The Interviewee

Uh.

00:09:41 The Interviewee

How do we drive past this value?

00:09:46 The Interviewee

How do we ensure that?

00:09:49 The Interviewee

But we have the right capability and capacity and also being able to support the business and understand the purse.

00:09:56 The Interviewee

For us to be able to drive value to the solutions as soon as possible, and I think this is way from a capability and capacity perspective is that you know we talk of enterprise architecture, but I think it's also important is that we have the solution architects and the enterprise architects working together.

00:10:17 The Interviewee

Anne and Anne.

00:10:19 The Interviewee

And there's gotta be good collaboration among.

00:10:21 The Interviewee

This is the enterprise architecture team as well because we have different solutions driving in different parts of the business, but we need to understand that there needs to be collaboration to ensure that you don't have duplication that we're driving towards a.

00:10:38 The Interviewee

A an optimized solution landscaping organization.

00:10:39

Yeah.

00:10:45 The Interviewer

Yeah, I I agree with that.

00:10:47 The Interviewer

So collaboration and communication is key and something that you indicated very subtly.

00:10:53 The Interviewer

There is the integration between the two elements, so the process integration between solution architecture, enterprise architecture and not just stopping there but also the other areas.

00:11:05 The Interviewer

Of business, the strategic areas solution, delivery, execution, those areas.

00:11:11 The Interviewer

I think those that's a key element also for for EA to consider themselves successful.

00:11:17 The Interviewer

Great.

00:11:17 The Interviewer

You mentioned business support right so?

00:11:22 The Interviewer

In your view currently, do you think that business is gaining the anticipated value from EAM?

00:11:33 The Interviewee

I think it, I think in some areas, yes, it's like I said it's a maturing process, but I don't think we've we fully explored that.

00:11:41 The Interviewee

Uh, and and and I think the most important thing is also that you know for business this is for.

00:11:51 The Interviewee

Uh, you may need to run their business, but I think it's more important in terms of how you also communicate the value in it.

00:11:58 The Interviewee

An in in one of the software elements is also from an architecture perspective.

00:12:05 The Interviewee

It's it's, you know, we we tend to do the technical speak, assuming that.

00:12:11 The Interviewee

People have the state and I think we need to bring it down to intervals or very simple terms.

00:12:16

Uh huh.

00:12:18 The Interviewer

Absolutely so enterprise architecture is is not meant to be a a technical element of business.

00:12:26 The Interviewer

Seeing as it's it's looking at enterprise wide.

00:12:29 The Interviewer

Do you think then that from a business point of view we're not doing enough to to educate them or they don't have enough knowledge of enterprise architecture?

00:12:39 The Interviewer

So how do we?

00:12:40 The Interviewer

How do you?

00:12:41 The Interviewer

What do you think that we need to do to fill that gap?

00:12:46 The Interviewee

I think it said it's a continuous education and to me is is firstly enterprise architecture.

00:12:55 The Interviewee

It you know needs to be 'cause as much as we use the models and frameworks, or you know, enterprise architecture like to have, etc.

00:13:04 The Interviewee

The more important is how do you take it into the business.

00:13:08 The Interviewee

How do you link the business side to eat so that there's there's a there's a come, so there's a, uh?

00:13:14 The Interviewee

Oh

00:13:15 The Interviewee

For one of a better word is there's an alignment.

00:13:19 The Interviewee

And and once you do that, you get it.

00:13:22 The Interviewee

Once you understand the person as you start talking business speak.

00:13:25 The Interviewee

And in that way you you you, you gain confidence.

00:13:28 The Interviewee

So what we tend to do is we go to the business and we say we need a business architecture.

00:13:33 The Interviewee

What does it mean to them?

00:13:34 The Interviewee

So it's it's it's.

00:13:35 The Interviewee

It's how you translate it into very simple terms to provide that value.

00:13:42 The Interviewer

Absolutely.

00:13:43 The Interviewer

So I I like what you said there.

00:13:45 The Interviewer

It's the it's that translation is a key element because it's it's not expected of them to have this understanding, even though when we start looking at it, we seeing it from a business point of view, they don't have that same view.

00:14:01 The Interviewer

So that's a critical element.

00:14:03 The Interviewer

So those two things are like that.

00:14:04 The Interviewer

You mentioned education and translation.

00:14:08 The Interviewer

I must admit education, marketing and just that roadshows came out very prominently as a gap in.

00:14:16 The Interviewer

It impedes the success of.

00:14:18 The Interviewer

The translation doesn't feature much, but I think it's an absolutely critical area which need.

00:14:25 The Interviewer

We then need to just dive in a little bit more detail and understand this, so thanks for that.

00:14:31 The Interviewer

So we we.

00:14:31 The Interviewer

Kind of adapt on some of the things that.

00:14:36 The Interviewer

Challenge EA or a lot of the negatives towards EA in if you have to think about one or two things that EA is doing right because I think it's important also to identify what's good and so that you know we understand that we can continue doing that.

00:14:53 The Interviewer

As we we progress on this journey, what would those one or two things be that you think that EA is doing great?

00:15:03 The Interviewee

So I certainly think it's it's, you know, it's starting to.

00:15:08 The Interviewee

Especially with regard to the strategic solutions, EA is certainly playing a role in terms of defining working with the business.

00:15:18 The Interviewee

In defining what the solution should.

00:15:21 The Interviewee

Be, uh, and how they can actually go to market, because that's a fundamental element.

00:15:28 The Interviewee

An in in this good value in what, uh, what I've seen so far is that EA is also understanding the business and working with the business.

00:15:40 The Interviewee

So so those are the, the, the, the, the, the.

00:15:43 The Interviewee

The the.

00:15:44 The Interviewee

Certainly the positives Anne and I feel quite comfortable.

00:15:49 The Interviewee

Uh, it's obviously a journey, but yeah, those are good stop rates.

00:15:54 The Interviewer

Excellent thanks that, so I think you mentioned right at the beginning, right?

00:15:59 The Interviewer

So you have a very important role.

00:16:04 The Interviewer

In the success of EA being part of strategy and making sure that there's alignment between what we're doing and potentially what business wants, right?

00:16:14 The Interviewer

What would you think or what? What is the one thing that you could probably add now that you're not doing that could increase EA's journey to success so that one thing that you can add in support of EA.

00:16:30 The Interviewer

To elevate this success.

00:16:34 The Interviewee

Yeah, I think it's probably you know it's it's starting to focus on the enterprise architecture cable.

00:16:36 The Interviewee

Who is it?

00:16:40 The Interviewee

The power piece of work, you know.

00:16:43 The Interviewee

So we start off with enterprise architecture, but I think there was a lot of demand in which solution architecture took over, but it's now to go back and.

00:16:54 The Interviewee

Try in in, in in.

00:16:56 The Interviewee

And in bringing the enterprise architecture views so that it also provides those future car, those guardrails for future technology and ensuring that we optimize.

00:17:10 The Interviewer

Perfect.

00:17:13 The Interviewer

Thank you so much for your time.

00:17:14 The Interviewer

That actually brings us to the end of the interview.

00:17:18 The Interviewer

I do look forward to analyzing the data.

00:17:20 The Interviewer

There was lots of gems that are picked up as as you were talking, I was busy scribbling down key notes that I'll need to probably do a little bit more effort or work in in just analyzing, but thank you very much for that.

00:17:35 The Interviewer

In closing it, do you have anything further that you would like to ask me?

00:17:41 The Interviewee

I'm not too sure now.

00:17:42 The Interviewee

I think that's part.

00:17:43 The Interviewee

That's perfect, that it's it's you covered it well.

00:17:46 The Interviewee

So all I can say is all the best.

00:17:50 The Interviewer

Thank you so much for your time xx.

00:17:52 The Interviewer

Stay safe and healthy and it was an absolute pleasure interviewing you.

00:17:57 The Interviewee

Good keep well to share.

