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Coping with Integrating Enterprise Architectures in Case of Mergers & Acquisitions

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MASTER'S THESIS

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Abstract

Enterprises are increasingly getting involved in Mergers and Acquisitions (M&As). The majority of M&As (70 to 90%) will turn out to be a failure, as it does not reap the envisaged benefits. There is not just one type of M&A: an enterprise can acquire an organization and integrate it (or not), or it can merge with one to form a new organization. When organizations are subject to an M&A, two separate Enterprise Architectures can be distinguished, (1) the Enterprise Architecture of the parent organization, the organization which acquires an organization and (2) the Enterprise Architecture of the target organization, the organization that is subject to getting acquired by or merged with the parent organization. During this M&A process, it is inevitable that something happens with these two separate Enterprise Architectures. The goal of this research is to find out how organizations can cope with integrating Enterprise Architectures in case of M&As. Coping with integrating Enterprise Architectures during M&As, starts by distinguishing the different types of M&As which an organization can engage in. This inductive and exploratory research had a focus on four categories of M&As which are based on different types and approaches to M&As. Qualitative research methods were used in order to gather data for each of the 12 researched cases. Based on experiences from these M&As that occurred in the past, the impact on the Enterprise Architecture as well as best practices, challenges, and common pitfalls for integrating Enterprise Architectures in case of M&As, have been described in general and on a category basis. When coping with integrating Enterprise Architectures during M&As, the first question that must be asked is: should we even integrate in the first place or is it better to keep the acquired organization separate? In the end, this research created some sort of lessons learned/handbook for future M&As. However, it must be noted that the context of every M&A is very important as a lot of variable factors play a role in an M&A transaction. Nevertheless, this study gives a good impression of what usually goes wrong (and right) and what points should be kept in mind from an Enterprise Architecture perspective when engaging in M&As.

Key words: Enterprise Architecture, Mergers & Acquisitions, Integration

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Daan van Horssen
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Chapter 1

Introduction

1.1 Problem Statement

The topic of Enterprise Architecture started to get increasing attention in the late 1980s [21]. The Enterprise Architecture of an organization can be very complex and practice shows that it is often not clear what Enterprise Architecture exactly is and what this term comprises: Is it just the IT application landscape or infrastructure of an organization or is it more than that? In general, Enterprise Architecture can be described as a coherent set of principles, methods, and models used in designing and comprehending the structure of an enterprise, including their business processes, information systems, and IT infrastructure [35]. In section 2.1 Enterprise Architecture, the topic of Enterprise Architecture will be discussed more in depth. Next to that, many organizations are subject to M&As. The term "merger" refers to the merging of two organization where one new organization will continue to exist and the term "acquisition" refers to the acquisition of assets by one organization from another organization [20]. In section 2.2 Mergers & Acquisitions, the topic of M&As will be discussed more in depth. In 2020, the number of M&As in The Netherlands grew for the 6^{th} year in a row [13]. For many enterprises, M&As are not considered as individual events, but rather represent common instruments of modern business strategies [22]. In addition, the phenomenon of M&As are among the biggest challenges for enterprises and their IT organizations to navigate [5]. In case of an M&A, there are two (or more) separate Enterprise Architectures that can be distinguished:

1. The Enterprise Architecture of the parent organization (acquirer) - the organization that acquires an organization.

2. The Enterprise Architecture of the target organization (acquired entity) - the organization which is subject to getting acquired by an organization.

It is inevitable that something needs to happen with these two separate Enterprise Architectures during an M&A. It is likely that these two Enterprise Architectures need to be integrated and formed into one single Enterprise Architecture during an M&A. In subsection 2.3.3 Integrating Enterprise Architectures during M&As, it is described how Umar (2010) calls this situation 'a real headache' for enterprises and that this situation is typically referred to as the 'information silo' problem: M&As introduce multiple silos of information that

are introducing more complexity and duplication [68]. However, what is exactly the impact of an M&A on the Enterprise Architecture? What exactly happens and how does the Enterprise Architecture changes during an M&A? How can Enterprise Architectures be integrated in case of M&As? What are common challenges, pitfalls, and best practices for performing this integration from an Enterprise Architecture perspective?

1.2 Objectives

This research is important because there is a gap in the literature and academic research regarding the topic of M&As in combination with Enterprise Architecture. First of all, there is limited literature available about Enterprise Architecture in combination with M&As. On top of that, the limited amount of available literature is mainly focused on how Enterprise Architecture can be used as a guidance tool in the M&A process [18] [28]: what is the relevance and usability of Enterprise Architecture when an organization is subject to a Merger or Acquisition. There is not a focus on what happens with the acquirer's Enterprise Architecture during and/or after it has acquired an organization or merged with one. However, this is not less relevant because, it is inevitable that the Enterprise Architecture of the acquirer will also be subject to change during M&As, as it is likely that these two separate Enterprise Architectures need to be integrated and formed into one single Enterprise Architecture during an M&A. Moreover, as Umar (2010) stated, this integration is 'a real headache' for enterprises as this situation will cause an 'information silo' problem [68]. Next to that, the literature tends to see M&As as a general term or event. However, there are different types of M&As and all these types require different actions to be taken from an Enterprise Architecture perspective. The goal of this research is to find best practices/success factors (and pitfalls) for performing this integration of Enterprise Architectures. In other words: how can organizations cope with integrating Enterprise Architectures in case of M&As. In this research, there will be a focus on several cases of M&As. These M&As will be categorized based on different types and approaches to M&As, because not every M&A is the same and has the same effect on the Enterprise Architecture of an organization.

1.3 Research Questions

In order to solve the problem as given in section 1.1 Problem Statement and to achieve the objectives of the research, research questions have been developed.

The main question of this research is:

*"**How can organizations cope with integrating Enterprise Architectures in case of Mergers & Acquisitions?**"*

In order to answer this main question, the following sub-questions have been formulated:

1. What is Enterprise Architecture?
2. What are Mergers & Acquisitions?
3. What is the impact of Mergers & Acquisitions on an organization's Enterprise Architecture?
4. What are challenges, best practices, pitfalls and strategies for dealing with Mergers & Acquisitions from an Enterprise Architecture perspective?

1.4 Research Outline

This research is an exploratory and inductive research. The theories in this final thesis are developed from an analysis of data. To answer the research questions and for developing these theories, data needs to be gathered. This research will start with a literature review in order to answer the first two sub-questions, and to lay the foundation for answering the remaining sub-questions. After the literature review in chapter 2, the research methodology will be described in chapter 3. This starts by making a selection of the M&A categories that will be subject to this research. These categories are based on different types and approaches to M&As. For each category, data will be gathered. In order to gather this data, qualitative research methods will be used. According to Williams and Moser (2019) qualitative research provides the following opportunities [42]:

1. Locate the genesis of a phenomenon.
2. Explore possible reasons for its occurrence.
3. Codify what the experience of the phenomenon meant to those involved.
4. Determine whether the experience of the phenomenon created a theoretical frame or conceptual understanding associated.

Especially, the last two items in this list are applicable to this research. The gathered data will be analysed using coding methods. Williams and Moser (2019) state that: "*Coding in qualitative research is comprised of processes that enable collected data to be assembled, categorized, and thematically sorted, providing an organized platform for the construction of meaning* [42]." Finally, the results of this research will be presented in chapter 4 of this thesis, and this follows by a discussion and conclusion in chapter 5 and 6.

Chapter 2

Literature Review

A literature review has been performed in order to evaluate existing literature around the topic and to lay the foundation for the methodology of this research. In this chapter, relevant information regarding the topic of this research will be discussed.

2.1 Enterprise Architecture

2.1.1 Definition

Enterprise Architecture and its fundamental logic began to get increasing attention from scientific and practitioner communities in the late 1980s. The increase of attention for Enterprise Architecture was mainly caused by the potential benefits of reducing operating costs, improving project execution, and increasing alignment of business and information technology (IT) [21]. However, what is Enterprise Architecture exactly and what does this term comprises? To better understand the meaning of Enterprise Architecture, it must be clear what these two separate words mean. First of all, an "enterprise". The Open Group considers an "enterprise" to be [64]:

- A whole corporation or a division of a corporation.
- A government agency or a single government department.
- A chain of geographically distant organizations linked together by common ownership.
- Partnerships and alliances of businesses working together, such as a consortium or supply chain.

According the Open Group (2018), the term "Enterprise" in the context of "Enterprise Architecture" can be applied to either (1) an entire enterprise, encompassing all of its business activities and capabilities, information, and technology that make up the entire infrastructure and governance of the enterprise, or to (2) one or more specific areas of interest within the enterprise [64]. Now that is clear what an "enterprise" is, what does "architecture" mean? According to the ISO 42010:100 standard, architecture can be described as: "*the fundamental*

concepts or properties of a system in its environment, embodied in its elements, relationships, and in the principles of its design and evolution" [35]. Now that the definitions of "enterprise" and of "architecture" are clear, what is meant with the combination of these two: Enterprise Architecture?

In 2011, Tamm et al. described Enterprise Architecture as: "*the definition and representation of a high-level view of an enterprise's business processes and IT systems, their interrelationships, and the extent to which these processes and systems are shared by different parts of the enterprise*" [59]. In general, Enterprise Architecture can be considered as a structured description of the enterprise and its relationships, which may make it the fundamental "management information system" for the enterprise. Enterprise Architecture offers an integrated representation of different enterprise layers in descriptive models of current (as-is) and future (to-be) states. At the highest level, these enterprise layers can be distinguished as business architecture and IT architecture [21]. Gartner describes Enterprise Architecture as: "*a discipline for proactively and holistically leading enterprise responses to disruptive forces by identifying and analyzing the execution of change toward desired business vision and outcomes*" [24]. Gartner states that Enterprise Architecture delivers value by presenting business and IT leaders with signature-ready recommendations for adjusting policies and projects to achieve targeted business outcomes that capitalize on relevant business disruptions [24]. On top of that, Gartner considers it the role of Enterprise Architects to support business and IT executives by identifying and analyzing business value derived from technology [1]. In 2005, Bernard stated that Enterprise Architecture defines a clear relationship between strategic planning, business planning and IT planning to meet the various needs of multiple stakeholders within an enterprise [6]. According to Boh and Yellin (2007) Enterprise Architecture can be summarized as the documentation of an organization's current (as-is) and proposed future (to-be) state in order to identify and align information resources with an organization's core goals and strategic direction [45].

To conclude, there are a lot of different definitions of what Enterprise Architecture exactly is. But in some way everything comes down to the following description: Enterprise Architecture is a coherent set of principles, methods, and models used in designing and comprehending the structure of an enterprise, including their business processes, information systems, and IT infrastructure [35]. Enterprise Architecture aligns the business and the IT landscape in organizations concurrently by managing the increasing system complexity [47].

2.1.2 Reasoning & Benefits

Niemi and Pekkola (2019) did research into the provisioned benefits and reasoning for using Enterprise Architecture. The benefits range from very abstract ones like business–IT alignment and improving decision-making, to concrete and measurable benefits such as reducing costs [44]. They noted that the variety of

benefits make it difficult to comprehend where they stem from, or what their mutual interrelationships are. They believe that this is caused by the fact that very few studies actually define the benefits of Enterprise Architecture explicitly [44]. Figure 2.1 Benefits of using Enterprise Architecture is a categorization model, developed by Niemi and Pekkola (2019), with provisioned benefits of using Enterprise Architecture:

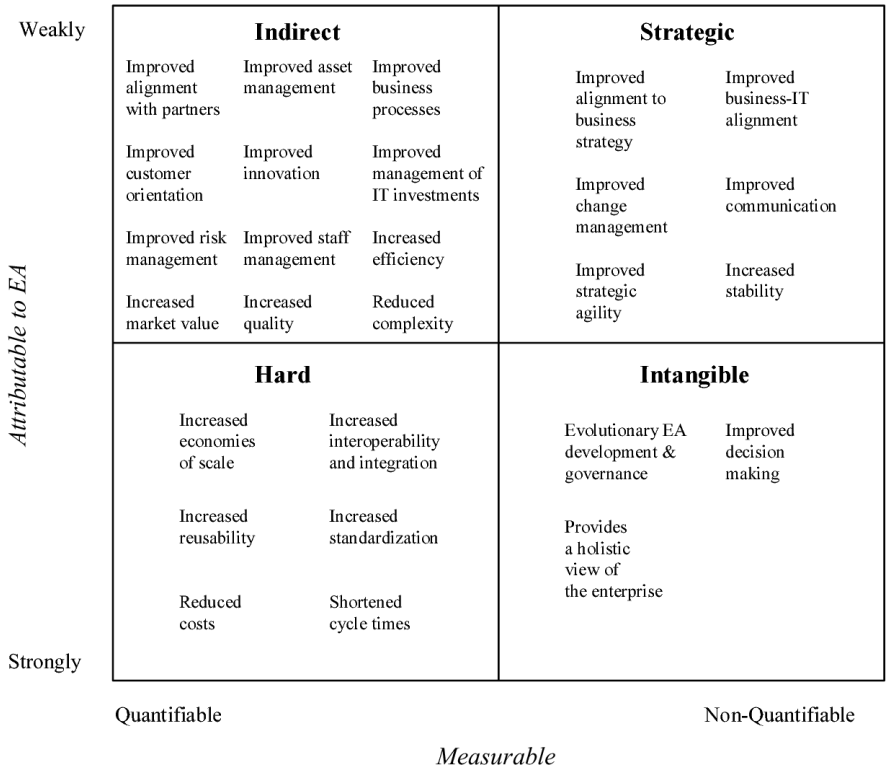

Figure 2.1: *Benefits of using Enterprise Architecture*

2.1.3 Architecture Domains

According to The Open Group, the overall Enterprise Architecture is usually divided into the following four, commonly accepted, architecture domains [65]:

1. **Business Architecture** - The domain of Business Architecture focuses on defining the business strategy, governance, organization, and key business processes within the enterprise. The Business Architecture guild has developed the Bizbok[1] guide. They see this guide as: "*as the emerging standard for building, deploying, and leveraging business architecture*

[1] Bizbok stands for: Business Architecture Body of Knowledge

within an organization [69]." Bizbok comprises a core set of Business Architecture concepts and artifacts that enables an enterprise to create, communicate and manage their Business Architecture. Figure 2.2 Business Architecture Framework shows the Bizbok Business Architecture framework [69]:

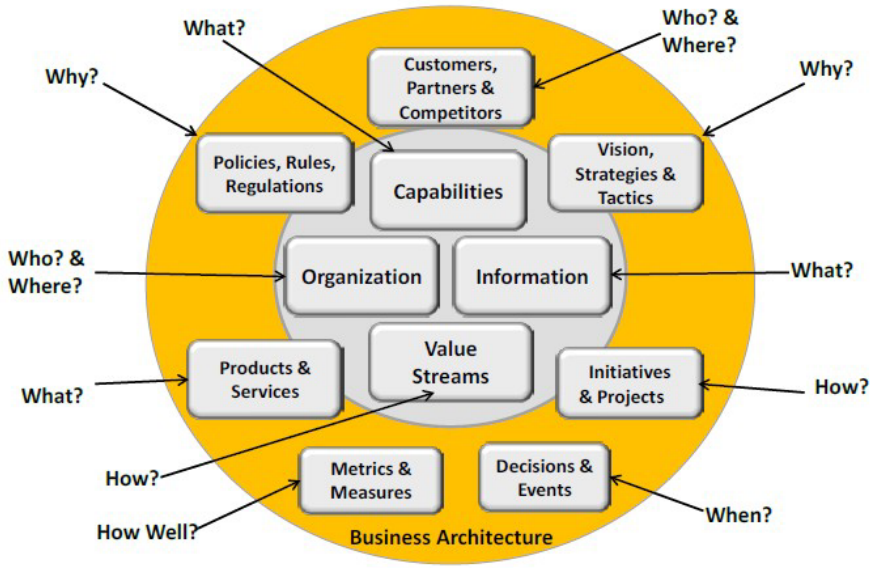

Figure 2.2: *Business Architecture Framework*

2. **Data Architecture** - The domain of Data Architecture is concerned with the structure of logical and physical data assets and data management resources within the enterprise [65]. A Data Architecture of an enterprise consists of the following three components according to Olasvrud [46]:

   (a) Outcomes - These are models, definitions, and data flows. These are also known as artifacts.

   (b) Activities - These are forms, deploys, and fulfills of data architecture intentions.