00:18:00

Thang.

Interview 10:

00:00:02 The Interviewer

All right?

00:00:04 The Interviewer

Morning run I think.

00:00:06 The Interviewer

Thank you for for making the time this morning.

00:00:09 The Interviewer

I think before we begin let me just quickly start off with a quick introduction of myself and the process.

00:00:16 The Interviewer

Uh, followed by a small declaration and then we can begin with the with the formal interview.

00:00:22 The Interviewer

I think let my name is Trish and marry me too and as stated in my previous email, I'm a doctoral student registered at the University of Pretoria.

00:00:32 The Interviewer

I'm currently conducting research in the field of enterprise architecture management and part of this research requires me to interview experts in the field of enterprise architecture.

00:00:42 The Interviewer

As well as senior ITN business management such as yourself, right but this process interview research process actually consists of two parts.

00:00:51 The Interviewer

The first part is a multiple choice questionnaire which you would have seen in my previous email.

00:00:58 The Interviewer

If you had completed it, thank you very much.

00:01:01 The Interviewer

If you haven't.

00:01:02 The Interviewer

If I can ask you to please make some time as it is a important aspect or element of the research.

00:01:11 The Interviewer

Element Part 2 is this interview consists of primarily about 8:00 or 9 questions. It shouldn't take us more than around 35 minutes to do to complete it, so once again thank you very much for accepting this this interview. Please note that I am recording the session and it's purely from a notetaking perspective so that I can refer back to it. Should there be a need.

00:01:35 The Interviewer

Are you OK for us to continue?

00:01:38 The Interviewee

Yeah, and thanks tuition.

00:01:40 The Interviewer

Thank you very much.

00:01:41 The Interviewer

So just a quick declaration and then we can begin.

00:01:44 The Interviewer

So this interview is voluntary and no compensation has been agreed to complete it.

00:01:50 The Interviewer

The data collected during this session will be used at an aggregated level used only to identify patterns and in no way be associated to any individuals.

00:01:59 The Interviewer

Such as itself, however, if you feel at any time that you don't want to be part of the of the research, you can request to leave as a participant in any and all data collected during this session will be discussed.

00:02:12 The Interviewer

Therefore, there's no obligation for you to continue once you started, but Please note that your insights and your input is valuable to the research, so if I could ask you to please see through to the end if you could quickly then just acknowledge that you're aware of that declaration.

00:02:31 The Interviewee

I am yes.

00:02:32 The Interviewer

Perfect room before we continue.

00:02:35 The Interviewer

Is there anything or any questions that you have for for me?

00:02:39 The Interviewee

No, not at this stage, but.

00:02:39 The Interviewer

At this.

00:02:41 The Interviewee

I'll show the video questions.

00:02:43 The Interviewer

Excellent, thank you so much.

00:02:44 The Interviewer

Alright so so these questions are related to the research area which is enterprise architecture, please try and provide as much detail as you can wherever possible and know that these conversations are strictly confidential, right?

00:02:58 The Interviewer

So we'll start off with something a little bit light and general.

00:03:03 The Interviewer

If you could just give me a very high level description of your role in the organization and how.

00:03:10 The Interviewer

Are you involved in EA or what is your involvement in EA within that current role?

00:03:17 The Interviewee

Well, my current role that their organization is that of head of enterprise information management, and it's a fairly new role or new division that form got formed about two years ago and it's current guys.

00:03:28 The Interviewee

Although there were some components of its previously and its function is to develop a certain level of information management maturity in the organization as well.

00:03:38 The Interviewee

As kickstarting and maturing, advance and little.

00:03:43 The Interviewee

So that's my current role and there's some operational components of it as well in terms of delivery of certain governance structures, but by its virtue, I think what is the relationship to two enterprise architectures?

00:03:56 The Interviewee

I think it's a very close relationship from a business point of view where information management and.

00:04:02 The Interviewee

Yeah, it works closely together because some of the components as part of your architecture as your data architecture and your business architecture, so we rely heavily on the EA function to provide those specialized expertise outputs into our large programs.

00:04:20 The Interviewer

Perfect thank you so much for that.

00:04:22 The Interviewer

If I if you do have a pause in the conversation, just allow me some time please if I can if I can request that.

00:04:29 The Interviewer

'cause I'm I'm busy scribbling while while you're talking.

00:04:33 The Interviewer

OK, so great thanks.

00:04:35 The Interviewer

I think then you've actually kind of touched on the next question, which is on the level of important for you within the organization you mentioned.

00:04:44 The Interviewer

You know that tight relationship between data architecture and business architecture, so that's great.

00:04:50 The Interviewer

I think within the organization organization itself, who are the custodians for enterprise architecture?

00:04:58 The Interviewer

Is there is there a Department oh or team that that exists and what would be some of the expectations from them open above?

00:05:07 The Interviewer

Obviously the data elements and the business architecture elements that you spoke about.

00:05:12 The Interviewee

So, so right now enterprise architecture is part of the IT organization as a separate division and roughly broken up into domain architect.

00:05:22 The Interviewee

Sure, and the solutions architectures in teams your second part of your question again was.

00:05:29 The Interviewer

What is your expectation from the team from that team?

00:05:34 The Interviewee

So I think in terms of any large organizational change, whether it's system or process or one from a business point of view and the Bank is going through a substantial amount of business change for the last, I would say almost 8.

00:05:49 The Interviewee

Yeah, since I joined the organization so it's been on an accelerated path, I think one of the key components is that if you want to move into.

00:05:57 The Interviewee

Your strategic to be state of the organization.

00:06:00 The Interviewee

You do need to have some level of architecture defined which could provide you with.

00:06:05 The Interviewee

The road map the boundaries.

00:06:06 The Interviewee

The concepts that I worked with structure business, so with there's business or processes or looking at the specifically architect solutions when it works with data anything like that that you are building your foundation around.

00:06:19 The Interviewee

I think architecture is quite key, especially around if you start with a high level business architecture.

00:06:27 The Interviewer

Excellent thanks.

00:06:29 The Interviewer

So then what would you think then?

00:06:31 The Interviewer

Are some of the challenges related to to meeting that those expectations?

00:06:35 The Interviewer

So you mentioned a couple of things, strategic alignment Boundary Solutions?

00:06:40 The Interviewer

And that's quite a canvas.

00:06:45 The Interviewer

To paint on so, and I think it's it's safe to say that as an EA team or a practice, it's it's sometimes difficult to satisfy all requirements.

00:06:56 The Interviewer

So in your mind, what are some of the key things the key challenges in meeting some of the expectation?

00:07:04 The Interviewee

I think you know, starting top down one of the key challenges.

00:07:08 The Interviewee

This would be as a what we call executive understanding of where architecture fits into the organization.

00:07:16 The Interviewee

I mean there, there's appreciation that architecture plays part of the strategic role and actually sitting out the canvas.

00:07:22 The Interviewee

I don't think it's always well understood, because architecture is typically seen as an IT function.

00:07:27 The Interviewee

Let's do it the technology only, so one of the challenges is to elevate and have the right sponsorship coming in for architecture as a recognized capability in the organization toward strategy and exit.

00:07:39 The Interviewee

And the other one is, I think, around how architecture teams typically have to structure themselves.

00:07:46 The Interviewee

And, you know, have the conflict between what is strategic versus tactical and operational.

00:07:52 The Interviewee

What's the right mix of people to have involved from the architecture point of view, they can service the organization at both the strategic and tactical operational level.

00:08:02 The Interviewee

And then the third challenge I would think is around actually just skill sets of resources.

00:08:07 The Interviewee

QAS architecture is gaining momentum in the world in a lot of organizations there's been a lot of ask, so and you can see it in the marketplace.

00:08:16 The Interviewee

It's not easy to find architects at a certain level, so I think it's quite a challenge.

00:08:22 The Interviewee

And also an.

00:08:23 The Interviewee

Opportunity for the organization to start building their own capabilities internally.

00:08:28 The Interviewer

Perfect thanks for that everyone. I I think yeah you you touched on so many different elements that is seen as challenges but it's it's stuff that we can't really get from frameworks and methodology's. It's some of the the softer things within the a practice and it's very evident.

00:08:48 The Interviewer

Obviously, even in in literature as well, so there's there's definitely needs to be some focus there.

00:08:53 The Interviewer

So great thanks to that.

00:08:54 The Interviewer

That's actually great input for me in in, in your view, then, what would be some of the things that we would need to do to overcome these challenges?

00:09:06 The Interviewee

Uhm, I think one is obviously we need to look at what those you know.

00:09:12 The Interviewee

Solving problems at the point of impact.

00:09:14 The Interviewee

Our philosophy is where you are.

00:09:16 The Interviewee

You need to start looking at small wins.

00:09:18 The Interviewee

Architecture can be sometimes too overwhelming or too broad.

00:09:22 The Interviewee

Too abstract.

00:09:24 The Interviewee

So one goes too big, there's sometimes the.

00:09:29 The Interviewee

The issue of losing the audience so I would say one of the influence models that you could consider is to start looking at what are the quick heads of the quick use cases where there will value of architecture can be accelerated in showcasing it.

00:09:43 The Interviewee

The second component would be around.

00:09:46 The Interviewee

How do you determine your target operating model in terms of the right mix of skills?

00:09:50 The Interviewee

I think it's just that something that you need to align to say what is your technical requirements.

00:09:55 The Interviewee

Your Tier 1 strategic change program?

00:09:58 The Interviewee

So which is strategic requirements?

00:10:00 The Interviewee

I think that you probably need a bit of a structure.

00:10:04 The Interviewer

Uh huh.

00:10:05 The Interviewee

Change with within the team to actually just be more aligned with its function.

00:10:12 The Interviewee

And then the third thing would be.

00:10:14 The Interviewee

Find a way of time to actually start just enhancing internal capabilities. I know there's a part of years work needs to be. You know, self learning or developing new capabilities, but if you're constantly delivering in the projects 24 hours a day, you don't get time to split your work between.

00:10:34 The Interviewee

Self learning and development as a team versus your outputs as a team.

00:10:38 The Interviewee

So somewhere along the line, you almost have to take on less work to spend more time and actually solve development within an AI capability, and then as well stopping ingenious they can start building up capability and capacity.

00:10:53 The Interviewer

Absolutely, I think I agree with that 100%.

00:10:58 The Interviewer

So so something.

00:11:00 The Interviewer

And since you you know you pretty much in that enterprise space being the head of yeah I am.

00:11:07 The Interviewer

Uh, for you?

00:11:09 The Interviewer

What would be some of the key things?

00:11:11 The Interviewer

Or key values or benefits that you want to see coming out from EA that has an impact or implication on you?

00:11:18 The Interviewee

I think the.

00:11:20 The Interviewee

Proof that we can show already as wherever we started developing our own frameworks in terms of how information management would look like within organizations so.

00:11:30 The Interviewee

What do we get out of EA?

00:11:32 The Interviewee

So all the architectures that we require in the reference architecture?

00:11:35 The Interviewee

So the development of a reference architecture for information management that goes right through the whole value chain and then also if you look at specific slices of that, we're looking at very specific data management capabilities that we're developing per Tier 1 program.

00:11:51 The Interviewee

Architecture for for drawing up, coming up with the data and business architecture.

00:11:58 The Interviewer

Excellent I, so I must admit that also come out very clear in in research as well.

00:12:06 The Interviewer

Obviously looking at it they they group it as something called process integration, so it's it's one thing a plugging into another process, but if it's not if it doesn't play nice, the chances of you coming out with the you know workable delivery at the end is very very rare.

00:12:26 The Interviewer

All right?

00:12:29 The Interviewer

So so often.

00:12:31 The Interviewer

You know the expectation from an IT perspective and a business perspective is is very different.

00:12:38 The Interviewer

We meant to have some sort of alignment, right?

00:12:41 The Interviewer

But there is some subtle differences between between expectations in these two areas.

00:12:47 The Interviewer

Do you think right now as it stands, businesses?

00:12:51 The Interviewer

Is getting some of the value that is anticipated from EA.

00:12:57 The Interviewer

I don't know.

00:12:58 The Interviewer

It's kind of a loaded question, so if you give me your personal opinion, that's fair as well.

00:13:03 The Interviewee

Yeah I could. I could probably give you 2 perspective in terms of opinions, so I mean two years ago 2 1/2 years ago I used to be a business manager within financial markets, so I was in the news reciprocated, reciprocation end or receiving end.

00:13:18 The Interviewee

Of with architecture needs to deliver I think at that Stage 2 three years ago.

00:13:23 The Interviewee

Two years ago through their architecture function was a bit more tactical operation and there is also fear that it was just a governance function that you think of the Jag some architecture review.

00:13:34 The Interviewee

So I think that the impact is quite low.

00:13:37 The Interviewee

While ago I think it would last two years, the impact of years grown immensely.

00:13:41 The Interviewee

So there's definitely some business value from my experience being in most of the tier one programs as well.

00:13:50 The Interviewee

Other delivery sponsor or suggested party.

00:13:53 The Interviewee

You can see what the influences that the year artifacts are being all delivering within the D1 program.

00:14:00 The Interviewee

Obviously, to measure at the end when you look at program execution, I would look at business benefit realization at the end of it, so it would be very difficult to to to correlate that to architecture, but you know it's because you have good architecture.

00:14:14 The Interviewee

You have good execution, you've got business benefit realization capabilities or ability to do it.

00:14:20 The Interviewer

Uh huh.

00:14:20 The Interviewee

So I would definitely say I think is definitely worth with coming outside.

00:14:25 The Interviewee

Moved away from it's it's the Tick box exercise that will be complied with architectural standards too.

00:14:33 The Interviewee

I heard one of the consultants once used with third factor.

00:14:37 The Interviewee

We've they produce.

00:14:39 The Interviewee

Documents are big.

00:14:40 The Interviewee

All it's good for us to make a thud sound when it hits the disk and then and then.

00:14:45 The Interviewee

Sometimes the fear of architecture that we we draw a lot of architecture diagrams, documents, models and things.

00:14:51 The Interviewee

It's just not based in reality, will never be executed on.

00:14:55 The Interviewee

So I think we're moving away from that into usable.

00:14:58 The Interviewee

Architecture and executable architecture.

00:15:02 The Interviewer

Now perfect, I think that's great to hear.

00:15:04 The Interviewer

I think it's always nice to to hear from an outsider that there is some value in.

00:15:11 The Interviewer

Yeah, so that's great.

00:15:13 The Interviewer

So we've been predominantly focusing on the challenges, which is where my my my research lies, but I just want to.

00:15:22 The Interviewer

I mean, it's obviously equally important to understand what it does, right, so that you know that can be continued and and so we will continue to mature it as we we progress, what would you say is the one or two things that EA is doing right at the moment?

00:15:37 The Interviewee

Well, I think the starter for dinner sitting down the principle architecture, principles and standards will last how many years now that's not being finalized.

00:15:46 The Interviewee

I think that's that's vitally important for the organization.

00:15:50 The Interviewee

'cause that's it's the standard of what we will get into, not get into in terms of our our.

00:15:57 The Interviewee

Our technology spent.

00:15:59 The Interviewee

At its most basic level, so why one is is that we are.

00:16:04 The Interviewee

I think that to me is the biggest input to make sure that we don't have proliferation of technologies.

00:16:09 The Interviewee

Proliferation of process is ineffective, technologies ineffective in non integrated product business processes.

00:16:19 The Interviewee

There's a lot of I think there's a lot of benefits is starting to show, not always.