   (c) Behaviors - These are the collaborations, mindsets, and skills of the various roles that affect an enterprise's data architecture.

3. **Application Architecture** - According to The Open Group, the Application Architecture: "*provides a blueprint for the individual applications to be deployed, their interactions, and their relationships to the core business processes of the organization.*" [65] The Data Architecture and Application Architecture are both combined into the Information Systems Architecture [4].

4. **Technology Architecture** - The domain of Technology Architecture defines the logical software and hardware capabilities that are needed for an enterprise to support the deployment of the three previous mentioned architectures. Examples are the IT infrastructure, networks, communications, middle-ware etc.

Figure 2.3 Relationship of Architecture Domains depicts an overview of the relationship of the Business, Data, Application, and Technology Architectures [4]:

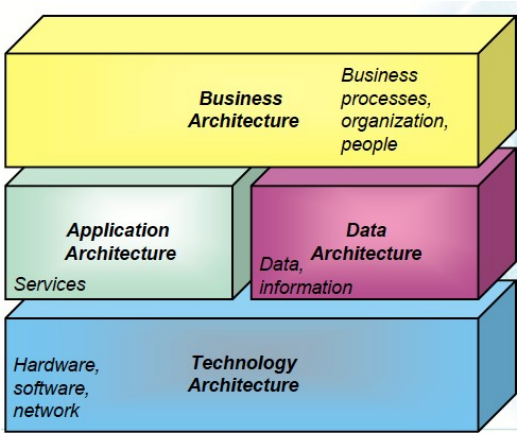

Figure 2.3: *Relationship of Architecture Domains*

2.1.4 Frameworks

An Enterprise Architecture Framework (EAF) maps all of the processes within the enterprise and how they relate and interact to fulfill the enterprise's mission [43]. The implementation of Enterprise Architecture (the Enterprise Architecture Methodology) often leads to an Enterprise Architecture Framework, which is a structure that defines the scope of the Enterprise Architecture and the relation of its components [6]. As of today, there are several Enterprise Architecture standards and frameworks such as TOGAF, MODAF, BOST and the Zachman Architecture Framework. TOGAF (The Open Group Architecture Framework) can be considered the 'de facto standard', it has been widely adopted and currently 80% of the Global 50 companies and 60% of the Fortune 500 companies employ it [47]. In this section, multiple common and well-known Enterprise Architecture Frameworks will be described.

2.1.4.1 Zachman Architecture Framework

The Zachman Architecture Framework was first introduced in an IBM Systems Journal in 1987 and it is based on the concepts in 'classical' architecture. This

makes it the first (and additionally the best-known) architecture framework that has been developed, making it one of the pioneers in the Enterprise Architecture domain [43]. The framework is easy to understand and it addresses the enterprise as a whole. The framework consists of a generic set of architectural descriptions and different views for each of the defined stakeholders [35]. The Zachman Framework has no explicit compliance rules since it is not a standard written by or for a professional organization [43]. The framework contains six aspects or views: Data (what), Function (how), Network (where), People (who), Time (when) and Motivation (why) [35]. Figure 2.4 Zachman Architecture Framework shows the Zachman Architecture Framework:

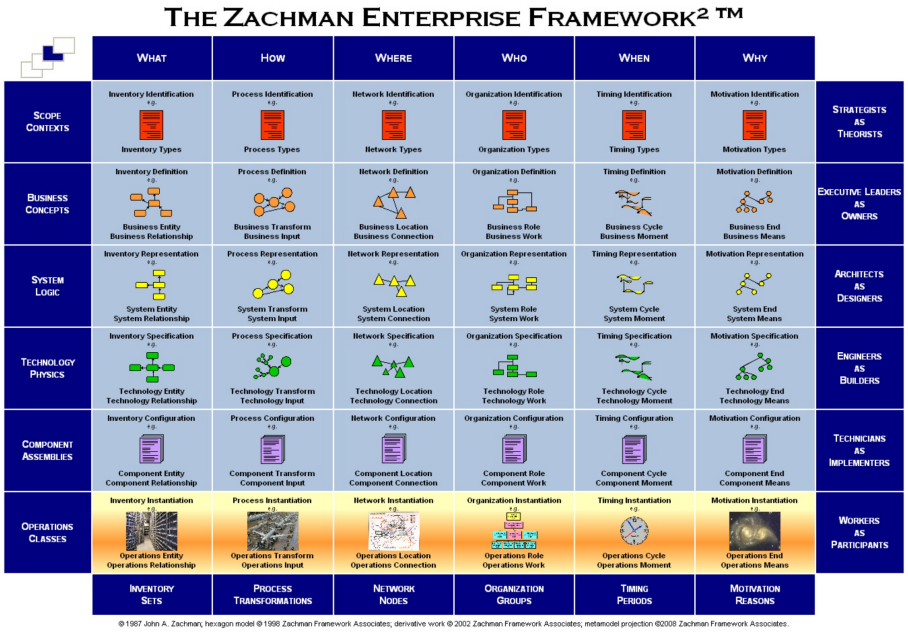

Figure 2.4: *Zachman Architecture Framework*

The Zachman framework does not provide guidance on sequence, process, or implementation, but rather focuses on ensuring that all of the views are well established. This is in order to ensure a complete system regardless of the order in which the systems were established [43].

2.1.4.2 The Open Group Architecture Framework

In 1995, The Open Group presented the first version of The Open Group Architecture Framework (TOGAF) [43]. TOGAF is a framework as well as a method. TOGAF consists of multiple frameworks and methods with the goal to align business vision and drivers with the business capabilities. In Figure 2.5 The Open Group Architecture Framework, this framework is shown:

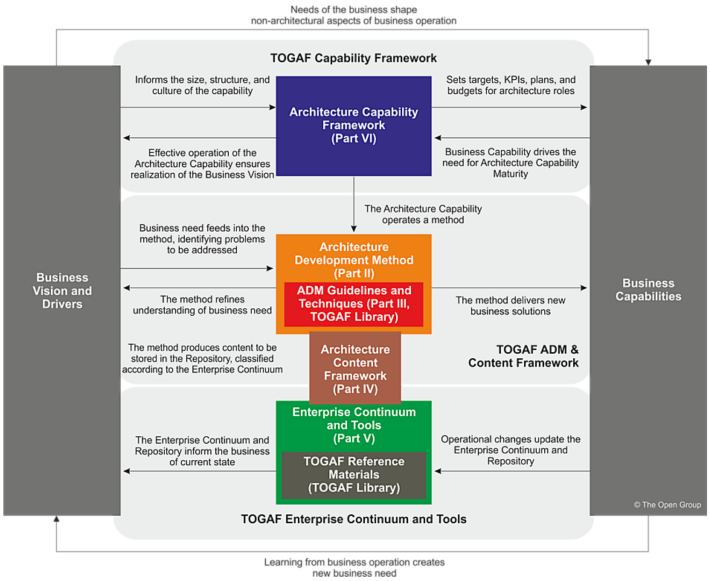

Figure 2.5: *The Open Group Architecture Framework*

In The Open Group Architecture Framework, four main components (frameworks and methods) can be distinguished:

1. **The Architecture Capability Framework** - This framework addresses the organization, process, skills, roles and responsibilities required to establish and operate an architecture function within an enterprise [35]:

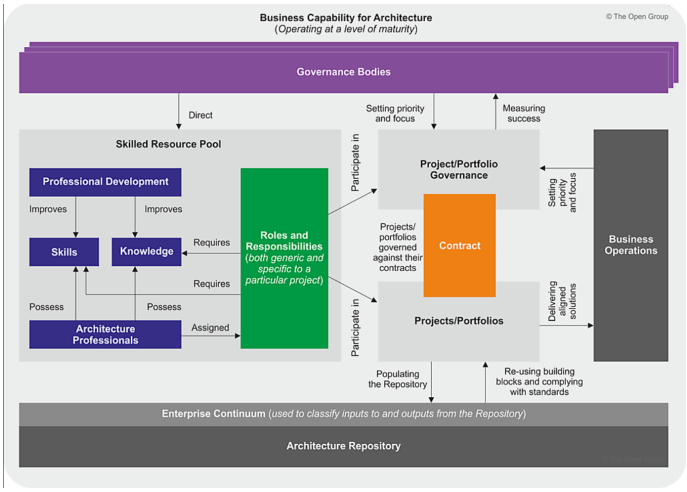

Figure 2.6: *The Architecture Capability Framework*

2. **The Architecture Development Method (ADM)** - This method is an iterative sequence of steps to develop the enterprise-wide architecture. It can be considered as a 'way-of-working' for Enterprise Architects. In Figure 2.7 The Open Group Architecture Development Method, the steps of the ADM are shown [35]:

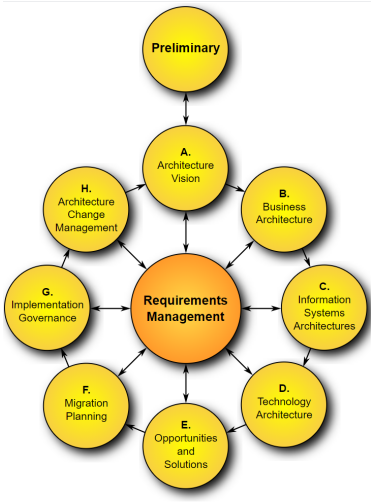

Figure 2.7: *The Open Group Architecture Development Method*

3. **The Architecture Content Framework** - This framework considers an overall Enterprise Architecture as composed of four closely interrelated architectures: Business Architecture, Data Architecture, Application Architecture, and Technology (IT) Architecture [62]:

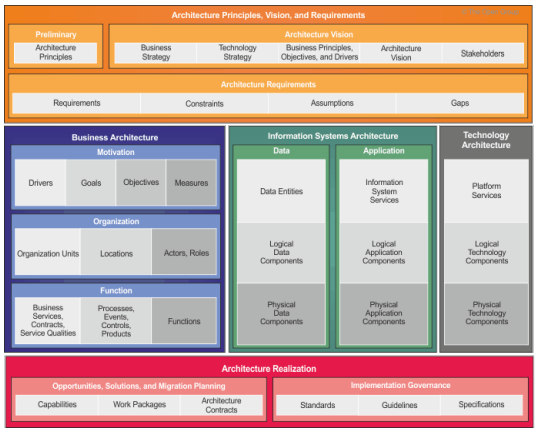

Figure 2.8: *The Architecture Content Framework*

4. **The Enterprise Continuum** - The Enterprise Continuum comprises various reference models, such as the Technical Reference Model, The Open Group's Standards Information Base (SIB), and The Building Blocks Information Base (BBIB). The idea behind the Enterprise Continuum is to illustrate how architectures are developed across a continuum ranging from foundational architectures, through common systems architectures and industry-specific architectures, to an enterprise's own individual architecture [64].

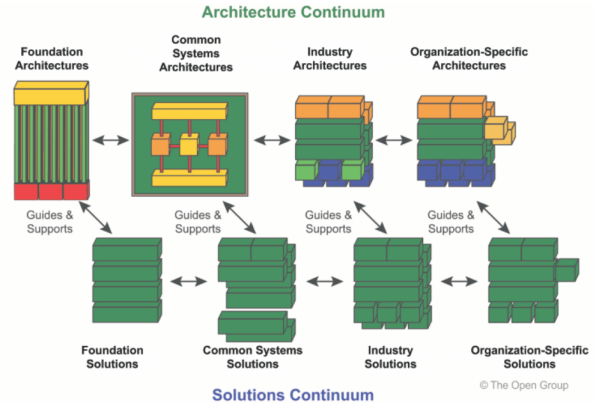

Figure 2.9: *The Enterprise Continuum*

2.1.4.3 BOST Framework

The BOST Framework, developed in 1992 by Art Caston, provides a structure for enterprise models and their elements and relationships [30]. Figure 2.10 The BOST Framework shows the BOST Framework:

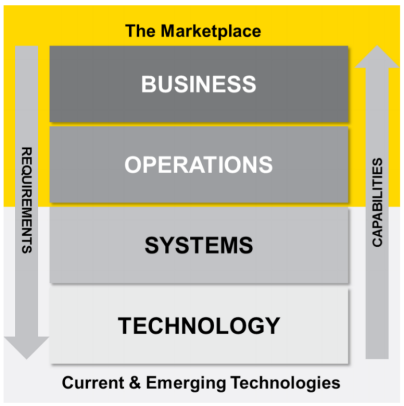

Figure 2.10: *The BOST Framework*

BOST stands for: Business, Operations, Systems and Technology. These are also the four views of the BOST Framework. In the BOST framework, enterprise requirements (left-hand side) flow downward through the four framework views, starting with the external market opportunities and stakeholder interests (the marketplace). The capabilities (right-hand side) flow upward in response to these requirements, starting from the arrival of new technologies. The key determinant of business success is how well an enterprise can align their (IT) capabilities with the constantly changing requirements in all four views [30]. Each view of the BOST Framework consists of more elaborate reference models on its own. The reference models for each view are providing the basis for the identification of the complete set of enterprise capabilities based on the requirements of the business [30]. For instance, the Technology Reference model of an organization could look like this:

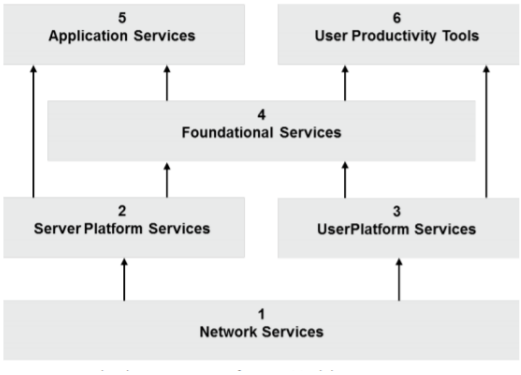

Figure 2.11: *Technology view of the BOST Framework*

In each view can be dived deeper for more specific details. The ”foundational services” of the Technology view, for instance, includes services like database, storage management, access control etc. In the BOST Framework the services of the Technology view are linked with the services in the Systems view which on their part are again linked to services in the Operations view which then finally leads to services in the Business view [30].

2.1.5 Implementation

Bernard (2005) published several common terminologies in relation to Enterprise Architecture and its implementation. Enterprise Architecture Methodology means how an Enterprise Architecture is implemented in an organization. This implementation of Enterprise Architecture (the Enterprise Architecture Methodology) often leads to an Enterprise Architecture Framework, which is a structure that defines the scope of the Enterprise Architecture and the relation of its components [6]. Most organizations deploy some sort of Enterprise Architecture program. In order to develop an Enterprise Architecture program, two main steps must be performed by organizations [6]:

1. Developing an architecture framework.

2. Developing an implementation methodology to develop, maintain and use the Enterprise Architecture.

During the first step, the development of an architecture framework, the scope of the organization that will be documented by the Enterprise Architecture must be identified. In the second step, the relationships between major business units and processes within the specified scope must be identified. The Enterprise Architecture framework can be divided into current (as-is) and future (to-be) views [6]. The as-is view documents the existing resources and alignment of an organization's strategic goals to its IT resources. The to-be view of the Enterprise Architecture extends these goals to fill performance gaps identified in the as-is architecture view [6]. The implementation of Enterprise Architecture needs to be controlled and managed in some way. Enterprise Architecture Governance refers to Enterprise Architecture activities that involves defining guidance of decision rights and the required processes, policies and procedures for the successful execution of investment decisions in support of the business and IT strategy and direction [1].

2.1.5.1 Principles

As stated previously, Enterprise Architecture is a coherent set of principles, methods, and models used in designing and comprehending the structure of an enterprise [35]. Methods and models have been covered already, but principles have not. The Open Group states that: "*Principles are general rules and guidelines, intended to be enduring and seldom amended, that inform and support the way in which an organization sets about fulfilling its mission* [60]. In terms of Enterprise Architecture, principles are reflecting a level of consensus across the enterprise, and embody the spirit and thinking of existing enterprise principles. Architecture Principles govern the architecture process, affecting the development, maintenance, and use of the Enterprise Architecture [60]. In terms of principles, TOGAF explains rules for developing good principles, rather than providing a set of architecture principles [43]. Each principle has a short name, a statement that states what the principle is, the rationale states why, and the

implications state the effect of the principle [60]. In Figure 2.12 TOGAF principle template a template of a principle is given:

Name	Should both represent the essence of the rule as well as be easy to remember. Specific technology platforms should not be mentioned in the name or statement of a principle. Avoid ambiguous words in the Name and in the Statement such as: "support", "open", "consider", and for lack of good measure the word "avoid", itself, be careful with "manage(ment)", and look for unnecessary adjectives and adverbs (fluff).
Statement	Should succinctly and unambiguously communicate the fundamental rule. For the most part, the principles statements for managing information are similar from one organization to the next. It is vital that the principles statement is unambiguous.
Rationale	Should highlight the business benefits of adhering to the principle, using business terminology. Point to the similarity of information and technology principles to the principles governing business operations. Also describe the relationship to other principles, and the intentions regarding a balanced interpretation. Describe situations where one principle would be given precedence or carry more weight than another for making a decision.
Implications	Should highlight the requirements, both for the business and IT, for carrying out the principle - in terms of resources, costs, and activities/tasks. It will often be apparent that current systems, standards, or practices would be incongruent with the principle upon adoption. The impact to the business and consequences of adopting a principle should be clearly stated. The reader should readily discern the answer to: "How does this affect me?". It is important not to oversimplify, trivialize, or judge the merit of the impact. Some of the implications will be identified as potential impacts only, and may be speculative rather than fully analyzed.