00:16:24 The Interviewee

Easy to correlate.

00:16:26 The Interviewee

But I think just getting down the architecture standards of what's relevant for the bank, let's put some boundaries around some of the proliferation that need to be managed downstream, which is of great help.

00:16:36 The Interviewee

Second component is where the business areas specifically in the large transformational programs are really seeing the value of architecture that can transform.

00:16:46 The Interviewee

And they're thinking.

00:16:47 The Interviewee

Also, make sure that they have something that they can execute a A to be against for their future business state, like 1 offensive.

00:16:55 The Interviewee

I mean, I think the architecture work was was a substantial piece of work and you can see that the business believes in advising.

00:17:03 The Interviewee

David said, well, that is the framework for my future business.

00:17:10 The Interviewer

Great, thank you.

00:17:14 The Interviewer

We actually almost to the end, so just one, then last question before we close off, and I think it's it's a game more related to.

00:17:22 The Interviewer

To you from an outside EA perspective, what do you think that are?

00:17:28

Yeah.

00:17:29 The Interviewer

Some of the things that you can do over and above what you're doing now to support EA to deliver that anticipated value.

00:17:38 The Interviewer

Seeing as they said.

00:17:38 The Interviewee

What can I do?

00:17:39 The Interviewer

Yeah, yeah, yeah.

00:17:40 The Interviewer

So it's in support you as in your your Department.

00:17:44 The Interviewee

Yeah, so in my Department I think it's it's fairly straightforward because I think I've had exposure to.

00:17:51 The Interviewee

To technical teams for a number of years I understand the concept and the principles and objectives of architecture.

00:18:01 The Interviewee

So when I support it and buy buy into it because I understand it and I know what its purpose is and the second thing is obviously to support it to make sure that we put in architecture at the right time in the conversation and and not as an afterthought.

00:18:16 The Interviewee

So it's all about understanding the value of architecture and the moment you you look at big transformation will change.

00:18:22 The Interviewee

This is not Co creating with architecture as soon as possible.

00:18:27 The Interviewer

Excellent, thank you so much, so run that actually brought us to the close of the session.

00:18:32 The Interviewer

Thank you so much for your time.

00:18:34 The Interviewee

Anytime.

00:18:35 The Interviewer

I do look forward to analyzing the data you actually provided me with so much of detail and I can already see the synergy between a lot of the interviews that I've had already, an and some of the research that was done previously, so I look forward to to analyzing the data.

00:18:51 The Interviewer

I think before we end is there.

00:18:52 The Interviewer

Is there any closing questions that you have for me or anything that you want to clarify?

00:18:57 The Interviewee

No, nothing you can think of this stage now.

00:19:00 The Interviewer

Perfect then thank you so much.

00:19:02 The Interviewer

Thank you so much for your time and it was absolute pleasure interviewing you.

00:19:06 The Interviewee

Yeah, anytime Christian.



Interview 11:

00:00:03 The Interviewer

Let me let me introduce myself.

00:00:04 The Interviewer

My name is Trish and marry me too.

00:00:06 The Interviewer

As I stated in my in my previous email, I'm a doctoral student registered at the University of Pretoria, currently conducting research in the field of enterprise architecture management and part of my research requires me to interview.

00:00:23 The Interviewer

But in the field of enterprise architecture and senior IT and business managers such as yourself.

00:00:29 The Interviewer

And so my my research process is it actually consists of two parts.

00:00:34 The Interviewer

The first part is a multiple choice questionnaire which you would have seen in my previous email.

00:00:41 The Interviewer

If you if you have completed that.

00:00:43 The Interviewer

Thank you very much if you haven't.

00:00:44 The Interviewee

Hello.

00:00:46 The Interviewer

Great in the second part.

00:00:48 The Interviewer

Obviously is this interview.

00:00:50 The Interviewer

It's it's structured.

00:00:53 The Interviewer

It has quite a few.

00:00:55 The Interviewer

Uh.



00:00:56 The Interviewer

Questions, although I will pick out what I think is relevant for you so it will bring us to approximately about 9 questions and should take us a between 3040 minutes to do right.

00:01:11 The Interviewer

So once again, thank you.

00:01:12 The Interviewer

Thank you so much for for accepting the interview I think.

00:01:15 The Interviewer

Please note that I am recording this conversation and it's purely from a notetaking perspective so that I can refer back to it.

00:01:22 The Interviewer

Should they be a need.

00:01:24 The Interviewer

Are you OK for us to continue?

00:01:27 The Interviewee

I'm OK.

00:01:29 The Interviewer

Thank you very much and and Lastly, just an acknowledgement in the in the Declaration, so I'm going to read out something quickly and at the end of it if you can just say yes you agree, or you acknowledge and then we can proceed right.

00:01:44 The Interviewer

OK, so so this interview is voluntary.

00:01:47 The Interviewer

No compensation has been agreed to complete it.

00:01:51 The Interviewer

The data collected during the session will be used at an aggregated level and used only to identify patterns and in no way will be associated to an individual such as yourself.

00:02:03 The Interviewer

However, if you do feel that you don't want to continue, you can't request to leave as a participant in this research, and all data that was collected during that session will be discarded, and so therefore there's no obligation for you to continue once you've started.

00:02:19 The Interviewer

But Please note that your input is extremely valuable to my.



00:02:23 The Interviewer

Research process.

00:02:25 The Interviewer

If you can, please acknowledge that.

00:02:28 The Interviewer

Take you with it.

00:02:28 The Interviewee

Right?

00:02:30 The Interviewer

Thank you so much.

00:02:31 The Interviewer

I think before we start with the questions I.

00:02:35 The Interviewer

Is there anything that you want to ask?

00:02:37 The Interviewer

Any questions that you would like to clarify on before we start with the questions?

00:02:44 The Interviewee

No, no, I'm fine, thank you.

00:02:47 The Interviewer

Perfect, I think all of these questions are related to my research area, which is enterprise architecture management.

00:02:55 The Interviewer

Please try as much as possible to provide as much detail as you can and know that this conversation is strictly confidential, right?

00:03:05 The Interviewer

With that we can go to the first question.

00:03:08 The Interviewer

It's it's a very general question and it will lead us into the remainder of the questions.

00:03:13 The Interviewer

If you can provide me with a very brief description of how what is your involvement in enterprise architecture.

00:03:24 The Interviewee

My involvement in enterprise architecture.



00:03:26 The Interviewee

You mean in my current capacity?

00:03:28 The Interviewer

Correct?

00:03:30 The Interviewee

OK, my involvement in enterprise architecture.

00:03:33 The Interviewee

I am the head of the enterprise architecture team within Business Solutions Technology Department of of the South African Bank.

00:03:45 The Interviewer

Great thank you and can you briefly describe then what you believe is the level of importance for enterprise architecture within the organization.

00:03:55 The Interviewee

I think it's becoming more evident as the organization SAB in this case is maturing in its strategy formulation and almost execution.

00:04:10 The Interviewee

At Enterprise architecture, the planning function from an EA perspective is actually very important an.

00:04:18 The Interviewee

So in this particular case in the bank, the bank hasn't, you know, done much it investment in the past 20 to 15 years, and so we're basically playing catch up and in the past you know systems or technologies were implemented in a disparate manner.

00:04:39 The Interviewee

Without necessarily aligning them to the capabilities that are required by business in order for them to meet their strategic object.

00:04:46 The Interviewee

Is I think the bank is now getting to a point where realizing that actually we can come up with all these grand strategic objectives.

00:04:53 The Interviewee

But if we don't have a structured manner in which we number one, see how they.

00:05:02 The Interviewee

Map back to. You know the business capabilities required to run the bank and to meet those objectives. #2 understanding our current technology landscape and if it can meet those requirements or the technology that we currently have can enable those requ.

00:05:16 The Interviewee

Comments and #3. If not, I'm having a almost like a target state to which we are working towards and then having these Tier 1 projects, or you know, strategic transformational projects. Plot the way as to how we're going to get to the target state when the IT strategy was done in 2016.

00:05:36 The Interviewee

There was actually none of that.

00:05:37 The Interviewee

It was more focused around a modernization kind of like perspective or approach, modernizing the current technology landscape that they had at the.

00:05:45 The Interviewee

Time and there was absolutely no architecture.

00:05:49 The Interviewee

Planning around, you know the different domains like business, architecture an and then you know mapping that to value streams, which are the applications or technologies are required and critical to you know meeting or executing on those value streams.

00:06:04 The Interviewee

From business architecture perspective.

00:06:06 The Interviewee

I mentioned the capabilities so it didn't look at that and now we're identifying gaps in how the tier one we call them tier one or the transformation of programs are actually structured.

00:06:18 The Interviewee

It was also a very siloed man.

00:06:20 The Interviewee

Now.

00:06:22 The Interviewee

In which these two one projects were were you know formulated because of the fact that they focused the strategy, focused purely on modernizing, was currently there.

00:06:31 The Interviewee

So if it was applications at the application landscape of a finserve Department, for example, then you know the Tier 1 project was structured around that instead of looking for opportunities.

00:06:43 The Interviewee

At an enterprise level, to say hey, you know, enterprise content management is actually an enterprise capability that is required.

00:06:50 The Interviewee

Workflow management is an enterprise capability that's required.

00:06:54 The Interviewee

Master Data Management is an enterprise capability that's required so they weren't structured in that way, and so we you know, kind of like on the back foot from an enterprise architecture perspective to see or to position certain technologies in an enterprise level versus what would be positioned for Department's because of their unique function so.

00:07:16 The Interviewee

So I think it's become evident, and I know I've been long winded, but it's become evident through the gaps that we're identifying now in the structuring of the programs in the technologies we have to land in, where the bank wants to go.

00:07:29 The Interviewee

You know, the importance of enterprise architecture and the gaps that we've identified because of the lack thereof.

00:07:36 The Interviewee

In the initially, when these programs are structured.

00:07:40 The Interviewer

Perfect, thank you.

00:07:41 The Interviewer

Yeah you said long winded but I think you you identified many critical elements that isn't even coming out through to research.

00:07:49 The Interviewer

That is key for success and so you know you mentioned some of these things.

00:07:57 The Interviewer

The important elements, as you know, understanding the tech landscape, understanding your target state, alignment with strategic objectives, right?

00:08:05 The Interviewer



So in your view, what would be the?

00:08:08 The Interviewer

You know some of the key expectations out of your team.

00:08:15 The Interviewee

Yeah, so in my view the key expectations from my team are actually two deliver.

00:08:23 The Interviewee

You know those?

00:08:25 The Interviewee

Uh Enterprise architecture assets.

00:08:28 The Interviewee

I call them because they're actually assets of the organization, not just artifacts.

00:08:33 The Interviewee

I think assets.

00:08:35 The Interviewee

Describe that you actually get some value from the artifact itself, so in this particular case it would be a view of the current technology landscape and how it's transforming overtime.

00:08:48 The Interviewee

So also just the target architecture and the target architecture of the bank and what that looks like and how it Maps back to the business objectives.

00:08:58 The Interviewee

The road Maps are absolutely important, so that definitely would be an expectation.

00:09:03 The Interviewee

From a domain view, I think what would be really important with me to me is also just a business model understanding of these new capabilities we call them capabilities, but they're actually business model changes that the bank is bringing in, like things like Central Credit Register which basically aims to replicate a.

00:09:22 The Interviewee

It created Bureau basically on a national.

00:09:25 The Interviewee

Scale and you've got some.

00:09:28 The Interviewee

The Corporation for Deposit Insurance.

00:09:31 The Interviewee

You've got the reference rates reforms, so they you know the expectation for me would be for the for the team to actually establish some of these assets, because currently we don't have them.

00:09:41 The Interviewee

We definitely don't have them in a consistent manner, and we definitely, definitely don't necessarily have them.

00:09:47 The Interviewee

Completemet complete state either like for example, we do have an application and technology portfolio, but the level of completeness.

00:09:56 The Interviewee

You know, I'm not sure about that.

00:09:59 The Interviewer

Yes.

00:09:59 The Interviewee

And and whether we can get insights or the required insights from that from what we currently have is a question mark for me.

00:10:08 The Interviewee

We definitely don't have a target architecture for the bank wholistically or you know bank level kind of like capability model.

00:10:16 The Interviewee

So my expectation for the team is actually more around the enterprise architecture, you know.

00:10:23 The Interviewee

Domain you know or or focus area, because that's where.

00:10:31 The Interviewee

I'm.

00:10:33 The Interviewee

That's where there's a lot of, uh, what do you call it?

00:10:36 The Interviewee

That's where there's a lot of focus.

00:10:39 The Interviewee

An that's where we we need to build these architecture assets, because the solution architects are dependent on the actually the the enterprise architecture.



00:10:49 The Interviewee

Kind of like assets and and the domain architecture assets that are established or defined.

00:10:54 The Interviewer

Uh huh.

00:10:54 The Interviewee

Now, in order for us to make sure that we build a coherent landscape.

00:10:59 The Interviewee

We data sharing, you know is facilitate can be seamlessly facilitated interoperability.

00:11:07 The Interviewee

All of those things are taken into consideration.

00:11:10 The Interviewee

The other thing I would expect from the team is principles and definitely standards.

00:11:15 The Interviewee

The challenge I'm having at the moment is the fact that, uh.

00:11:19 The Interviewee

A lot of for the capabilities we currently don't have in the bank.

00:11:23 The Interviewee

We actually don't have any standard and we haven't positioned any technology to address that and so with these big transformational projects that are happening, the project end up being the ones the select the tool.

00:11:37 The Interviewee

And whereas I feel at an enterprise level, we should have already selected and positioned tools and then the projects just use that as a guide to implement.

00:11:48 The Interviewer

Absolutely.

00:11:49 The Interviewee

If you understand my meaning.

00:11:50 The Interviewer

Yes.

00:11:50 The Interviewee

So so the the gap that we have at the moment is will go out an RFP and this is a situation that's happened.

00:11:57 The Interviewee



Regarding RFP, we get the vendors to respond and propose technologies that they would deploy to satisfy a particular need.

00:12:03 The Interviewee

You know, for a transformation or probe.

00:12:06 The Interviewee

Uhm, capability that's required and and then the vendors come back with two different or three different responses.

00:12:14 The Interviewee

Now since we haven't set a standard and taking the standard to the market, we can't.

00:12:21 The Interviewee

We don't have much room we're going to have to now.

00:12:23 The Interviewee

We have to now do it at the exercise.

00:12:25 The Interviewee

We should have done in the first place.

00:12:26 The Interviewee

To say hey for this particular capability, you need to use the following technology.

00:12:31 The Interviewee

And because it aligns to the skills we have in the bank, it aligns to where the bank is going.

00:12:35 The Interviewee

It aligns with you know where Gartner, an other industry kind of like.

00:12:42 The Interviewee

An institution's you know research institutions are saying that you know the technology and development in this particular are going. It doesn't make sense to bring into the bank costly technology that is like 11 years old. You know we need to future proof the solutions as much as possible, so in certain areas we have to get the latest.

00:13:01 The Interviewee

In the greatest in other areas, we don't necessarily have to, so those demarcations you know I'm expecting at the enterprise architecture level for those things to be resolved and at the moment they're not, and so we're not providing the type of guidance that projects are required projects require, so that is a clear expectation from my side aside from the reference models, etc.

00:13:23 The Interviewee

Those are, you know, foundational, kind of like assets.

00:13:26 The Interviewee

That any enterprise architecture team needs to have.