Figure 2.12: *TOGAF principle template*

In Figure 2.13 An example principle of IT Responsibility a practical example is given of a principle according to TOGAF's template [60]:

Principle 8: IT Responsibility

Statement:
The IT organization is responsible for owning and implementing IT processes and infrastructure that enable solutions to meet user-defined requirements for functionality, service levels, cost, and delivery timing.

Rationale:
Effectively align expectations with capabilities and costs so that all projects are cost-effective. Efficient and effective solutions have reasonable costs and clear benefits.

Implications:

- A process must be created to prioritize projects
- The IT function must define processes to manage business unit expectations
- Data, application, and technology models must be created to enable integrated quality solutions and to maximize results

Figure 2.13: *An example principle of IT Responsibility*

2.1.5.2 Road Maps

Enterprise Architecture Road Maps are commonly describing the incremental steps to close the gap from a current (as-is) state to a future (to-be) state [49]. This road map is often a concise (not in-depth) and graphical depiction of a planned migration toward a future state. An Enterprise Architecture Road Map functions as a planning document that is laying out activities or changes over time. Often these road maps are highlighting the interdependencies between these streams of activity that convey an organization from a current (as-is) state to a desired future (to-be) state [49]. Enterprise Architecture Road Maps provide useful information to the key stakeholders. Robertson (2006) states that it is important to note that Enterprise Architecture Road Maps are not a complete rendering of all the Enterprise Architecture guidance within an organization. With the use of road maps, organizations are trying to make their Enterprise Architecture more actionable and it functions as part of the

communication to key stakeholders [49]. Figure 2.14 Example of an Enterprise Architecture Road Map shows an example of an Enterprise Architecture Road Map:

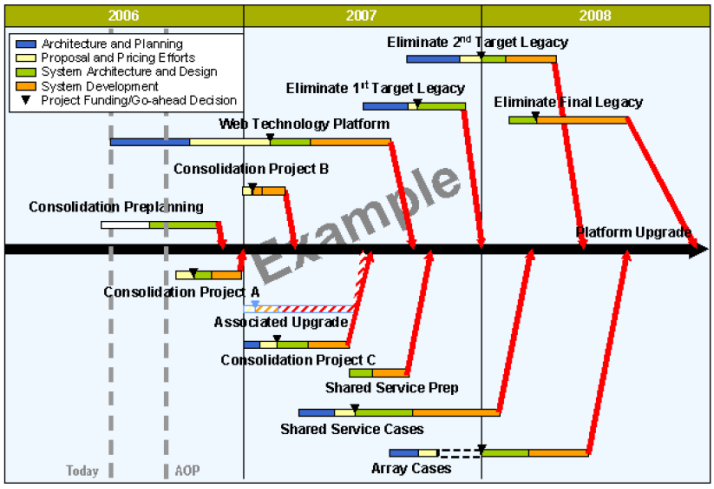

Figure 2.14: *Example of an Enterprise Architecture Road Map*

2.1.5.3 Enterprise Modeling

The process of describing Enterprise Architectures is also known as Enterprise Modeling [35]. ArchiMate is a common modeling language for Enterprise Modeling. ArchiMate is the technical standard of The Open Group. ArchiMate provides a uniform representation for diagrams that describe Enterprise Architectures [66]. In Figure 2.15 ArchiMate Framework, the ArchiMate framework is shown:

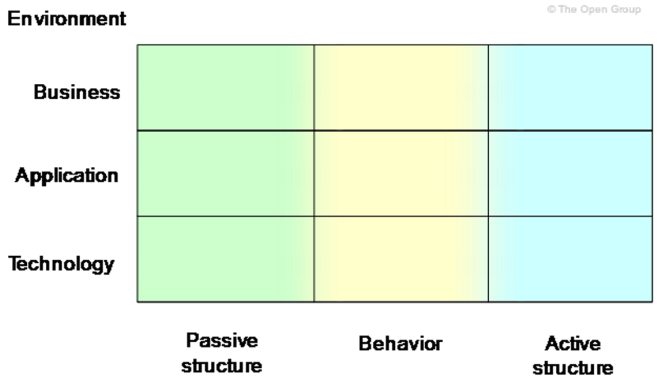

Figure 2.15: *ArchiMate Framework*

There are three aspects in the ArchiMate Framework: active structure, behaviour, and passive structure. These aspects are derived from natural language: they correspond to the subject-verb-object elements that all human languages exhibit [16]. An active structure element represents an entity that is capable of performing behavior. An behavior element represents a unit of activity that can be performed by one or more active structure elements. A passive structure element represents an element on which behavior is performed. Next to these three aspects, ArchiMate distinguishes three main layers [35]:

- **Business Layer** - products and services to external customers, which are realised in the organization by business processes (performed by business actors or roles).
- **Application Layer** - supports the business layer with application services which are realised by (software) application components.
- **Technology Layer** - offers infrastructural services (e.g., processing, storage, and communication services) needed to run applications, realised by computer and communication devices and system software.

Figure 2.16 Example of an ArchiMate Model shows an example of what an ArchiMate model could look like in an insurance company [63]:

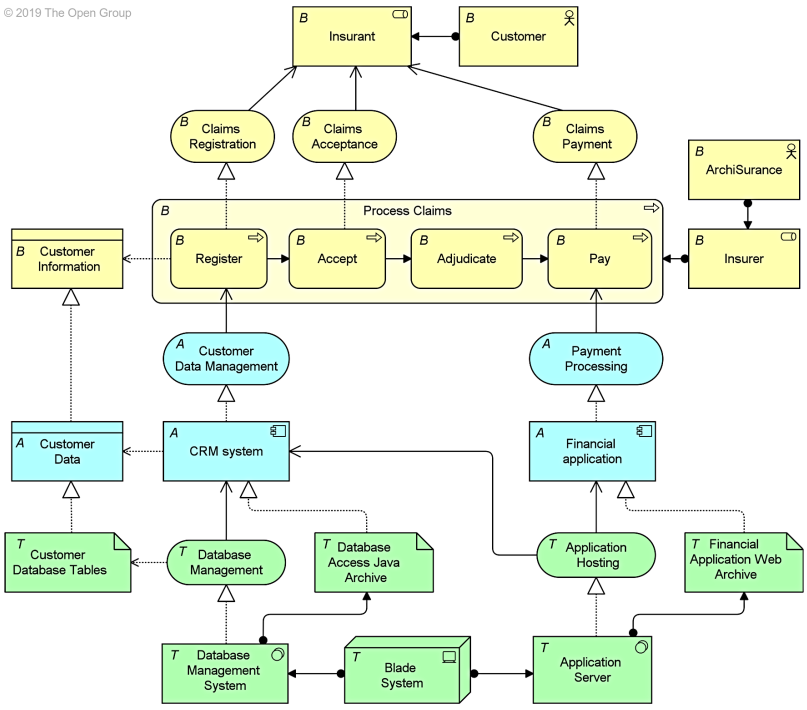

Figure 2.16: *Example of an ArchiMate Model*

In this figure, the technology layer is providing services which the application layer makes use of (a database management system provides a database management service which the CRM system uses). This makes it possible to provide application services to the business layer in which it is possible to provide business services. This simple example shows how the cross-layer relationships integrate the different layers, and how this can be depicted in one view with ArchiMate [66].

The ArchiMate language and its analysis techniques support pretty much all of TOGAF's diagrammatic views [35], the framework that has been described in subsubsection 2.1.4.2 The Open Group Architecture Framework. TOGAF's views and viewpoints will be discussed more in-depth in the next subsection. Thus, TOGAF and ArchiMate can easily be used in conjunction, and they cover much of the same ground. This is where ArchiMate nicely complements TOGAF: it provides a vendor independent, standardised set of concepts that helps to create a consistent, integrated model 'below the waterline', which can be depicted in the form of TOGAF's views [35]. The three-layered Business, Application and Technology structure of ArchiMate, as shown in Figure 2.15 ArchiMate Framework and in Figure 2.16 Example of an ArchiMate Model, neatly corresponds with the three main architectural domains of TOGAF's Architecture Development Method (ADM). In Figure 2.17 TOGAF's ADM mapped to the ArchiMate Framework this correspondence is being shown:

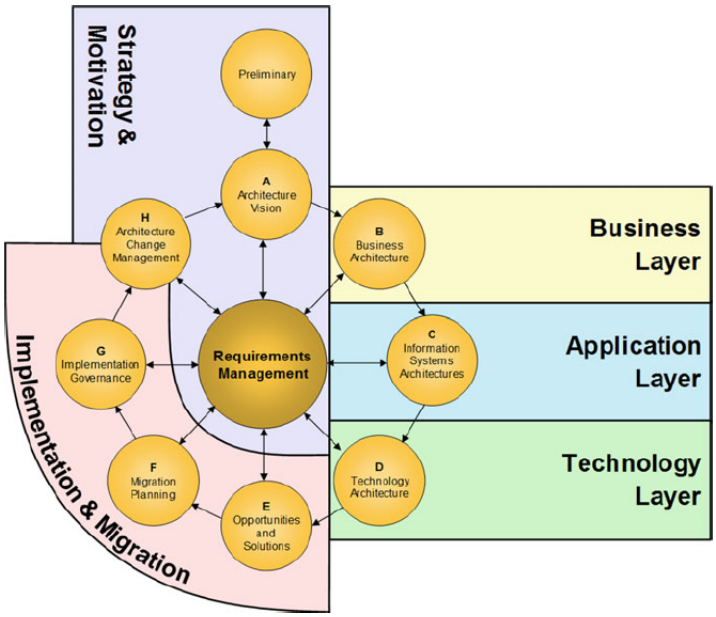

Figure 2.17: *TOGAF's ADM mapped to the ArchiMate Framework*

To conclude, the TOGAF and ArchiMate standards can easily be used in conjunction according to The Open Group (2019). The two standards complement each other with respect to the definition of an architecture development process and the definition of an Enterprise Architecture modeling language. Next to that, the two standards also overlap in their use of viewpoints and the combined usage can support a better communication with stakeholders [66].

2.1.5.4 Views & Viewpoints

After pointing out what Enterprise Architecture is, discussing terminologies, road maps, Enterprise Architecture Frameworks and the modeling of Enterprise Architectures, the last significant part of Enterprise Architecture gets touched upon: Views and Viewpoints. According to Lankhorst (2017), the architecture of an enterprise cannot be expressed in just an one-dimensional way. It is not possible to represent the whole architecture of an enterprise with just a single view. Also no stakeholder, apart from perhaps the Enterprise Architects, are interested in the full scope Enterprise Architecture [35]. In order to address the concerns of different stakeholders within an organization, different views must focus on these concerns. Therefore viewpoints and views are implemented in Enterprise Architectures. Viewpoint is a way of looking at a system and a view is what is seen when looking from a chosen viewpoint [35]. According to The Open Group (2013): "*In general, a view is defined as a part of an architecture description that addresses a set of related concerns and is addressed to a set of stakeholders. A view is specified by means of a viewpoint, which prescribes the concepts, models, analysis techniques, and visualizations that are provided by the view*" [61]. In Figure 2.18 TOGAF Viewpoints typical viewpoints are given according to The Open Group:

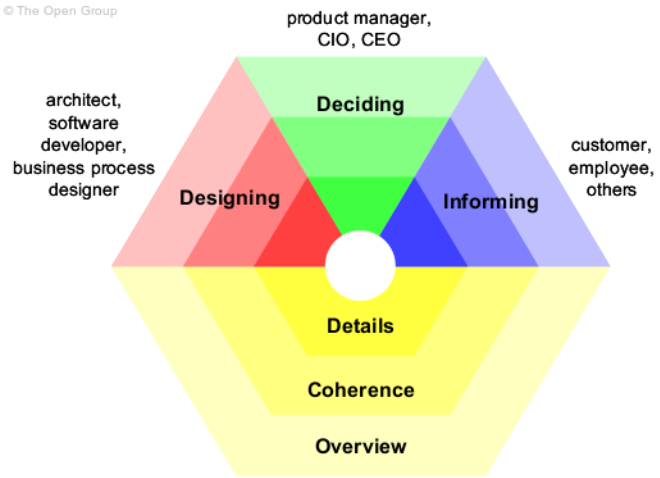

Figure 2.18: *TOGAF Viewpoints*

The top half of Figure 2.18 TOGAF Viewpoints shows the purpose dimension and the bottom half shows the level of abstraction (or detail) [61]. In the modeling language ArchiMate, which has been described in subsubsection 2.1.5.3 Enterprise Modeling, viewpoints are a selection of a relevant subset of ArchiMate concepts (and their relationships) and the representation of that part of an architecture that is expressed in different ArchiMate diagrams [66]. These viewpoints have been developed based on practical experience and some of these viewpoints are scoped to a single layer or aspect. The Business Function and Business Process viewpoints for instance, show the two main perspectives on the business behavior [61]. Table 2.1 Description of TOGAF viewpoints shows the typical stakeholders, the purpose and examples for each of the viewpoints that are given in Figure 2.18 TOGAF Viewpoints:

	Typical Stakeholders	**Purpose**	**Examples**
Designing	architect, software developer, business process designer	navigate, design, support design decisions, compare alternatives	UML diagram, BPMN diagram, flowchart, ER diagram
Deciding	manager, CIO, CEO	decision-making	cross-reference table, landscape map, list, report
Informing	employee, customer, others	explain, convince, obtain commitment	animation, cartoon, process illustration, chart
Details	software engineer, process owner	design, manage	UML class diagram, BPMN process diagram
Coherence	operational managers	analyze dependencies, impact of change	views expressing relationships like “use”, “realize”, and “assign”
Overview	Enterprise Architect, CIO, CEO	change management	landscape map

Table 2.1: *Description of TOGAF viewpoints*

2.1.6 Maturity

Enterprise Architecture Maturity has to do with how mature the deployment and implementation of Enterprise Architecture is within an organization. The maturity of an organization’s Enterprise Architecture is related to the fact whether it is a strategic capability for the organization [34]. Korhonen and Mol-

nar (2014) are stating that Enterprise Architecture can be defined as a strategic capability: "*it pertains to the strategic application of competencies to organize and utilize the organization-specific resources towards desired ends*". They note that the value of Enterprise Architecture is at the organizing level, linking between strategy and execution, and guiding the evolution of the operational core [34]. In many organizations, the purpose of Enterprise Architecture is to enable the translation of strategic initiatives, based on a corporate vision, into executable components that can be measured and operated. In such organizations, it is highly likely that Enterprise Architecture would have a meaningful impact on its ability to remain agile, responsive and adaptive to a changing business environment [67]. The Center of Information Systems Research (2006) introduced the four stages of Enterprise Architecture maturity. Figure 2.19 Four stages of Enterprise Architecture Maturity shows these four stages of Enterprise Architecture Maturity [50]:

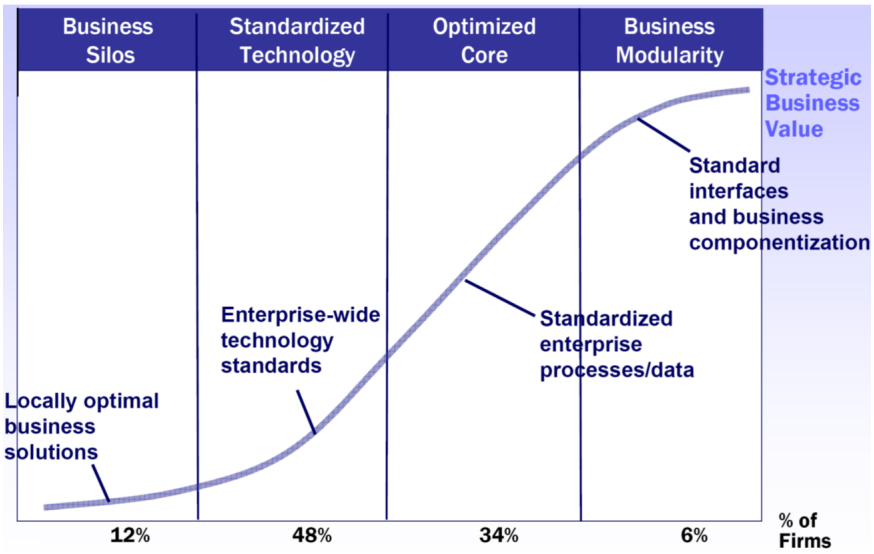

Figure 2.19: *Four stages of Enterprise Architecture Maturity*

The model shows the path which most organizations flow through when developing their Enterprise Architecture over time.