00:13:30 The Interviewee

But for me in demonstrating the value of architecture, it's important that we provide the necessary insights to business to allow them to plan to allow them to understand their environment, the environment that they are currently operating in, yeah.

00:13:44 The Interviewer

Yeah, so so I like you said you know you labeled it EA assets because I think a lot of things can be put into their pockets and you've mentioned quite a oratore of things right now.

00:13:56 The Interviewer

Principles, standards, business model changes an rightfully they form the foundation.

00:14:03 The Interviewer

If we're gonna.

00:14:05 The Interviewer

Almost lead the organization into a strategic direction, so in in focusing on on on that level.

00:14:16 The Interviewer

Being EA assets, what do you think are some of your your major challenges in meeting these expectations?

00:14:26 The Interviewee

Yeah, well, my major challenge at the moment is capacity.

00:14:29 The Interviewee

I actually don't have any enterprise architects.

00:14:31 The Interviewee

I've got one enterprise architect to a certain extent.

00:14:35 The Interviewee

Another challenge is capability.

00:14:38 The Interviewee

And you know, in terms of maturity of the team, let's say from an enterprise architecture perspective, the maturity.

00:14:47 The Interviewee

Of the domains you know is kind of there, but from an enterprise architecture perspective where this type of planning needs to happen where this type of level of you know

decomposition of the bank strategy into where we need to go from a technology perspective, and you know, identify capabilities that need to be enabled going forward, etc.

00:15:10 The Interviewee

I'm I'm not sure about the capability there because we also have taken quite a number of quite some time to deliver what we currently call the city plan, which we position.

00:15:20 The Interviewee

We aim to position as the target architecture.

00:15:22 The Interviewee

With the bank, so it's taken some time and it's actually taken quite, you know, collaboration that was required, so I think it's a matter of capacity definitely, and capability to actually deliver on that.

00:15:36 The Interviewee

The other thing is that the bank is also maturing its strategy formulation, so you will find that the strategy the bank strategy is actually quite a tactical strategy to a certain extent.

00:15:47 The Interviewee

It is not strategic, and it's not just strategic level, so you actually don't have strategic outcomes that we are measuring an.

00:15:56 The Interviewee

And then we can take those and translate that to how you know enterprise architecture can provide, you know, an and service and support those.

00:16:04 The Interviewee

So I think that's another challenge, but at least to mitigate this particular challenge, we're working quite closely with the SM.

00:16:10 The Interviewee

Oh, an, and from a capability perspective I'm putting together like, you know, forums and.

00:16:18 The Interviewee

Looking at, you know your gardeners your infotech to kind of provide input into.

00:16:23 The Interviewee

You know what we've delivered.

00:16:25 The Interviewee

Uh, the what do you call it? The reviewing? Some of the documentation you know, our charter, ET cetera, and also just trying to foster collaboration across the industry so so that



you know we don't necessarily have to have, you know, a great architects, because the Bank's current.

00:16:45

Yeah.

00:16:47 The Interviewee

Pay scales don't actually support what we need there, and we can't compete with the market.

00:16:53 The Interviewee

However, we can't get the market we can benchmark with the market and see where our gaps are and we can use the market to assist us to mature.

00:17:02 The Interviewee

So that's my plan, you know.

00:17:05 The Interviewee

But those are, I think, the main challenges.

00:17:07 The Interviewee

Capacity, the capability of the team in terms of maturity and where they are in delivering some of these assets and insights.

00:17:15 The Interviewee

I think another challenge would also be just what you call it.

00:17:19 The Interviewee

Our lack of understanding of the business, but I think we're getting there in certain areas.

00:17:23 The Interviewee

You know.

00:17:24 The Interviewee

Like Finserv the PA an.

00:17:28 The Interviewee

ESD, but in other areas you know our understanding of the business is actually quite lacking, and so it makes it a bit challenging. You know to provide kind of the thought leadership that is sometimes required, so the thought leadership we provide is more from a technical perspective and not necessarily from business. Kind of like value. Add perspective.

00:17:49 The Interviewer

Uh huh.

00:17:50 The Interviewee

Yeah, so I think that's a that's another challenge and maybe the last one is actually business architecture. You know, we still through the SMO or running proofs of value with different business areas to kind of like define their business architecture, the value streams and the capabilities as the bare minimum and.

00:18:10 The Interviewee

The ecosystem in which that particular Department.

00:18:14 The Interviewee

Operates.

00:18:16 The Interviewee

And so that's been a bit of a challenge because it's a bit difficult to actually validate what the business is saying to you.

00:18:23 The Interviewee

If you don't have that particular view, and it's also a bit difficult and challenging to predict or to you know, kind of like earmark new technologies for example.

00:18:35 The Interviewee

If you don't know where that particular business is going an.

00:18:38 The Interviewee

Where they aim to add value, so that's been a bit of a challenge, but we also we also kind of like addressing that.

00:18:45 The Interviewee

I think the next challenge would be where business architecture is positioned.

00:18:49 The Interviewee

From my perspective, I feel.

00:18:52 The Interviewee

I'm neither here nor there as long as there's an enterprise kind of like ownership of the enterprise representation consistency.

00:19:02 The Interviewee

Setting those rules around business.

00:19:05 The Interviewee

However, I do feel strongly that the business architects themselves need to sit in business.

00:19:11 The Interviewee

To make sure that they stay abreast of business, any business model changes to make sure that they know business in and out.



00:19:18 The Interviewee

You know thoroughly, and there's also a bit of SME knowledge that's required in some of these areas, like in financial markets.

00:19:25 The Interviewee

For example, you know there's some SME knowledge that's required that is unique to financial markets.

00:19:32 The Interviewee

Maybe in the research Department as well, you would need a business architect that kind of understands the research environment an.

00:19:41 The Interviewee

And.

00:19:43 The Interviewee

Uh, what else Anne?

00:19:46 The Interviewer

I I, I think you've covered it.

00:19:48 The Interviewee

You get the gist of it, OK?

00:19:50 The Interviewer

You covered it nicely and and I actually went into my my next question, which is what can we do to overcome it, but what's interesting is you mentioned capacity, right?

00:20:01 The Interviewer

So just some insights into what some case studies have come back in saying.

00:20:06 The Interviewer

So we could probably.

00:20:07 The Interviewer

Rate link capacity to two roles and responsibility because that's quite a key thing that's been identified as a burning.

00:20:14 The Interviewer

Issue when it comes to success in the practice you mentioned capability, maturity and skills.

00:20:20 The Interviewer

That is top five at the moment you mentioned.

00:20:23

Heat.



00:20:26 The Interviewer

Also, the organization is not geared for strategic initiatives.

00:20:32 The Interviewer

They're more tactically focused and that speaks to the organization culture so they.

00:20:36 The Interviewer

There's definitely elements or pain points that is experienced.

00:20:41 The Interviewer

Uh, commonly across all industries or all industries.

00:20:46 The Interviewer

I think the issue is that because it's seen as such a light thing, we almost think that we can fix it while in flight and not give it the attention that it needs.

00:20:57 The Interviewer

So definitely it's something that is experienced and it's something that we need to look at.

00:21:03 The Interviewer

In terms of what should we do and how do we address it if we want to increase the majority of our framework so that is that was great.

00:21:09 The Interviewer

Thanks for that.

00:21:12 The Interviewer

You've also answered the following question, which I wanted to find out.

00:21:17 The Interviewer

In your view.

00:21:19 The Interviewer

What would be the top one or two things that you would want to see EA doing and you spoke about it in collaboration, so I don't know if you wanna add on to that, but I mean I've got it.

00:21:29 The Interviewer

I've got the just of what you would like to see from the Department itself.

00:21:35 The Interviewee

Yeah, I think I'd like us to actually mature to be a proper EA function at the at the.

00:21:41 The Interviewee

At the moment I feel we're operating in a very rudimentary manner.