1. The first stage is **Business Silos**. Around 12% of the 103 organizations, which were part of research conducted by the Center of Information Systems Research, can be placed in this stage. Typical for this stage are locally optimized business solutions rather than enterprise wide solutions.

2. The second stage is **Standardized Technology**. Around 48% of the firms are in this stage, meaning that most firms will find themselves being in this stage. Typical for this stage is to have enterprise-wide technology standards, for instance shared IT infrastructure and a reduced number of

IT platforms and software products. The management of technology is more centralized.

3. The third stage of Enterprise Architecture maturity is **Optimized Core**. 34% of the firms will find themselves being in this stage. A characteristic for this stage is the standardization of enterprise processes and data. The previous stage was more of a technological challenge in order to standardize technology, this stage is more of an organizational challenge in order to take control over business process design [50].

4. The fourth and final stage of Enterprise Architecture Maturity is **Business Modularity**. Only 6% of the firms will find themselves being in this stage. This is the highest level of Enterprise Architecture maturity, typical for this stage is having standard interfaces and business componentization. Enterprise Architecture is really a strategic capability in this case and there is a lot of agility through customized or reusable modules which are built on top of the optimized core.

Figure 2.20 Effect of Enterprise Architecture Maturity on flexibility below shows the effect of Enterprise Architecture Maturity on global and local flexibility:

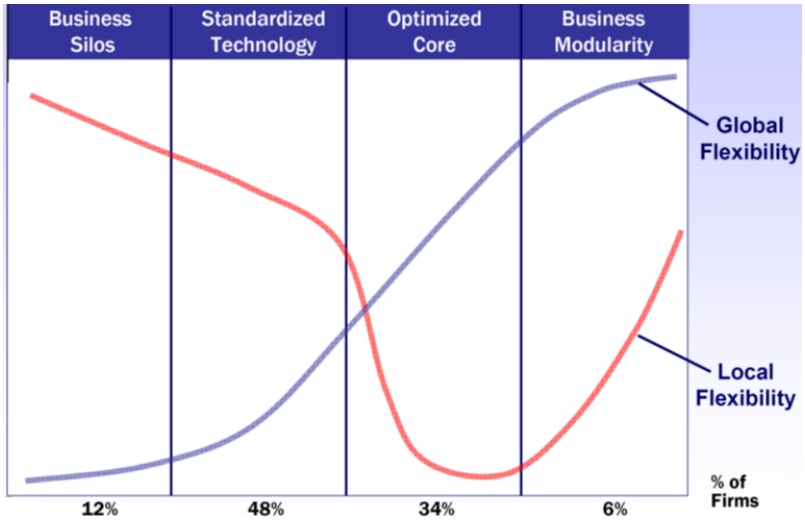

Figure 2.20: *Effect of Enterprise Architecture Maturity on flexibility*

When Enterprise Architecture becomes more mature within the organization, the global flexibility increases and the local flexibility declines because more processes and technology will be standardized on an enterprise-wide level, which leads to less room for local solutions. The local flexibility increases again when the organization has reached the highest level of maturity. In that case, an organization usually has embraced a service-oriented architecture (SOA), which leads to more flexibility. However, as can be seen at the bottom of the figure, this only applies to 6% of the organizations [50].

2.2 Mergers & Acquisitions

2.2.1 Definition

The term "merger" refers to the merging of two organizations where one new organization will continue to exist and the term "acquisition" refers to the acquisition of assets by one organization from another organization [20]. As an ongoing trend, enterprises increasingly establish M&A as a strategic management instrument [25]. For many enterprises M&As are not considered as individual events, but rather represent common instruments of modern business strategies [22]. In general, M&As can be broadly divided into two categories [52]:

1. **Financial M&As** - These M&A deals are focused on exploiting the financial value or earnings of a target organization.

2. **Strategic M&As** - These M&A deals are focused on accelerating revenue growth, profitability or market penetration of the acquirer by leveraging the target organization's assets or capabilities.

Over the past century, the appearance of M&As remained remarkably high [25]. In 2020, the number of M&As in The Netherlands grew for the 6th year in a row, as is shown in Figure 2.21 Number of M&A deals in the Netherlands [13]:

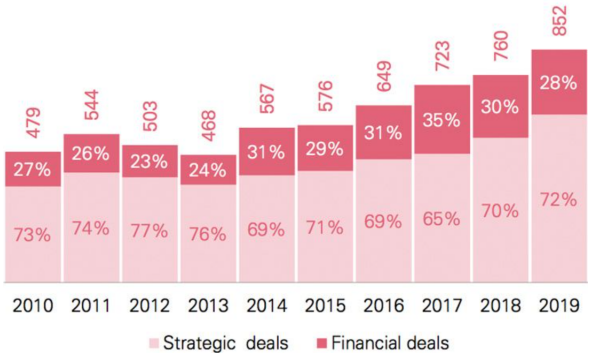

Figure 2.21: *Number of M&A deals in the Netherlands*

2.2.2 The M&A Process

There are several stages or phases that every M&A deal usually goes through. Multiple organizations, institutions and researchers have tried to define the typical M&A process, but there is just not one widely accepted standard. In this subsection, three M&A process will be described. It is important to note that not all M&A deals comprise all phases. Sometimes, phases are not distinct, may overlap or contain additional sub-phases [52].

2.2.2.1 Freitag and Schulz

Figure 2.22 M&A process by Freitag and Schulz (2012) depicts the typical M&A process according to Freitag and Schulz (2012) [22]:

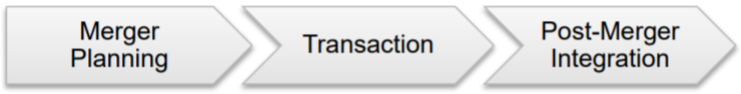

Figure 2.22: *M&A process by Freitag and Schulz (2012)*

The Merger Planning phase typically includes strategic planning of M&A activities, analysis of the environment, identification of candidates, and a high-level valuation of possible target scenarios. The Transaction phase starts with the initial contact and negotiations with a target organization. This phase includes financial planning, due diligence, pre-closing integration planning, and corporate valuation. It ends with the official announcement of the merger, contract signing, antitrust clearance and is completed with the final closing that includes the payment. At this time the formerly independent enterprises close their deal and legally become one single organization. During the Post-Merger Integration phase, a post-closing integration plan is worked out allowing to implement the integration of strategy, organization, business processes, systems, administration, operations, culture, and external relationships of the enterprise [22].

2.2.2.2 Gartner

According to Gartner, the following five phases are part of the typical M&A process [19]:

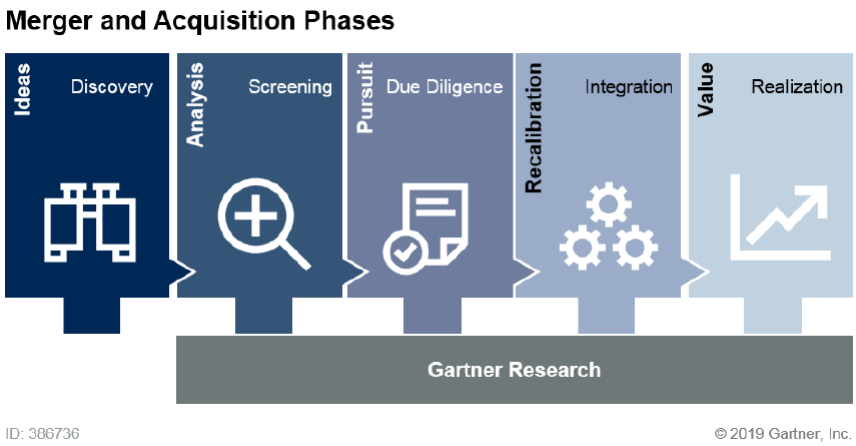

Figure 2.23: *The five phases of the M&A process by Gartner*

The first two phases, Discovery and Screening, are similar to the Merger Planning phase of Freitag and Schulz (2012). It involves the strategic planning of M&A activities, analysis of the environment, identification of candidates, and a high-level valuation of possible target scenarios. The third phase of the Gartner model is the due diligence phase. According to Downes (2008), a due diligence is a process that allows organizations to identify and thoroughly assess the business reasons for proposed M&A transactions. Organizations need to be able to gather, analyze, and report on information that may be coming from a variety of disparate and complex systems [17]. According to the Corporate Finance Institution (2020), the due diligence process aims to confirm or correct the acquirer's assessment of the value of the target organization by conducting a detailed examination and analysis of every aspect of the target organization's operations [14]. The final steps: Integration and Realization phases are similar to the Transaction and Post-Merger Integration phase of the Freitag and Schulz (2012) process and it allows the implementation of the integration of strategy, organization, business processes, systems, administration, operations, culture, and external relationships of the enterprise [22].

From an IT perspective, Gartner considers the following six steps to form the M&A process [2]:

1. **Screening** - In this stage the enterprise is considering acquisition candidates [37].

2. **Initial candidate evaluation** - At this point, a specific candidate has emerged and the bidding process begins. Typically, there is little in-depth IT information available [37].

3. **Detailed candidate evaluation (due diligence)** - In this step the initial opportunity is provided to obtain factual information to estimate the IT-related costs and risks of the transformation [37].

4. **Closing the deal** - The parties agree to the final contract terms and conditions in order to finalize the deal [2].

5. **Executing the merger or acquisition** - In this step the "M&A transformation" begins, that means: tackling the operational business transformation processes and preparing employees for the new operational environment [37].

6. **Operational review** - In the final stage, after the M&A has been completed, a post-transformation review helps organizations determine what went well and what did not [37].

2.2.2.3 Corporate Finance Institute

The Corporate Finance Institute defined a typical M&A deal to include the following ten stages [14]:

Figure 2.24: *M&A process by the Corporate Finance Institute*

All stages in Corporate Finance Institute's M&A process are straightforward and self-explanatory. It also roughly matches the stages in previous M&A processes that have been discussed in this section. It all starts with some sort of planning/screening phase (the first five stages), then some sort of due diligence follows and finally it all ends with some sort of an integration/implementation stage.

2.2.2.4 Literature Research

Calipha et al. (2010) conducted research into the general phases (or stages) of the M&A process based on the available literature and academic research. They researched all publications around this, that were available at the time, ranging from 1969 until 2007. In their research they mentioned the M&A process according to 14 different researchers. The stages of these M&A processes are given in Table 2.2 M&A process phases according to different researchers [9]:

Developed by:	**Phases of the M&A process:**
Vance (1969)	(1) The courtship phase, (2) the marriage ceremony, (3) the honeymoon, and (4) after the honeymoon
Boland (1970)	(1) the Pre-merger and (2) Post-merger

Developed by:	Phases of the M&A process:
Farley and Schwallie (1982)	(1) Integration with the strategic plan, (2) intelligent screening, (3) evaluation of targets through creativity and analysis, (4) understanding value and price, (5) anticipating the post-acquisition phase, and (6) efficient implementation
Schweiger and Weber (1989)	(1) Pre-merger and (2) Implementation
Salus (1989)	(1) Pre-merger, (2) Merger and (3) Post-merger
Kazemek and Grauman (1989)	(1) Assessment, (2) joint planning, (3) issue analysis, (4) structure selection, (5) securing approvals, (6) final planning, and (7) implantation
Appelbaum (2000)	(1) Pre-merger, (2) during and (3) Post-merger
Parenteau and Weston (2003)	(1) Strategy planning, (2) candidate screening, (3) due diligence and deal execution, and (4) the ultimate integration phase
Carpenter and Sanders (2007)	(1) Idea, (2) justification (including due diligence and negotiation), (3) acquisition integration, and (4) results

Table 2.2: *M&A process phases according to different researchers*

2.2.2.5 Conclusion

To conclude, there is not just one clear standard available of what the M&A process consists of, and on top of that, as stated earlier, it is important to note that not all M&A deals comprise all phases. Sometimes, phases are not distinct, may overlap or contain additional sub-phases [52]. However, a lot of the same stages/phases occur in the described processes. So does, for instance, every M&A start with some sort of screening phase to look for potential targets, this is usually followed by the planning phase which involves the execution of a due diligence. Then, after the deal is being concluded, the integration follows and the M&A process ends with some sort of a post-merger phase in which, amongst other things, is being reflected on the entire process. The six steps of the Gartner M&A process from an IT Perspective, as given in subsubsection 2.2.2.2 Gartner, is arguably the best model that is currently available as it comprises most of the phases that are given in the different types of M&A processes.

2.2.3 Types of M&As

It is important to note that different types of M&As can be distinguished. Later in this research, there will be a focus on several cases based on different types of M&As. In subsection 2.2.1 Definition, two categories of M&As were already distinguished: Financial and Strategic M&As. However, this is more a categorization that has to do with the incentive for engaging in a merger or acquisition. Next to these two categories, M&As can also be divided into three types [54] [15]:

1. **Horizontal Merger or Acquisition** - Horizontal M&As typically occur between two organizations in similar business sectors. An example of a horizontal merger would be an automobile organization buying a competing automobile organization [54]. A horizontal merger is when a organization merges with industry competitors in order to gain the competitive advantages that come with a larger scale and scope [27].

2. **Vertical Merger or Acquisition** - Vertical M&A means that a organization is expanding its operations either backward into an industry that produces inputs for the organization's products or forward into an industry that uses or distributes the organization's products. Vertical integration is usually driven by a desire to strengthen the competitive position or cost of a organization's original business [27].

3. **Conglomerate Merger or Acquisition** - The third type, conglomerate M&As, involves two extraneous organizations. A conglomerate M&A involves two organizations which are operating in unrelated industries [15]. An example of a conglomerate M&A would be if an automobile organization bought a hotel chain [54]. The most important purpose of a conglomerate merger is typically the diversification of capital investment [36].

2.2.4 Approaches to M&As

Next to these three types of M&As, there are also different types of approaches to M&As. Gartner has distinguished the following three approaches to M&As [37]:

1. **Absorption** - The organization that will be acquired (the target) is completely absorbed by the acquirer. The business processes of the acquirer dominate, and the acquired organization must adopt these.

2. **Stand-alone** - The acquired organization remains independent from its acquirer. The acquired organization remains a separate, stand-alone organization with only some integration of support services (phones, laptops, networks, data centers etc.) to achieve for instance economies of scale.

3. **Merger of equals** - In this approach a so-called "best-of-breed organization" is developed from both parties. In this approach, the strongest

components of each organization are used to build a new business model [37]. A merger of equals occurs when two organizations, which are often of similar size, agree to operate as a single business in a new legal entity [53].