00:21:46 The Interviewee



And you know the manner in which if we were to be compared with another EA function, we probably you know our comparison wouldn't stand to muster.

00:21:55 The Interviewee

I understand our maturity level where we currently are, but I feel in order for us to deliver these assets and actually, you know, get the insights something like a EA modeling tool.

00:22:06 The Interviewee

And everyone muddling According to him, you know?

00:22:10 The Interviewee

In a consistent manner an you know professionalizing our practice, for example, EPA models according, you know, using the argument standard, etc.

00:22:21 The Interviewee

You know, I think, that is a drive for me.

00:22:23 The Interviewee

Next year, we cannot call ourselves architects when we don't produce architecture assets and produce them in a consistent manner.

00:22:30 The Interviewee

Because that's one of the things that architects do is to sit.

00:22:33 The Interviewer

Yeah.

00:22:34 The Interviewee

The the the standards in which you formulate representations, and they mean the same thing.

00:22:40 The Interviewee

If I look at one diagram for one architect and I go to a different architecture, you know company and I look at models that they produce.

00:22:47 The Interviewee

The interpretation would be the same, right?

00:22:50 The Interviewee

This scaling mechanisms are the same that they use, yet areeta so.

00:22:55 The Interviewee

And you know the objects that they use to demonstrate that this is a door.

00:22:58 The Interviewee

This is a passenger.



00:22:59 The Interviewee

This is what are the same.

00:23:00 The Interviewee

They're consistent, so we need to.

00:23:02 The Interviewee

Actually, I think one of the other things would just be to professionalize our practice.

00:23:07 The Interviewer

Yeah, I think what makes it very difficult is that there isn't really a majority model for EA, so we we tend to adopt the different models that out there an we pick the ones that best makes us look good.

00:23:22 The Interviewer

If you know what I'm saying and and I think that's the that's actually.

00:23:26 The Interviewer

Was the real need for for doing something like this in my my research?

00:23:30 The Interviewer

So it's definitely something that that we need to look at, and some of these things are foundational.

00:23:34 The Interviewer

You know, creating a model in a in a unified manner?

00:23:38 The Interviewer

That's understand understandable by anybody is something that's foundational.

00:23:42 The Interviewer

So I definitely agree with you, right?

00:23:46 The Interviewer

Uh, OK.

00:23:47 The Interviewer

OK.

00:23:48 The Interviewer

So often I mean you know expectations from from you to you being ITN and business.

00:23:55 The Interviewer

There's always a difference in how can I say what we want out of the service right?

00:24:03 The Interviewer

And so if I had to ask you what do you think now and if I.



00:24:08 The Interviewer

I'm asking you to answer on behalf of business.

00:24:10 The Interviewer

What do you do?

00:24:10 The Interviewer

You think business is gaining that anticipated value from from EA at this stage?

00:24:17 The Interviewee

No, I think I think they in in different levels, right?

00:24:21 The Interviewee

I think firstly business doesn't understand enterprise architecture except where in areas disparately but not consistently where architecture and the role that it plays and the value that it adds.

00:24:37 The Interviewee

Two projects has been explained and demonstrated, so in certain projects that has been done and business has seen value in that because it's added, EA has added value to businesses, thought process and for example how to approach certain problems etc.

00:24:55 The Interviewee

In

00:24:57 The Interviewee

But from and that's more from a project perspective, so that would be on the solution architecture side.

00:25:03 The Interviewee

It hasn't been consistent, but there's been pockets of value that has been demonstrated.

00:25:09 The Interviewee

I think.

00:25:10 The Interviewee

I also just recently received feedback in my performance appraisal from the CIO, saying that she's seen the demonstration of thought leadership.

00:25:18 The Interviewee

In some of these programs and in others she has.

00:25:20 The Interviewee

Send an you know and then what do you call it?

00:25:23 The Interviewee

But from the enterprise architecture side.

00:25:26 The Interviewee

OK, so maybe if I focus on the domains from the security domain, yes business has seen value from the data domain.

00:25:32 The Interviewee

Yes business in value, the application side of things and the technology side of things.

00:25:38 The Interviewee

I'm not really certain I think.

00:25:41 The Interviewee

There is more value that we can add once we've matured that particular process.

00:25:47 The Interviewee

And then in terms of.

00:25:51 The Interviewee

In terms of what you call it, enterprise architecture itself, once we've done that city plan once, we have demonstrated what value it can provide in terms of the road Maps.

00:26:04 The Interviewee

Once we have shown what other insights that you can glean from it, like you know, you can come up with a Technology Strategy.

00:26:12 The Interviewee

We can have a road map as to how we're going to decommission certain applications.

00:26:15 The Interviewee

And possibly save on licensing costs, ET cetera.

00:26:18 The Interviewee

Then value would be demonstrated at the moment because it still doesn't exist.

00:26:23 The Interviewee

It hasn't been completed.

00:26:24 The Interviewee

I cannot say that value has been demonstrated to the business.

00:26:29 The Interviewer

Here.

00:26:29 The Interviewee

I think yeah.

00:26:30 The Interviewer



Yeah.

00:26:32 The Interviewer

No, definitely yeah, I think I think that's always been a very difficult question to to answer because different organisations look for different things with the value of Y.

00:26:45 The Interviewer

And it's very important for us to understand our stakeholders first before we could understand what value we provide into them.

00:26:53 The Interviewer

So I agree with that.

00:26:55 The Interviewer

Uhm?

00:26:56 The Interviewer

Alright, so I think.

00:26:58 The Interviewer

You know we we kind of spend a lot of time on on the negatives of of EA, and I think it's important for us to know these things so that we can mature.

00:27:08 The Interviewer

But if I had to ask you, what would be the top two things that you think that EA is doing right?

00:27:14 The Interviewer

What would those two things?

00:27:17 The Interviewee

I think at the moment what we're doing right is definitely providing putting focus on maturing our practice.

00:27:25 The Interviewee

I think over the past year through Project Marvel just focused attention has been placed on the maturity because in the past there was no focused attention and so.

00:27:37 The Interviewee

You know the status quo was maintained, but with the focus attention now having created a maturity, you know project.

00:27:45 The Interviewee

Called Project Marvel, etc.

00:27:47 The Interviewee

We have actually given the time to finalize and formulate the charter.



00:27:52 The Interviewee

Yes, it still needs to be approved by the CIO, but to finalize it to talk about a communication plan to produce the business topology, map those types of things.

00:28:02 The Interviewee

If it wasn't for the focused attention, I don't think.

00:28:05 The Interviewee

That we would have achieved.

00:28:07 The Interviewee

Secondly, I think the EA team itself is working more together.

00:28:10 The Interviewee

As a team we are collaborating a bit more and and we're defining those standards at which you know we should work at so I feel.

00:28:21 The Interviewee

You know, even though.

00:28:22 The Interviewee

You know, even though with the little capacity.

00:28:27 The Interviewee

That we all the capacity issues we have.

00:28:29 The Interviewee

We have delivered a lot.

00:28:31 The Interviewee

I mean, we've delivered against the projects we've delivered against Project Marvel outcomes, even though.

00:28:38 The Interviewee

What do you call it an?

00:28:40 The Interviewee

I expected a bit more from, you know, the company that we had contacted to assist us with this process, but the team ended up doing it and because the team ended up doing it, the team now owns it, you know?

00:28:51 The Interviewee

So which is a good thing because I think one of the challenges of getting an outsider to come and define certain things for you.

00:28:57 The Interviewee



It becomes then you know that outside this piece of work, which has been what has happened before the templates were, you know, defined by someone else's notion or they were defined by real IRM or whatever. And then the team never adopted that. So because we are defining some of these things.

00:29:14 The Interviewee

Maturity elements you know the buy in is there.

00:29:19 The Interviewer

Yeah, I think I need to agree with you there.

00:29:21 The Interviewer

I think one of the most difficult things for outsiders to to be aware of or have a sense of is organization, culture.