The Corporate Finance Institute also described the exact same three approaches or forms of integration during M&As. However, they have named the approaches slightly different in comparison to Gartner: Statutory (Absorption), Subsidiary (Stand-Alone) and Consolidation (Merger of Equals) [15]. In Figure 2.25 Gartner's MAD Integration Models the different types of M&A approaches are visualised:

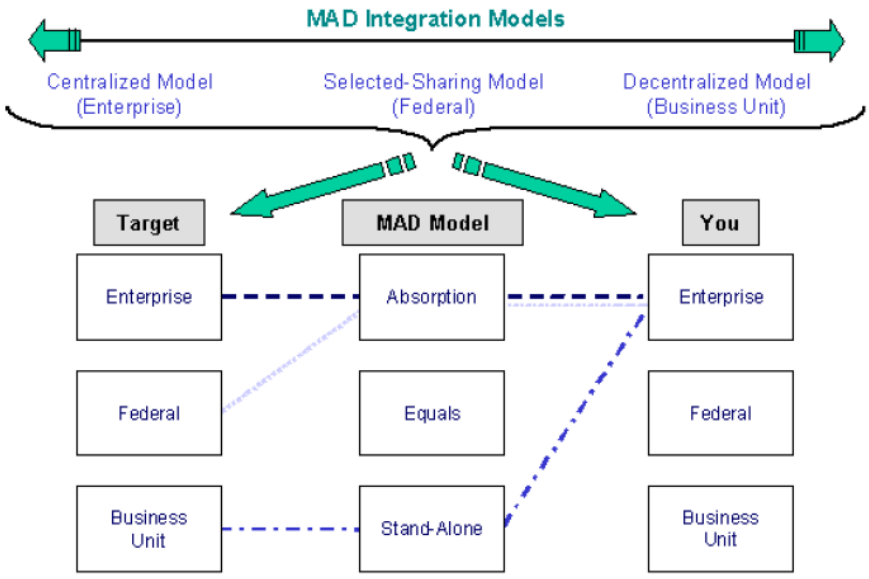

Figure 2.25: *Gartner's MAD Integration Models*

This figure shows the implementation of the approaches that were discussed earlier. In the model, it places the three approaches between a target and an acquirer. The goal is to visualize the possibilities of M&A integration between these two. For instance, when an acquirer (you) targets an enterprise with the absorption approach, the entire enterprise will be integrated. As equals, there is not really an integration because a new best-of-breed organization will be developed. In case of a Stand-Alone approach, an integration type could be just focused on a certain business unit of the target (for instance for the integration of support services) or either no integration at all.

2.2.5 Drivers of M&As

M&As are an important strategic lever for the growth of an enterprise [52]. There are several reasons why organizations decide to engage in M&As. The most common reason is growth. This is attributed to the higher chances for growth through merging and acquiring than through internal growth, which usually tends to be slow and ineffective [20]. Nowadays, acquiring other businesses is also a major component of many organizations' corporate strategies [22]. Freitag and Schulz (2012) are stating that growth through acquisitions enables business benefits of scale and scope, it gives access to unique resources and it supports strategic renewal. However, integrating acquired businesses is challenging and complex, which means that acquisitions frequently do not create financial value for the acquirer [26]. According to Gartner (2014) there are three goals that usually drive a Merger or Acquisition [5]:

1. Reduce costs with economies of scale and/or economies of scope.
2. Acquire brand assets and capabilities rather than develop them in-house.
3. Grow volume or expand the mission through increased market share (or market reach).

In addition, according to Evans (2000), organizations involved in M&A activity may experience synergy, which represents the additional value created as a result of the joining or merging of two organizations. Synergy value can be realized through increased revenues, lowered operating expenses, or lowered overall cost of capital. Other common reasons given for M&A activities are cross-selling opportunities, bundling, increased market share (i.e. pricing power), geographical expansion, control of supply chain through vertical integration, and diversification [20]. In 2018, Cherowbrier conducted research into the drivers behind M&As. He found out that there were five main drivers behind a Merger or Acquisition. The top 5 main drivers are [10]:

1. Expand customer base in existing geographic markets
2. Expand/diversify products or services
3. Acquire Technology
4. Digital Strategy
5. Talent Acquisition

2.2.6 Risks of M&As

It is estimated, based on statistical evidence, that 70 to 90% of the M&A transaction will turn out to be a failure as it does not reap the envisaged benefits [23]. In an M&A transaction, several risks can occur that can make the transaction a failure. Evans (2000) highlighted four common factors that are causing M&A transactions to fail [20]:

1. **Poor Strategic Fit** - The two organizations have strategies and objectives that are too different and they conflict with one another.

2. **Incomplete and Inadequate Due Diligence** - The due diligence process aims to confirm or correct the acquirer's assessment of the value of the target organization by conducting a detailed examination and analysis of every aspect of the target organization's operations [14]. A lack of adequate due diligence may fail to identify current and potential risks which may severely impede the success of the transaction.

3. **Poorly Managed Integration** - The integration of two organizations requires a very high level of quality management. Integration is often poorly managed with little planning and design, which may result in a failed transaction.

4. **Exaggerated Optimism and Overstated Synergies** - Poor decision making may arise if the acquiring organization is too optimistic in its projections about the potential synergies gained from the transaction.

In addition to these factors, the Connell Curtis Group (2012) states that the following four risks usually occur in M&As [12]:

1. Buying an overvalued organization

2. Clash of corporate cultures

3. Loss of talent

4. Failure of the acquirer to understand the business (or market) they are buying

These risks have a massive impact on the fact whether an M&A transaction will succeed or not. An additional risk (or conflict) that typically occurs during M&As, is that each side considers its systems and processes to be superior [48]. In order to mitigate these risks and to ensure a potential success of M&A transactions, organizations must ensure that:

1. Due diligence is conducted on financial and operational data to mitigate potential threats to the new entity [20]. According to Gartner, incomplete due diligence is a major pitfall for organizations during M&As. Often business processes and IT platforms at target organizations are partially documented and this gets overlooked [53].

2. Adequate post-merger procedures are defined in order to cope with the sudden increase in data and information, and heterogeneity of information systems [20].

2.3 M&As from an Enterprise Architecture perspective

2.3.1 Value of Enterprise Architecture in M&As

Enterprise Architecture is vital for the success of an M&A [39]. In short, Enterprise Architecture is used to analyze and document the current and future state of the business, information systems and technology perspective of an enterprise [7]. Therefore, according to Reinicke (2016), Enterprise Architecture is ideally placed to lead M&As to be a success [48].

2.3.1.1 The Urgency of Enterprise Architecture

Acquiring (or merging with) other organizations is a common and challenging component of many corporate growth strategies [22]. Umar (2010) states that modern enterprises need to have a flexible Enterprise Architecture in order to quickly integrate and deliver needed services. This is especially true in case of M&As, because the acquired and the existing systems need to work smoothly with each other [68]. Toppenberg et al. (2015) noted that the value created from acquisitions (and mergers) can be improved by drawing on an advanced Enterprise Architecture capability in the acquisition process [67]. The overestimation of the value of an M&A deal and the realization of synergies between the organizations are both one of the key errors made during M&As. These errors can be resolved by the Enterprise Architecture team through the application of their trend analysis and future-state planning skills and knowledge [2]. In addition, the underestimation of the integration costs is a reason why M&As do not reap the benefits that were originally defined, this is also an error that Enterprise Architects can help out with [2]. West and Sarrazin (2011) are stating that it is proven that organizations involved in M&A transactions, tend to be far more successful in integration when there Enterprise Architecture is in the best possible shape. They argue that without some sort central repository, like an Enterprise Architecture, information remains siloed and this not a great starting point in order for an M&A transaction to be a success [70].

2.3.1.2 Deployment of Enterprise Architecture

Enterprise Architecture can be defined as both a management program and documentation method which combines strategic, business and technology planning to facilitate and support better decision-making within an enterprise [6]. As a management program, Enterprise Architecture functions as an integrated approach to resource planning, policy and decision making. As a documentation method, Enterprise Architecture provides a framework for the documentation of current and future configurations of the enterprise [17]. According to Burgelman and McKinney (2006) there are three tasks corporate executives must execute during M&As [8]:

1. Define short and long-term goals which maximizes the synergies gained in an M&A transaction.

2. Document and analyze the assets of both the target and your own (the acquiring) organization.

3. Execute a strategic integration plan which has an acceptable time frame and budget.

These three tasks, of corporate executives during M&As, can be met by the two facets of Enterprise Architecture:

1. As a documentation method, an Enterprise Architecture framework documents the as-is and to-be configurations of the enterprise based on strategic planning of current and future resources. These views provide management with [6]:

   (a) A representation of the current resources and alignment of the acquiring and the target organizations' strategies; and

   (b) A proposed view of the fully integrated organization minus existing misalignments and performance gaps.

2. As a management program, executives can [6]:

   (a) Define short and long-term strategic goals based on the current inventory of resources and capabilities; and

   (b) Create a strategic integration plan to transition the target and acquirer to a future state based on the future view of the consolidated firm defined in the Enterprise Architecture.

2.3.1.3 Role of Enterprise Architects

Buckl (2011) states that Enterprise Architecture Management is an approach for analyzing, planning, and controlling as-is and to-be states of the enterprise in terms of business, information systems, and technology architecture, based on an overarching Enterprise Architecture model. The main benefits Enterprise Architecture Management offers, are [7]:

1. Creation of a holistic perspective on the enterprise, comprising business and IT elements.

2. Define a common language for multidisciplinary stakeholders in order to foster communication.

3. Gathering information from differing sources and provisioning of consistent decision base.

These three benefits of Enterprise Architecture Management are also considered to be challenges when enterprises have to deal with M&As [22]. Enterprise Architects are responsible for the management of an Enterprise Architecture. In 2012, Freitag and Schulz did research into what tasks were assigned to Enterprise Architects in case of an M&A. The most tasks are mainly part of the Post-Merger Integration phase or general Enterprise Architecture management tasks. Regarding the Post-Merger Integration phase, subsequent tasks were mentioned: integration planning, consolidation or respectively integration of IT and processes, business and IT integration, migration of applications and data, and software selection. General Enterprise Architecture Management tasks included scoping, providing transparency, IT master planning, target architecture design, governance, and project management [22]. Additionally, various literature considers the following tasks also to be a responsibility of Enterprise Architects in case of M&As [22]:

- Consolidation of organization and business process, applications, and infrastructure.
- Dependency and redundancy analysis.
- Identification of focus areas (scoping) and measures required.
- As-is and to-be architecture planning tasks which should be performed in the course of the Post-Merger Integration phase.

Next to referring to the available literature, Freitag and Schulz (2012) did research themselves into how Enterprise Architects could support in case of M&As. Table 2.3 Responsibilities of Enterprise Architects during M&As shows the most named tasks that should (or could) be a responsibility of Enterprise Architects during M&As [22]:

Responsibilities of Enterprise Architects during M&As	
Performing due diligence	Target architecture design
Consolidation of IT and processes	Providing transparency
Dependency analysis	Development of integration scenarios
Support of C-level management (CIO, CTO) in decision making (e.g. by pointing out costs of integration) which are part of the merger planning phase.	Providing a consolidated information base and mapping of business and IT capabilities.
Preparation of a business capability roadmap	Review of the target enterprise's as-is architecture

Table 2.3: *Responsibilities of Enterprise Architects during M&As*

The tasks mentioned in Table 2.3 Responsibilities of Enterprise Architects during M&As, have also been stated as tasks that are already performed today by Enterprise Architects during M&As [22].

2.3.2 Usage of Enterprise Architecture in M&As

In this subsection, the usage of Enterprise Architecture during M&As will be discussed.

2.3.2.1 Considerations

When an organization is subject to a merger or acquisition, it should consider the following points from an Enterprise Architecture perspective, according to the IMAA Institute [29]:

- **IT involvement** - IT should be involved up front, not as an afterthought during an M&A.
- **Early planning** - This is tied to the previous point and the goal is to force the involved organizations to understand the flow of information and business processes, which will need to be linked as well as confront integration issues up front.
- **Software Integration** - It must be investigated whether current software needs to be integrated or that it is better to wait for the next generation for instance.
- **Short-term vs. Long-term integration** - The approach to the integration must be investigated: a short-term tactical integration approach or a long-term strategic one. The impact of other planned M&As play a role in this as well.
- **Resources** - Resources should be dedicated to the M&A integration. an M&A must not be underestimated and staffed with just 'spare-time job' resources. Dedicated teams should be working on the M&A.
- **Minimize disruption** - The disruption period of the business, caused by the M&A, should be kept to a minimum.

2.3.2.2 The Use of Reference Models

During M&A transactions, according to Reinicke (2016), it is crucial for organizations to use Enterprise Architecture roadmaps in order guide processes and in order to quickly assess landscapes and accelerate integration. Next to that, the business capabilities of both the acquirer and the target must be assessed in order to detect differentiation, criticality and complexity of change [48]. With the use of architecture reference models, according to Swindell (2015), the target organization in an M&A can be represented and based on that further decisions can be made. This is especially relevant in the pre-merger phase of an M&A transaction. Examples of Enterprise Architecture reference models that could be useful during M&As are [58]:

- **Business Capability Model** – Create subjective assessments of the business capabilities of your organization and the target. According to Strah and Taware (2017), business capability models are critical in identifying future state roadmaps as well as identifying current state gaps that may not be apparent to transformation teams during M&As [56].
- **Business - Technology Organization Model** - Identify the organizational structures, people (FTE's), services, costs and integration risks of the target organization.
- **Applications Reference Model** - Identify the state of the application portfolio of your organization and the target. This can be done on the technical side but also on the management side, like Enterprise License Agreements (ELA's) or contracts etc.
- **Enterprise Data Model** - Data integration (or migration) will almost always exceed the estimated costs of the integration. This reference model allows to identify the structure of logical and physical data assets and data management resources within the enterprise. Strah and Taware are stating that: "*effective data governance can significantly reduce the efforts for data integrations and provide key foundations for cloud and infrastructure consolidation and transformation efforts that may result*" [56].
- **Infrastructure Reference Model** - Identify and assess gaps and overlaps between your current and target IT infrastructure and that of the target.

The use of these models allows the acquirer to have a better insight into the target organization, and therefore the acquirer will be able to make better decisions and it will improve communications. According to Swindell (2015), Enterprise Architecture success factors for M&As include the following [58]:

1. A mature Enterprise Architecture function or framework.
2. A clear representation of your own organizational assets.
3. Acceptance of the value to be achieved from the Enterprise Architecture tools by the CEO and integration team.

2.3.2.3 Usage of EA in Gartner's M&A process

Earlier, in subsubsection 2.2.2.2 Gartner, the six stages of the M&A process from an IT perspective according to Gartner were discussed. This sub-section goes deeper into these six stages and it will be discussed how Enterprise Architecture can provide support (and value) for these stages of Gartner's M&A process:

- **1. Screening** - Enterprise Architecture can support the screening stage of an M&A by the improvement of the environmental trend analysis step which is a key element of the business context [2]. Traditionally, Enterprise Architects would act as a "technology watch function" to track

products and technologies that could have an effect on the strategy of the organization. Now, Enterprise Architects need to determine on future trends and implications of emerging technologies to the the organization. According to Gartner, Enterprise Architects must do the following in this stage: (1) Identifying and prioritizing potential markets or business areas of interest, (2) Researching the market and financial positions of organizations in these markets, (3) Defining synergies with and yields of potential target organizations and (4) Selecting and prioritizing possible acquisition candidates [2].

- **2. Initial candidate evaluation & 3. Detailed candidate evaluation (due diligence)** - The due diligence stage is arguably the most important stage of an M&A from an Enterprise Architecture perspective, because in this stage it can be seen how the target organization operates its business. Furthermore, Enterprise Architecture can have a valuable impact on this stage by using a conceptually view of the Enterprise Architecture process to estimate the extent of change required to merge organizations. This can be done by looking at the current (as-is) state and the future (to-be) state and to estimate the significance of closing the gap between these two states. In many cases this will cost either a lot of money or time. Therefore Gartner advises that the Enterprise Architecture should be broken up into the following key areas (keeping in mind that this covers the current- and future state and the gap analysis) [2]:

  1. Candidate's product and service portfolio
  2. Candidate's geographies and organizational issues
  3. Candidate's information technology
  4. Candidate's market strength and position

- **4. Closing the deal** - In this stage, from an Enterprise Architecture perspective, Enterprise Architects should continue with the gap analysis, that was discussed in the previous stage, and extend it in order to develop more-detailed transition plans. Transition planning develops the program of work and generally a road map based on the expansion of the conceptual-level architectural analysis that was performed during candidate evaluation. The transition planning should be facilitated by the Enterprise Architecture team [2].

- **5. Executing the M&A** - This stage will require a significant commitment by the Enterprise Architecture team to effectively manage the future-state plans into action. The intensity of activity at this stage will depend on the model used for the integration. Figure 2.25 Gartner's MAD Integration Models shows the multiple approaches that can be applied. Enterprise Architecture teams must be prepared to support any of the integration options defined in this figure, including adjusting team size and structure to incorporate more architects [2].

- **6. Operational review** - In the final stage it is important to (critically) examine what has been accomplished. From an Enterprise Architecture perspective, its effectiveness must be assessed. Additionally, it must be assessed what efficiencies (in cost savings, in time saved etc.) Enterprise Architecture was able to contribute to during the M&A process [2].