00:29:30 The Interviewer

And if you don't, you know even at the documentation level, if you're not fitting into the way of work that.

00:29:36 The Interviewer

That your organization is doing it won't be adopted if it's if it's not recognized.

00:29:40 The Interviewer

So definitely agree with.

00:29:42 The Interviewer

But

00:29:43 The Interviewer

Alright, so thank you very much.

00:29:46 The Interviewer

That actually brings us to the end of of the questions.

00:29:49 The Interviewer

It was definitely a very interesting conversation, to say the least.

00:29:54 The Interviewer

Not an interview because I did pick up a lot of things that is definitely reflected in literature and in other case studies.

00:30:04 The Interviewer

So thank you so much for your time.

00:30:06 The Interviewer

I think before we bring the interview to this to an end, is there anything any questions you have for me?

00:30:14 The Interviewee

So this framework that you are defining and is it applicable to a specific industry?

00:30:22 The Interviewee

Or is it just a generic framework?

00:30:24 The Interviewer

So.

00:30:26 The Interviewer

It would be specific to financial services.

00:30:30 The Interviewer

It was specific to banking, but would it being so specific, then it's not anonymous anymore so I had to widen that to become financial services.

00:30:42 The Interviewer

Which is why the case that I'm testing against is this organization.

00:30:48 The Interviewer

Uh, the intent is to come up with a framework that is.

00:30:54 The Interviewer

Kind of similar to existing frameworks that exist out there, but what would that end of difference that we going to focus also on the social technology factor of practice?

00:31:07 The Interviewer

So So what is involved?

00:31:08 The Interviewer

Because it's no point in US understanding that we need to have principles, we need to have standards but.

00:31:15 The Interviewer

What is the implication of that off that would on people and technology you know?

00:31:20 The Interviewer

What are the change management aspects that we need to do focus on and what maturity levels do we need to concentrate on?

00:31:28 The Interviewer

What are the collaboration efforts that we need to do?

00:31:30 The Interviewer



You spoke about sales and marketing indirectly.

00:31:33 The Interviewer

You know, we need to get.

00:31:34

Yeah.

00:31:35 The Interviewer

That out there, and so these things actually all lead up to the success of EA within the organization, because it's no point in having success within the Department.

00:31:46 The Interviewer

It has to be seen outside and the focus of this framework is to extend that success to an organizational.

00:31:53 The Interviewer

So at the end of it, I hope to come up with some way that say these are the areas that you need to focus on, and I can tell you now that team is absolutely clear from just this conversation and what came out in the first part of the research.

00:32:08 The Interviewer

There is definitely alignment in terms of what people are experiencing and what we need to concentrate on.

00:32:08 The Interviewer

He

00:32:14

Yeah.

00:32:16 The Interviewee

OK cool, but I think I think Oh yeah, I think in the banking context I think it.

00:32:18

Great.

00:32:24 The Interviewee

I think it's definitely you know what do you call it important because you know I haven't.

00:32:30 The Interviewee

I'm still waiting for Michelle to kind of like set up the session with the ECB.

00:32:36 The Interviewee

The European Bank to just understand.

00:32:40 The Interviewee



So how do they go about architecting?

00:32:42 The Interviewee

What is the architecture function look like, you know?

00:32:47 The Interviewee

Because we're going to move, you know, the place, the space in which we're moving at, you know, from a bank encante

00:32:54 The Interviewee

It's going to move to as establishing platforms through which people can share data.

00:33:00 The Interviewee

You know where where the platform brings together the consumer and the provider of the data.

00:33:05 The Interviewee

You know some similar concept to your general kind of like businesses.

00:33:09 The Interviewee

We've got platform business models like Uber and Facebook etc.

00:33:14 The Interviewee

I think we're going to move to that because you know this disparate manner in which we exchanging data and and actually the sharing of data is becoming more and more prominent.

00:33:23 The Interviewee

Now you know, what do you call it in a banking kind of like function?

00:33:29 The Interviewee

Uh, so I I I want to find out from you know, the people who are perceived to be more mature than us.

00:33:35 The Interviewee

How are they doing it?

00:33:36 The Interviewee

How they structured?

00:33:37 The Interviewee

What is the value add of enterprise architecture from their perspective?

00:33:41 The Interviewee

Because, you know, depending on your maturity and where your focus areas are the enterprise, the value that enterprise architecture provides is different.



00:33:50 The Interviewee

In

00:33:51 The Interviewee

Context we're trying to architect a new technology landscape for the bank and move it there, but also just to try and assist it in meters, objectives, and so the value that we provide is in that isn't standardizing.

00:34:04 The Interviewee

It's in optimizing and kind of like a.

00:34:08 The Interviewee

Rationalizing our technology landscape, which is currently disparate and I I don't even know how much it's costing us per annum and some of the insights we can provide is around that is around. How do we move from baseline to target? How do we help? How does the target assist you in meeting your business objectives for 2025? That's where our main value add is supposed to be, and I feel.

00:34:30 The Interviewee

The services and.

00:34:32 The Interviewee

That we provide both from an EA perspective domain perspective and solution architecture perspective needs to be framed around that. So the solution architects are very critical through their programs in moving S2 from target from baseline to target. But someone still needs to define the target. The target hasn't really been defined and we can't measure how it Maps back to, you know the enterprise.

00:34:53 The Interviewee

Objectives defined by the bank in their banking in their strategy.

00:34:58 The Interviewee

If you understand what I mean so.

00:34:59 The Interviewer

Absolutely.

00:35:01 The Interviewer

So So what?

00:35:01 The Interviewee



So that way the value you know is now that possibly would be different from the value that ECP needs to add the EA function, because you may find that their their matured a bit when it comes to that you know, yeah.

00:35:16 The Interviewer

Yeah, yeah, so so you definitely touching on what EA in my mind is going to eventually.

00:35:25 The Interviewer

Transform into 'cause we're looking at enterprise architecture now.

00:35:29 The Interviewer

At some point there's going to be an.

00:35:31 The Interviewer

I don't know what it's called and I'll just give it a name for for now as industry architecture, because at some point, like you saying sharing of data, it's going to be a collaboration of industries coming together and hosting data would.

00:35:46 The Interviewer

You know with the likes of Big Data an and such, so we're definitely going to move from a more localized enterprise view to a larger industry view of how we we get systems to talk to each other and leverage of information.

00:36:06 The Interviewee

Yeah, and I think that's the other thing that's missing.

00:36:08 The Interviewee

You know?

00:36:09 The Interviewee

It's a research around this, you know.

00:36:14 The Interviewee

But anyway, it's something people will mature too, but I think we need to put the foundational elements in place in order for us to mature.

00:36:14 The Interviewer

Definitely.

00:36:20 The Interviewee

You can't build a house without a solid foundation, and so for me, that's why this year I've been driving.

00:36:26 The Interviewee

The foundational elements you know around formulating a strategy for EA that talks to how we add value and the services we provide.

00:36:33 The Interviewee

We've defined that now in the charters, but we still the missing gap for me is the services in the charters.

00:36:38 The Interviewee

The deliverables in the chart is how do they map back to the drivers from a business perspective?

00:36:44 The Interviewee

And then obviously you know the EA tool.

00:36:46 The Interviewee

We're busy with that the work is progressing on that.

00:36:49 The Interviewee

Looking at whether we're structured properly, getting additional capacity on board, you know that type of thing.

00:36:55 The Interviewee

So the foundation.

00:36:56 The Interviewee

I think if we've got a solid foundation, it would be great for us to build from, you know, yeah.

00:37:02 The Interviewer

Absolutely.

00:37:04 The Interviewer

Great, thank you so much for your time.

00:37:07 The Interviewer

This was actually a very informative session for myself.

00:37:12 The Interviewer

I think have a great day and and stay healthy and safe.

00:37:17 The Interviewee