2.3.2.4 Case Study: Cisco Systems

The case of Cisco Systems shows that an advanced Enterprise Architecture capability (= the capability to integrate the necessary resources to create a complete Enterprise Architecture view of an enterprise) can contribute to the typical stages of the M&A process [67]. Enterprise Architects of Cisco used the systems and technology views of Cisco's Enterprise Reference Model in the pre-integration phase during acquisitions. This analysis was used to determine which components were critical to the integration planning and execution targets. The reference model helped prioritize the components that were most critical to the future state of the integrated business [67]. The reference model of Cisco Systems was based on the BOST Framework, an Enterprise Architecture framework which has been discussed in subsubsection 2.1.4.3 BOST Framework. The Enterprise Reference model was the key Enterprise Architecture Artifact used by Cisco in the Acquisition/Merger planning phase. It ensured the integrity of the architecture and captured the evolving as-is state. The reference model also captured the current state of how Cisco did business and showed how the components in the business, operations, systems and technology views worked together to enable Cisco to do business [67]. Figure 2.26 The Enterprise Reference Model of Cisco shows the Enterprise Reference Model of Cisco Systems:

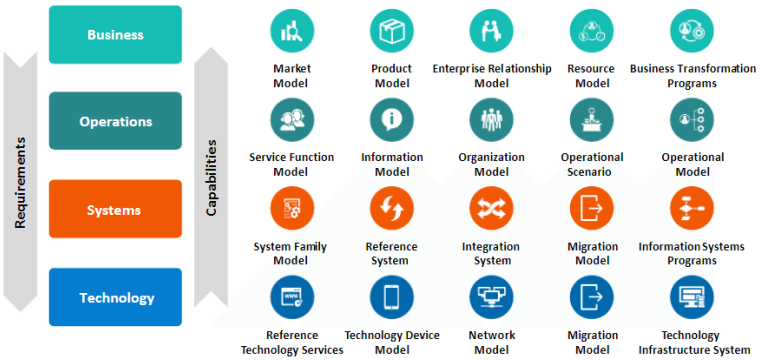

Figure 2.26: *The Enterprise Reference Model of Cisco*

From the case study performed by Toppenberg et al. (2015) at Cisco Systems, there are five main lessons to be learned for effectively using Enterprise Architecture during M&As [67]:

1. **Enterprise Architecture is a Dynamic Process** - The enterprise reference model is always an incomplete representation of the organization's capabilities. For M&As, it is the critical task to ensure that the Enterprise Architecture of the organization at any time is fit for purpose in the critical areas and is available as required. When time is essential, a merger or acquisition does not require an Enterprise Architecture to be developed for the target organization. Instead, an understanding of the target organization's Enterprise Architecture is built progressively over time. Cisco did this by letting the Enterprise Architecture team initially focus on areas where deviations from the expected would matter, enabling it to drill down to assess where technology integration would present obstacles. After the transaction was completed, the discovery process would continue which resulted in revealing more details about the architecture of the newly acquired organization [67].

2. **Reduce the Number of the Integration Problems** - To reduce the number of integration problems, rather than becoming better at resolving them during the merger or acquisition process, the acquirer should identify those elements that could contribute to a difficult integration project and use its Enterprise Architecture capability to manage them. At Cisco, after a stream of 32 acquisitions and mergers, the organization was providing 32 different software consumption models. By standardizing on and documenting scalable business, operations, systems and technology capabilities for software purchases, Cisco reduced the number of software consumption models to four. Thus, when Cisco was acquiring a new organization, the acquisition team could analyze the organization's practices and subsequently integrate them within the four well-defined and scalable consumption models which Cisco already operated [67].

3. **Use Pairs of Business and Enterprise Architects** - Cisco Systems discovered that combining business and Enterprise Architects into pairs with ongoing responsibility for specific capability areas forms a crucial bridge between the business and technology domains during M&As [67].

4. **Make Acquisition integration part of the ongoing business transformation** - In many large organizations a continuous transformation is ongoing which involves a variety of challenges and opportunities. Different strategic initiatives (joint ventures, restructurings, market re-orientations etc.) are affecting the same operations, systems and technology capabilities and they also use the same organizational resources to implement changes. Organizations that use their Enterprise Architecture capabilities to orchestrate ongoing transformations, can use those capabilities in the integration phase of an M&A to ensure the integration is synchronized with other transformation initiatives [67].

5. **Digital Traces Point the Way Ahead** - The outcomes of an M&A project must be measured to prevent the project from drifting from the

desirable business state. At Cisco, the acquisition team used documentation provided by the Enterprise Architecture team to evaluate the performance of the acquisition. The evaluation contrasted forecast and actual integration outcomes as part of an ongoing learning process of what needed attention in the due diligence of future acquisitions [67].

2.3.3 Integrating Enterprise Architectures during M&As

In a Merger or Acquisition, two separate organizations, both with their own Enterprise Architecture, can be distinguished: the acquirer (or parent organization) and the acquired entity (or child organization). From an Enterprise Architecture perspective, the following situation occurs during an M&A [11]:

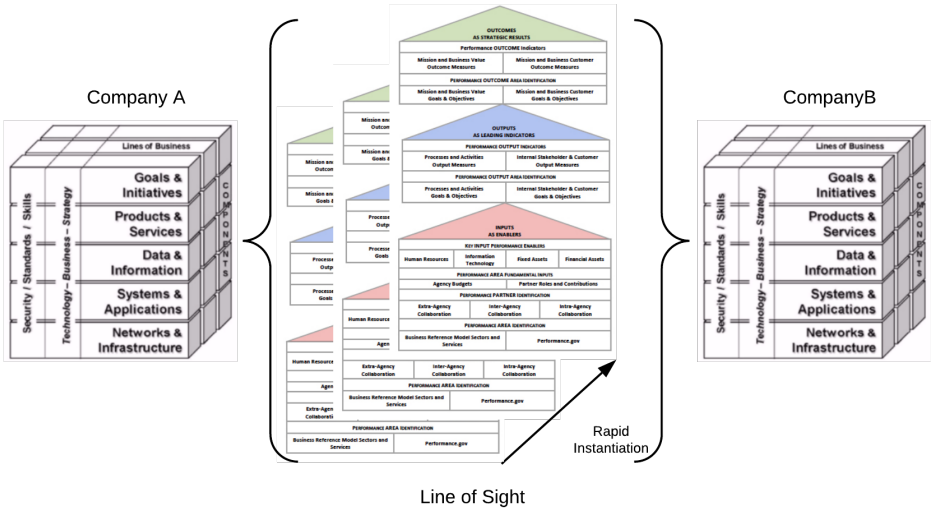

Figure 2.27: *The LoS between two Enterprise Architectures during M&As*

Figure 2.27 The LoS between two Enterprise Architectures during M&As illustrates that two separate organizations, presented as Enterprise Architectures, are coming together during an M&A. Both of these organizations will have their own goals, services, processes, data, systems and IT infrastructures. In case of an M&A, something needs to happen with these two separate Enterprise Architectures and eventually it will be formed into one Enterprise Architecture. In this process, the two organizations will have a shared burden in defining the new or adjusted business model and changes in the go-to-market strategy or customer journey [11]. Not only must the (IT) infrastructure of different units become harmonized, but informed calculations have to be made to alter applications, products, and business processes [39].

According to Umar (2010), enterprise integration means: "*making independently designed enterprise systems work together* [68]." The domains/layers of Enterprise Architecture have been described in subsection 2.1.3 Architecture Domains. These domains are: Business Architecture, Information Systems Architecture (Application + Data) and Technology Architecture. From an Enterprise Architecture perspective, two types of integration can occur between these Enterprise Architecture domains [68]:

- **Vertical integrations** - A business architecture that is integrated with the technology architecture. The components of business, applications and IT infrastructure will be combined into one.
- **Horizontal integrations** - Processes and technologies at the same domain are integrated. For instance, the integration of business processes in sales with business processes in supply chain.

In Figure 2.28 Building Blocks of Enterprise Architecture and Integration, these types of integration are depicted:

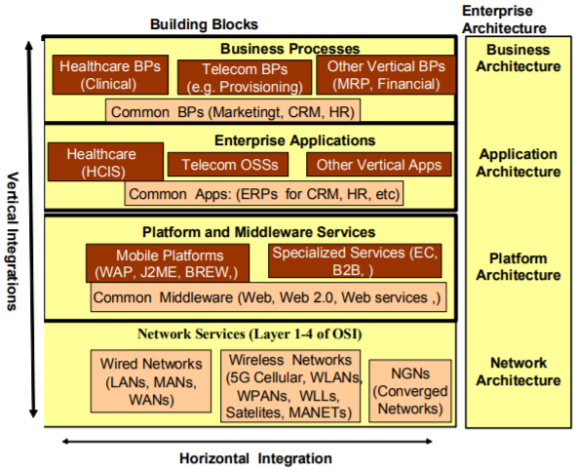

Figure 2.28: *Building Blocks of Enterprise Architecture and Integration*

Any given enterprise is comprised of vertical and horizontal integrations. However, when an organization is subject to an M&A, the situation as shown in figure Figure 2.27 The LoS between two Enterprise Architectures during M&As will occur. In this case, Enterprise Architectures, which are always integrated vertically and horizontally in both organizations, need to be integrated into one new Enterprise Architecture. Umar (2010) states that this situation is 'a real headache' for enterprises and that this situation is typically referred to as the 'information silo' problem: M&As introduce multiple silos of information that are introducing more complexity and duplication to an enterprise [68].

Chapter 3

Research Methodology

In this chapter, the methodology and approach of this research will be described and substantiated. This research started with a literature review in chapter 2 Literature Review. This literature review lay the foundation for the approach that will be described in this chapter.

3.1 Literature Review

This research started with a literature review. There were two main reasons why this literature review was performed. First of all, the literature review was performed in order to get foundational knowledge about the topic of this thesis. Second, the knowledge gained from the literature review helped answering the remaining research questions, because it contributed to the design of this research. Thus in the end, a literature review was performed in order to gain knowledge about the topic and for setting a theoretical framework for the part of the research where data will be gathered and analyzed. The first two research questions were answered with this literature review:

1. What is Enterprise Architecture?
2. What are Mergers & Acquisitions?

The literature review had a focus on Enterprise Architecture in general, M&As in general and a combination of these two topics. The literature review has been conducted with a systematic approach and the literature was gathered from the following sources: Google Scholar, Gartner and the catalogue of Leiden University which contains 752 online databases among which the IEEE Computer Society Digital Library, CiteSeerX and more relevant Information Technology related sources. Different search terms were used while using these sources. The used search terms are shown in Table 3.1 Search Terms that were used during the Literature Review. The search terms in this table are essentially the search terms that were used, in practice there was being searched on even more variants for specific terms. For instance, for the term ”Mergers & Acquisitions” different variants would be used like: ”mergers”, ”mergers and acquisitions”, ”acquisitions” and ”M&A”. This has been done for all separate search terms that involved the term ”Mergers & Acquisitions”. See Table 3.1 Search Terms that were used during the Literature Review for all used search terms:

Search Terms used during Literature Review	
Enterprise Architecture	Enterprise Architecture ArchiMate
Enterprise Architecture Definition	Enterprise Architecture Views
Enterprise Architecture Benefits	Enterprise Architecture Viewpoints
Enterprise Architecture Frameworks	Mergers & Acquisitions
The Open Group Architecture Framework	Mergers & Acquisitions motives
Zachman Architecture Framework	Mergers & Acquisitions phases
BOST Framework	Mergers & Acquisitions strategies
Enterprise Architecture Modeling	Mergers & Acquisitions stages
ArchiMate	Mergers & Acquisitions process
Mergers & Acquisitions AND "Enterprise Architecture"	Mergers & Acquisitions Types

Table 3.1: *Search Terms that were used during the Literature Review*

3.2 Category Selection

The aim of this research was to find strategies and to describe common challenges, pitfalls and best practices for how organizations can cope with integrating Enterprise Architectures in case of M&As. The literature review showed that there is not just one type of M&A. Therefore, there was a focus on multiple categories of M&As, because as the literature and academic research showed: not every M&A is the same. In this section, the categories subject to this research will be selected and described.

3.2.1 Category Dimensions

The categories for this research will be based on two dimensions. These dimensions are based on the available literature and academic research around this topic. In the next two subsections, these dimensions will be discussed.

3.2.1.1 Types of M&As

In subsection 2.2.3 Types of M&As multiple types of M&As were discussed. The following three types were discussed there [54]:

1. **Horizontal M&A** - Horizontal M&As typically occur between two organizations in similar business sectors. An example of a horizontal merger would be an automobile organization buying a competing automobile organization [54].

2. **Vertical M&A** - Vertical M&A means that a organization is expanding its operations either backward into an industry that produces inputs

for the organization's products or forward into an industry that uses or distributes the organization's products [27].

3. **Conglomerate M&A** - Conglomerate M&As involve two organizations which are operating in unrelated industries [15]. An example of a conglomerate M&A would be if an automobile organization bought a hotel chain [54].

Thus, the type of M&A is one of the two dimensions for the selection of categories. Based on these three different types of M&As, M&As can be broken down into a single dimension:

1. The target organization, which is subject to an M&A, is performing similar business activities and it has similar business capabilities as its acquirer (Horizontal M&A).

2. The target organization, which is subject to an M&A, is performing different types of business activities and it has different business capabilities in comparison to its acquirer (Vertical & Conglomerate M&A). According to Strah and Taware (2017), organizations are essentially mixing apples and oranges across industry verticals in these types of M&As [56].

For the first dimension, the focus was on two types of M&As: Horizontal M&A (= performing same business activities / having similar business capabilities) and Vertical M&A (= performing different business activities / having different business capabilities). For the purpose of this research, the third type, Conglomerate M&A, falls under a Vertical M&A because both involves the M&A of an organization performing different business activities and having different business capabilities than its acquirer.

3.2.1.2 M&A Approaches

Next to the types of M&As, there are certain approaches to M&As. In subsection 2.2.4 Approaches to M&As, the following approaches were described:

1. **Absorption (Statutory)** - The acquired target organization is completely absorbed by the acquirer. The business processes of the acquirer dominate, and the acquired organization must adopt these.

2. **Stand-Alone (Subsidiary)** - The acquired organization remains independent from its acquirer. The acquired organization remains a separate, stand-alone organization with no integration at all or either only some integration of support services (phones, laptops, networks, data centers etc.) to achieve economies of scale for instance.

3. **Merger of Equals (Consolidation)** - In this approach a so-called "best-of-breed organization" is developed from both parties: the strongest components of each organization are used to build a new business model [37]. A Merger of equals occurs when two organizations which are often of similar size, agree to operate as a single business in a new legal entity [53].

In this research there was a focus on two of these approaches: Absorption and Stand-Alone. There was not a focus on the Merger of Equals approach, because this falls out of the scope of this research for several reasons. In a "Merger of Equals" approach, the strongest components of each organization are used to build a new business model [37]. However, a lot of researchers are doubting the existence of this approach to M&As. Between 1985 and 2001, according to Zaheer et al., only 45 of the total 90,480 M&As in Europe, could be classified as being a true "Merger of Equals". That is just around 0,05% (!) of all concluded M&A deals [71]. Furthermore, Alluru and Thomas (2016), state that there is very little evidence of the existence of true Mergers of Equals [3]. On top of that, there are many more authors that state that there have been very few 'real' mergers of equals and that one side is always a 'bit more equal' than the other [55] [33]. According to Alluru and Thomas (2016), there is a reason why the term "Merger of Equals" is often used, even tough it does not really exist: "*The label of Merger of Equal is largely used in most of the M&A deals as shield to avoid regulatory barriers and to sell the deal to anxious stakeholders, particularly those of the 'weaker' partner* [3]." In addition, Zaheer adds that a Merger of Equals can never be truly equal, there will always be a party that is more predominant [71]. That means essentially that a Merger of Equals can also be plotted as being either a Stand-Alone or Absorption M&A. Therefore, the Merger of Equals approach was out of the scope of this research and the focus was on the Absorption and Stand-Alone approach.

3.2.2 Categories

Based on the two dimensions that are described in the previous section, a model for the selection of categories has been created. The model classifies four categories of M&As. A brief description of each category will follow now:

- **Category 1: Horizontal M&A with a Stand-Alone approach** - In the first category, the target organization operates in a similar business sector, meaning that it has similar business capabilities and it performs similar business activities as its acquirer. The target organization will be acquired/merged with a Stand-Alone approach meaning that the target organization remains independent from its acquirer. The acquired organization remains a separate, stand-alone organization.

- **Category 2: Horizontal M&A with an Absorption approach** - In the second category, the target organization operates in a similar business sector, meaning that it has similar business capabilities and it performs similar business activities as its acquirer. The target organization will be acquired/merged with an Absorption approach. This means that the target organization is completely absorbed by the acquirer and ceases to exists as an autonomous organization. The business processes of the acquirer dominate, and the acquired organization must adopt these.

- **Category 3: Vertical M&A with a Stand-Alone approach** - In the

third category, the target organization performs business activities and it has business capabilities that differs from its acquirer. The target organization will be acquired/merged with a Stand-Alone approach meaning that the target organization remains independent from its acquirer. The acquired organization remains a separate, stand-alone organization.

- **Category 4: Vertical M&A with an Absorption approach** - In the fourth category, the target organization performs business activities and it has business capabilities that differs from its acquirer. The target organization will be acquired/merged with an absorption approach. This means that the target organization is completely absorbed by the acquirer. The business processes of the acquirer dominate, and the acquired organization must adopt these.

In Figure 3.1 The Category Selection Model, it is being illustrated how the two dimensions, that have been discussed in the previous subsection, lay the basis for the selected categories:

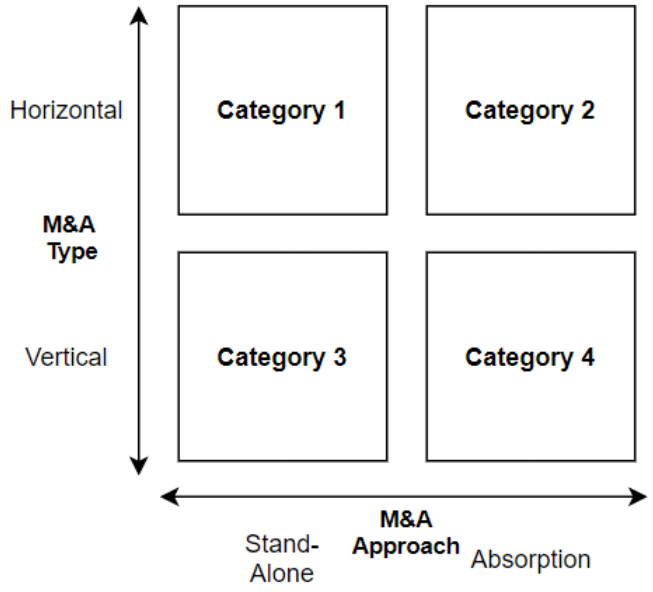

Figure 3.1: *The Category Selection Model*

3.3 Data Gathering

After the literature review was performed, and based on that making a selection of the categories that would be researched, data was gathered. In order to gather data for each category, multiple qualitative research methods were used.

3.3.1 Environment

This study was conducted at an energy company that operates in The Netherlands, Belgium, Germany, and the UK. This organization has a total turnover of more than €4 billion and it employs around 3.000 people. This organization is intertwined in M&As and the knowledge regarding this topic will be widely available within this organization. For each of the four defined categories, multiple cases of M&As were available at the host organization. All these cases are plotted on the category selection model in Figure 3.2 M&A cases at the host organization plotted on the Category Selection Model:

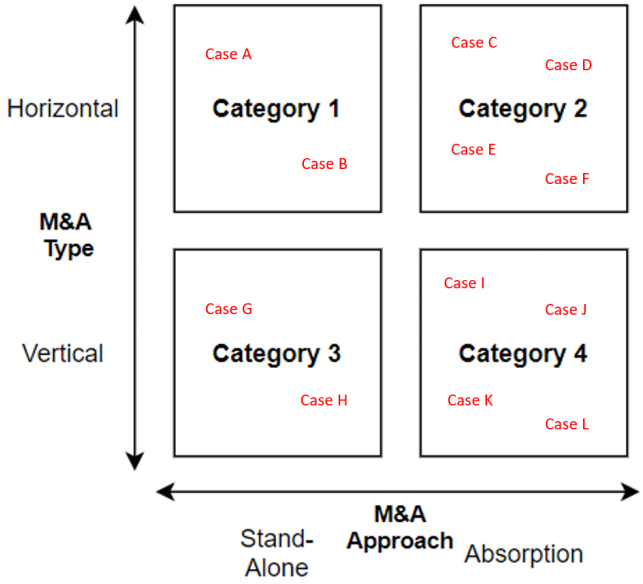

Figure 3.2: *M&A cases at the host organization plotted on the Category Selection Model*

In total there were 12 suitable cases of M&As that occurred at the host organization. All 12 of these cases were subject to this research. In Table 3.2 Details of the M&A cases within the host organization, details of each case are given:

Category	Case	Size[1]	Year of M&A[2]	Document Analysis
1	A	460	2019	X
	B	100	2015	
2	C	89	2014	
	D	200	2017	
	E	200	2018	X

Category	Case	Size[1]	Year of M&A[2]	Document Analysis
	F	1400	2005	
3	G	60	2011	X
	H	85.000	2020	
4	I	15	2017	X
	J	40	2020	X
	K	120	2020	X
	L	15	2018	X

Table 3.2: *Details of the M&A cases within the host organization*

[1] Estimated number of employees at the time of the deal announcement.
[2] Year when transaction was announced, this differs from the time the integration really took place, which could take up years.

3.3.2 Document Analysis

First of all, a document analysis was performed into any documentation related to the specific case. This documentation consisted for instance of project plans, designs, road maps, meeting notes, or any other available documentation related to the cases. This has been performed separately for each of the cases that has been selected for this research[3]. However, it was not possible to perform a document analysis for every case. This was caused by the fact that there was simply no documentation available. In Table 3.2 Details of the M&A cases within the host organization, it is being indicated if a document analysis was possible for the specific case. The document analysis was performed in order to get a better picture of what occurred during each case. Based on this analysis, questions for the interviews were tailored.

3.3.3 Desk Research

Next to gathering primary data, secondary data was collected for this research. A desk research was conducted into lessons learned (common challenges, pitfalls, best practices, and strategies etc.) regarding the integration of Enterprise Architecture in combination with M&As. The focus in this desk research was on similar studies and literature and lessons which can be learned from these studies. As stated earlier in the introduction, there was very limited literature available regarding the topic, so that means that the desk research delivered relatively poor results in terms of quantity. The same goes for quality because, as stated earlier, the literature tends to see M&A always as a Merger of Equals

[3] If applicable, this information was not available for every case.

were the focus is on integration and consolidation. Therefore, the results of the desk research are only included in the lessons learned section for absorption cases (cases where gets integrated) in the results chapter of this thesis.

3.3.4 Interviews

The main method for gathering data in this research was by performing interviews. Qualitative interviews have been performed with the general interview guide approach. This means that the same general areas of information were collected from each interviewee. This provided more focus, but still allowed a degree of freedom and adaptability in getting the information from the interviewee [40]. For these same general areas, interview questions have been developed which were based on the research questions of this research. Next to that, additional tailored questions were asked based on information that had been gathered from the document analysis or based on the outcomes of earlier interviews. The interview protocol has been included in appendix A Interview Protocol of this thesis. The participants of these interviews were Enterprise Architects (or similar closely-related roles like CIOs or other higher management roles with an Enterprise Architecture affinity) within the host organization that were involved in a specific M&A case. In total there were four categories subject to this research. For every category, at least two cases were available within the host organization that matched each specific category, as is shown in Figure 3.2 M&A cases at the host organization plotted on the Category Selection Model. At least one interviewee was selected for each case and also for each case the questions were different and tailored based on previously gathered data in the specific case, either via previous interviews or document analysis. All these interviews have been recorded (with permission) and transcribed. The transcripts of all these interviews, can be found in appendix B Interview Transcripts. This appendix is delivered separately from this thesis due to the large number of pages. Detailed information about the interviews that took place, is being given in Table 3.3 Overview of interviewees:

Category	Case	Role of Interviewee	Date	Duration
1	A	Head of IT SC	26-02-2021	00:49:04
	B	Head of Digital	10-03-2021	00:31:44
2	C	Enterprise Architect	05-03-2021	00:54:16
	D	Enterprise Architect	10-03-2021	00:33:01
	D	Head of IT SC	25-03-2021	00:46:00
	E	Enterprise Architect	05-03-2021	00:54:16
	F	Enterprise Architect	16-03-2021	00:28:16

Category	Case	Role of Interviewee	Date	Duration
3	G	Enterprise Architect	08-03-2021	00:46:21
	H	Head of IT SC	25-03-2021	00:46:00
4	I	Enterprise Architect	16-03-2021	00:28:16
	J	CIO	07-04-2021	00:42:54
	K	CTO	11-03-2021	00:48:17
	L	Enterprise Architect	16-03-2021	00:28:16

Table 3.3: *Overview of Interviewees*

3.4 Data Analysis

The data that has been gathered in this research, as described in the previous section 3.3 Data Gathering, was primarily textual data. In this research, data was collected on a category basis and this means that the data was also divided and analyzed on a category basis. In addition, a general analysis has been performed on the data of all categories combined.

3.4.1 The Grounded Theory

In order to make sense of this data, principles of the Grounded Theory were used in this research in order to apply systematic and explicit data analysis techniques to this textual information. According to Martin and Turner (1986), the Grounded Theory is: "*[A]n inductive, theory discovery methodology that allows the researcher to develop a theoretical account of the general features of a topic while simultaneously grounding the account in empirical observations or data* [38]." The process of the Grounded Theory consists of the following 8 steps [38]:

1. Identify the substantive area/the area of interest
2. Collect data pertaining to the substantive area
3. Open code the data as it gets collected
4. Write memos throughout the entire process
5. Conduct selective coding and theoretical sampling
6. Sort the memos and find the theoretical code(s) which best organizes the substantive codes
7. Read the literature and integrate with the theory through selective coding.

8. Write up the theory

It is important to mention that this research was not fully based on the Grounded Theory. The Grounded Theory for instance states that the interviewer does not have any prior knowledge when conducting the research. This was not applicable for this research. The Grounded Theory part that was mostly involved in this research, was the systematic processing and analysis of the gathered textual data and the development of theories by using coding techniques and memos. This process will be described more in depth later in this chapter.

3.4.2 Coding

Coding is a key-crucial structure for analyzing and organizing data in qualitative research [42]. Saldana (2009) describes a code as: "*a word or short phrase that symbolically assigns a summative, salient, essence-capturing, and/or evocative attribute for a portion of language-based or visual data*" [51]. The coding of collected data results in the creation of theory, leading the researcher to construct deeper theoretical meaning [42]. In this research, all interviews were transcribed. After that, all collected textual data was being coded. This has been performed on a category basis, so this process was performed four times; once for each separate category. Thus, every category had there own set of codes and themes. By using coding methods, themes embedded in the data can be revealed and these themes are helpful for constructing meaning from the data [42]. According to Williams and Moser (2019), there are three types of coding that can be applied in qualitative research: Open coding, Axial coding and Selective coding [42]. In Figure 3.3 Types of coding that can be applied in Qualitative research, it is being explained what happens during these three types of coding methods:

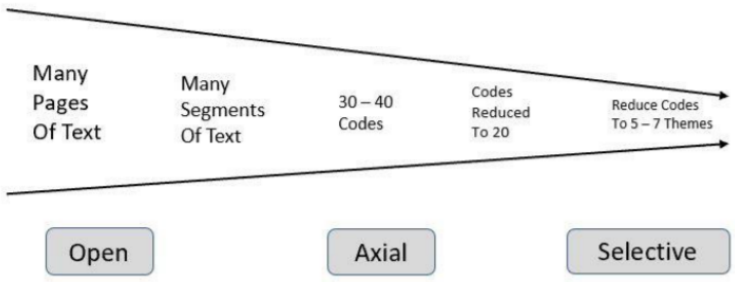

Figure 3.3: *Types of coding that can be applied in Qualitative research*

The coding process starts with open coding when there is many pages of textual data. During open coding, the researcher is identifying distinct concepts and themes for the categorization of the collected data. The first level of data is organized by creating initial broad thematic domains for data assemblage [42].

Eventually, this will lead to many segments of text and 30-40 codes[4], and this type of coding is called axial coding. Axial coding is the second level of coding. In contrast to open coding, which focuses on identifying emergent themes, axial coding further refines, aligns, and categorizes these themes [42]. Strauss (1998) adds that: "*Axial coding identifies relationships between open codes, for the purpose of developing core codes. Major (core) codes emerge as aggregates of the most closely interrelated (or overlapping) open codes for which supporting evidence is strong*" [57]. In the end, selective coding will be applied in order to further reduce the amount of codes. Selective coding is the third level of coding. Selective coding enables a researcher to select and integrate categories of organized data from axial coding in cohesive and meaning-filled expressions [42]. Based on these themes, theories can be developed. In Figure 3.4 Example of going from coding to theory development, a simple example is given of how open, axial and selective coding can lead to the development of a theory [42]:

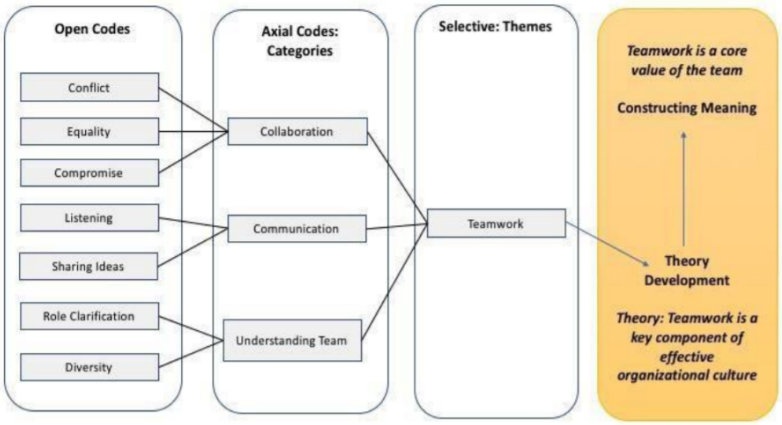

Figure 3.4: *Example of going from coding to theory development*

According to Williams and Moser (2019) this coding method enables a cyclical and evolving data loop in which the researcher interacts, is constantly comparing data and applying data reduction, and consolidation techniques [42]. They add that as the coding process progresses the dynamic function and nonlinear direction of this approach enables essential themes to be identified, codified, and interpreted in line with the focus of the research [42].

3.4.3 Creation of Results

As described in the previous section, three types of codes have been applied to the data that has been collected for this research. It is important to note that the coding process of open, axial and selective coding, is not a linear process as

[4]This is an indication, it does not mean that is mandatory to have exactly 30-40 codes. All numbers are approximates and it all depends on the type of research.

is shown in Figure 3.5 The coding process in qualitative research:

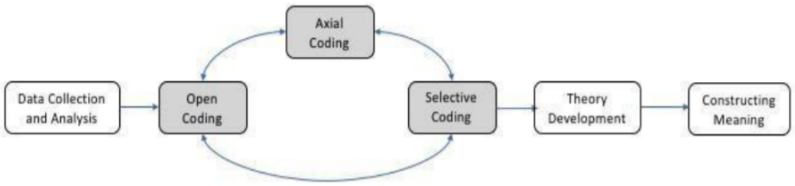

Figure 3.5: *The coding process in qualitative research*

In this research, the same process has been followed as described in Figure 3.5 The coding process in qualitative research. The codebook of this research can be found in appendix C Codebook. This appendix is delivered separately from this thesis due to the large number of pages. Based on the codes, which led to themes (selective coding), memos have been developed for each of the 12 cases. In appendix D Themes in the Data, the themes of all categories (1, 2, 3 and 4) are shown including the frequency of the occurrence of a specific theme. These memos, in which theory was developed based on the themes, are the foundation for the creation of the results (constructing meaning) that will be discussed later in this thesis. These memos can be found in appendix E Memos. This appendix is delivered separately from this thesis due to the large number of pages. Based on common concepts and relationships in the memos of each case (A, B, C, D etc.), results have been described on a category basis (1, 2, 3 and 4). For instance, case A and case B are both classified as being a category 1 M&A. The memos of case A and case B have been compared in order to find common concepts and relationships for category 1 M&As. Next to category-specific results, general results have been described based on findings that were found to be applicable to all categories. The structure of chapter 4 Results is also based on this grouping of results.

3.5 Validation

All research steps that have thus far been described in this chapter, have lead to results which are based on constructing meaning, theory development and coding. In order to validate these results outside of the environment in which this research has been conducted, interviews have been conducted with two individuals outside of the environment in which this study was conducted. This data triangulation functioned as a cross-examination of the findings of this research. In total two of such interviews have been conducted. The first interview has been conducted with an analyst from a major research and advisory organization. The second interview has been conducted with an Enterprise Architect with over more than 20 years experience in a major IT consulting firm. Both interviewees had experience with M&As from an Enterprise Architecture perspective and the outcomes of this research had been discussed with them. The

interview protocol for this validation has been added in appendix F Validation Interview Protocol of this thesis. The questions in this protocol are based on the results in chapter 4 Results and the key findings in section 5.1 Summary of key findings. In section 4.6 Validation, the outcomes of these validation interviews are described.

3.6 Overview

In this chapter, the approach and methodology of this research has been described. In this inductive research, 12 cases of M&As were researched. These 12 cases have been placed in one of the four defined categories. A mix of methods were used in order to gather the data: a literature review, desk research, document analysis and qualitative interviews. The data was analyzed with the use of coding. Based on these codes, which leads to themes, memos were created in which theories have been developed. With these theories, constructive meaning was created. The key findings/results of this thesis have been validated with two individual outside of the organization in which this research has been conducted. In chapter 4 Results of this thesis, these theories and constructive meaning will be presented. To summarize the research methodology, an overview of the steps is given in Figure 3.6 The Research Process:

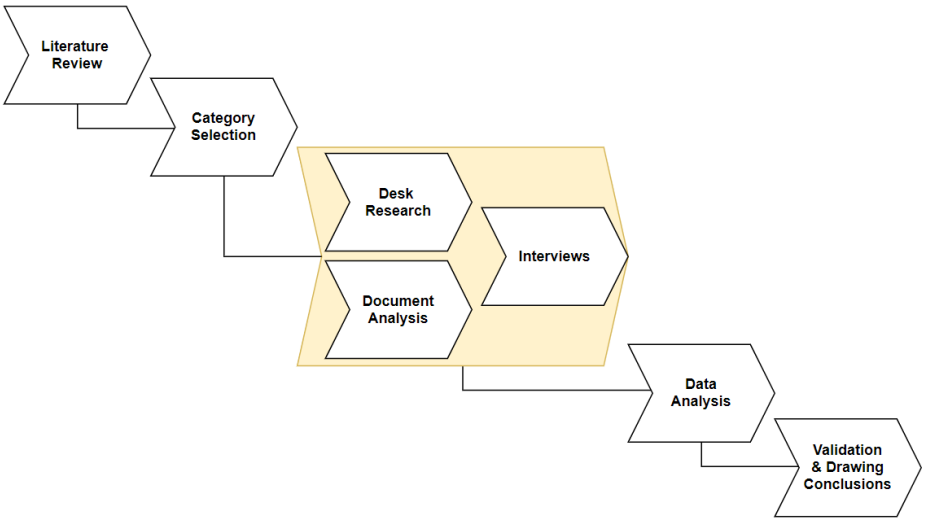

Figure 3.6: *The Research Process*

Chapter 4

Results

In this chapter the empirical findings of this research will be presented. The findings are structured based on the four categories and general findings that are applicable to all categories or a subset of two categories (Stand-Alone and Absorptive M&As). It is made clear with headings when a result stems from the desk research or from the primary research. In general, all results in this chapter are coming from the primary research, except for the subsections where the heading explicitly states that it stems from the desk research or when a source has been cited.

4.1 General

First of all, general results will be described which are not specific to one category of M&As.

4.1.1 Integration Consideration

Four categories of M&As have been subject to this research. These categories have been selected based on the type of M&A and the approach to an M&A. The type of M&A (Horizontal or Vertical) is a given, this is something that simply cannot be changed. However, that does not apply to the approach of an M&A (Stand-Alone or Absorption). This is a decision that management must decide on and this is usually the main question asked during M&As from an Enterprise Architecture perspective: do we integrate (Absorption) the acquired organization or do we keep it as a separate organization (Stand-Alone)?

A pitfall during M&As is that the acquirer always thinks that they should integrate the acquired organization and that the acquired organization should use their processes and IT systems, but by definition, this is observed to be not true. The prevailing sentiment is usually that the owner needs to integrate/absorb the acquired organization because that is what an owner is supposed to do, this was observed in all cases. However, the question that should always be asked is whether it is in everyone's interest that an organization gets fully integrated with the parent. For instance, from a Business Architecture perspective, when acquiring a (smaller) organization there is usually a whole different culture. When there is for instance an innovative culture, this is likely to not work out

when this gets integrated into a bureaucratic corporate organization. The integration with the parent will slow the acquired organization down: the lack of innovative culture at the acquirer is killing for the acquired organization when it gets absorbed. The culture is a really important aspect which should not be underestimated in M&As.

In most cases, there will be a choice to either integrate or not. However, in some of the researched cases it was observed that there is not even a choice to either integrate or not. For instance, when the acquired organization went bankrupt or due to other external factors like (new) laws and regulations and when complying to these will bring high costs when keeping two separate organizations. Furthermore, when the commercial activities of the organization that gets acquired stops, as a result of the M&A, then there is also not really a point in having an autonomous organization and then this organization should be absorbed (integrated) as well. When deciding to integrate or not, there needs to be looked at the goals for performing the acquisition. It needs to be clear: what do we want to achieve with this acquisition and why should we integrate the organization (or why not)? The strategies of both organizations as well as which groups both organizations are targeting, need to be kept in mind during this. In the researched cases, the following reasons to absorb an acquired organization were observed:

1. **Gain Synergy** - During M&As the goal is always to reduce ambiguity. Therefore, synergy is one of the key factors why an integration is being performed. In terms of Enterprise Architecture, synergy is not particularly tied to only IT systems or applications, but also to business processes or business offerings/products. According to Mone (2018), only 13% of the distribution of synergies has exclusively to do with IT (the Technology and Information Systems Architecture) [41]:

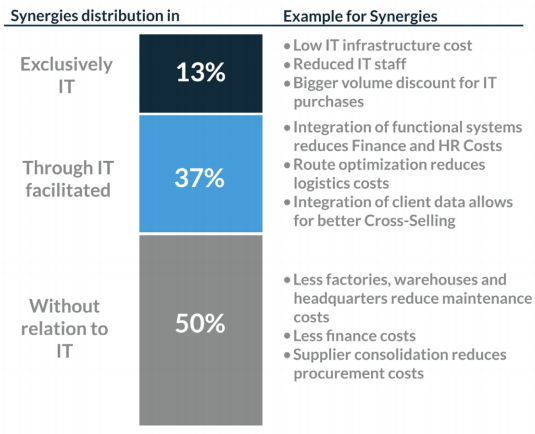

Figure 4.1: *Distribution of synergies during M&As*

Thus, during an M&A there will always be looked for synergies, but in some cases synergy is not feasible. For instance, because the costs of the migration/integration will be way higher than the benefits gained from that synergy. An important thing here is that synergy must not result in slowing one of the two organizations down. What often happens is that when there is the aim to gain more synergy between a (smaller) child and its (larger) parent; this will slow the (smaller) child organization down. Two key criteria need to be kept in mind when trying to harmonize or integrate organizations (Enterprise Architectures):

(a) Does it benefit the organization subject to the integration, often the acquired entity.

(b) Does it benefit the parent organization, the organization that acquired the entity.

If both criteria are met, then it can be decided to pursue with the integration in order to achieve this synergy, otherwise there should be really thought about the fact whether an integration is beneficial. What often happens is that the parent organization is bigger, and therefore they think that they are better. However, as observed in a lot of the cases, integrating and harmonizing processes does not always improve the operations of the organization that gets integrated, instead it could slow them down and it can kill the innovative culture of the smaller organization.

2. **Reducing Cost-to-serve** - Reducing costs is always an important factor in the integration decision. In a way this has a relation to gaining synergy.

3. **Get Control** - When the acquired organization does not operate as it should be, for instance when it has a negative business case or when other things are getting out of hand, it could be decided to absorb the organization in order to pull the control to the parent organization.

When an organization is doing 'the right thing' and has everything under control, for instance when they are better organized or when they clearly are staying ahead of their owners, there is no need to fully integrate (absorb) it. In these cases, it is better to cooperate with each other instead of fully integrating (absorb) an organization straight away. During the integration question it is important to look at the business side. A Business Architecture needs to be developed and a look must be taken at the market in which the organization operates and what products and services it offers. Based on that, conclusions can be drawn. For instance, when adaptability is key, it might not be the best option to fully absorb an organization into a bureaucratic organization in which they are using (legacy) systems which are not suitable for this adaptability. Also suitability in terms of IT systems is an important aspect that needs to be kept in mind here.

In order to decide whether an organization should be integrated (absorbed) or not, a due diligence is often performed. A due diligence has multiple functions:

1. It functions as a risk assessment.
2. Determining the value and risk of IT in the organization.
3. Determining the entire value of the organization (beyond IT).

In larger M&As, a due diligence is usually performed as a risk assessment. In smaller M&As when a certain IT solution is being bought for instance, the due diligence will be more focused on IT quality. Risks that can occur from an IT perspective during a due diligence are for instance: bad software quality, too many external employees (knowledge), security risks, lack of innovative culture, network availability etc. A due diligence can help with mitigating these IT risks. Based on the due diligence, risks can come forward and together the organizations can work on plans to fix these issues. The researched cases are showing that that due diligences are often fragmented and are never depicting a complete overview. What happened in every researched case, is that during M&As, employees of the acquired organization are leaving and in general, the best employees are always the ones that will leave first. The knowledge of an organization resides inside the heads of these employees. This means that a lot of knowledge about processes, solutions, systems etc. will be lost. So, performing an adequate due diligence is challenging and almost impossible. According to Gartner, incomplete due diligence is a major pitfall for organizations during M&As [53]. Therefore, the integration question is hard to answer upfront. This has to do with inadequate due diligences, but also because in every M&A the selling story always looks better than the reality.

4.1.2 Stand-Alone M&As

In this section, general findings that are applicable specifically to Stand-Alone M&As (category 1 and category 3) are presented.

In terms of Enterprise Architecture, Stand-Alone M&As are not that intriguing. Stand-Alone organizations are operating as a separate organization with their own IT and business processes, but this does not mean that they are fully independent from their owners. Often, in Stand-Alone M&As, the acquirer and acquired entity had a strong collaboration/cooperation relationship. For instance, the acquired entity was discovering the possibility to join partnerships of the owner and they would look at what was available at the owner's side in terms of Business and IT. In the observed cases it was almost always possible to share technologies (cloud platforms or ERP systems) between the two. In addition, the two organizations can for instance align IT audits and IT Security with a shared control framework and shared security policies. In some cases this will be mandatory to do because of the applicable laws and regulations in force.

A Stand-Alone organization often has a high cost-to-serve and therefore the owner will always be looking for opportunities to reduce these costs by gaining

synergies, because it is likely that there is some ambiguity between the two organizations. In Stand-Alone M&As, it is observed that this means that the M&A slowly transitions into an Absorption M&A, meaning that it will eventually be absorbed and fully integrated into the acquirer. This happens a lot because the strategy and the goals of the acquirer behind the initial reason to acquire the entity, were not clear upfront. Other reasons why this transition happens are described in the previous section: gaining synergy, reducing cost-to-serve, or in order to get control. It is important in Stand-Alone M&As to consider this transition scenario in the pre-merger stage, as it is a likely scenario that will have a massive impact on the total costs associated now (short-term) and in the future (long-term). To conclude, instead of having a short-term integration focus, the focus should rather be on the long-term.

4.1.3 Absorption M&As

In this section, general findings that are applicable specifically to Absorption M&As (category 2 and category 4) are presented.

4.1.3.1 Primary Research

From an Enterprise Architecture perspective, absorptive cases are the most interesting. In these M&As, where the decision is taken that the acquired entity gets absorbed (or integrated) and ceases to exist, there are three options of how the organization can be integrated from an Enterprise Architecture perspective:

1. **Integrate into acquirer's architecture** - The architecture (business, processes and systems) of the acquired organization gets integrated into the architecture of the acquirer. This is the most common integration that happened in the researched cases.

2. **Integrate into acquired entity's architecture** - The architecture of the acquirer gets integrated into the architecture of the acquired entity. This is not a common decision, but it could happen when an organization acquires a much bigger entity or when the acquired entity clearly has a more mature operating model and this option is feasible.

3. **Create a 'new' architecture** - A third option is to start a 'new' best-of-breed organization that combines the best of both sides. In theory this is an option (and maybe even the most ideal option), but in reality this almost never occurs due to the hassle and costs involved: it is too expensive to build something entirely new. This option is also referred to as the 'Merger of Equals' approach. However, as discussed earlier in subsubsection 3.2.1.2 M&A Approaches, this type of integration seldom occurs, and essentially merger of equals can always be defined as either a take-over or acquisition; which essentially means that it comes down to one of the two previously described options.

To determine which of the integration options fits best during an M&A, the following must be considered:

1. **Laws and market regulations** - Are there laws and regulations (and/or upcoming changes to those) that could have an effect on this integration. For instance, complying with certain regulations (e.g. GDPR, (J)SOX) requires some changes to certain processes and systems.

2. **Maturity and Scalability of the Architecture (systems and processes)** - To decide the integration strategy, there should be looked for the operating model which is more mature and easier to scale. Also reliability is an important aspect here. Factors to consider during this are:

   (a) No or bad Life Cycle Management on current landscape (e.g. legacy systems).

   (b) High degree of customized systems: the degree of customization in service or offerings of the acquired entity. How much does this differ from the acquirer and how can be dealt with this? Does it need to be harmonized with the acquirer or does it need to be kept separate which will come with a higher cost-to-serve? When a system is highly customized or it is a legacy system (or a combination of both), it is hard to migrate or upgrade it later on. These two points are important to keep in mind during the integration process and questions about this should be asked during this process.

   (c) Degree of standardization: how standardized or common is the environment? E.g.: does it need people with special knowledge or skills? And did these people already left the organization?

   To determine this, usually a due diligence is performed. As stated earlier this is often an inadequate due diligence. This means that during an integration, the new owners often get caught by a lot of surprises that did not show up pre-merger and which they were not aware of.

3. **Process & System adoption** - Always after choosing for certain (IT) systems or (IT) processes, the corresponding processes or systems need to be adopted as well. There should not be mixed/switched between systems and processes of two different organizations: do not decide to use the processes of organization A while going with organization B's IT systems. As observed in one case, processes and systems should not be mixed as this will end up in a mess. A fit-gap analysis can be performed on the processes of both organizations. This can determine what is being done at both organizations and then a decision can be taken on what must (not) be continued to do and what changes must be made. By doing this, the fit-for-purpose for every solution in both landscapes is being determined. Important here is to prevent making subjective decisions, which leads to the following point.

4. **Prevent subjective decisions** - The integration strategy is an important decision. When making this decision, of which architecture (processes and systems) to use, there needs to be looked in an objective manner. When someone has put a lot of work in a certain system, it is likely that he/she would want to stick to that rather than moving to a different system that is more ready for the future. Subjective decisions like: "we have used this system for 10 years already", "I am used to it" etc. should be eliminated. The focus must be on the future and what we do want to achieve then. It is a straightforward point, but as the researched cases showed, this tends to go wrong a lot because of the ego and pride of certain people involved in making these important decisions. This is also caused by the clashes between cultures between the two organizations involved, which is a common thing in M&As. Reinicke (2016) described a risk/conflict which typically occurs during M&As that is related to this lesson learned: "*During an M&A each side considers its systems and processes to be superior*" [48].

5. **Different standard or procedures regarding propositions** - Often the acquired entity uses different standards, definitions or procedures regarding propositions (products & services) in comparison to their acquirer. For instance, the two organization have a different view on what is a business and what is a private customer which can cause a lot of trouble. This is just one example, however there are multiple other examples of differences in propositions which can be thought of. It is important to harmonize this or at least try mitigating this risk. Different propositions or offerings are a major pitfall in M&As when gets decided to integrate (absorbed). Often is thought that using 1 process with 1 application (a uniform/harmonized process) is the best option, but this is not always true and this can cause conflicting strategies, especially during absorptive M&As. A best practice is to use guiding principles for the target organization and target operating model. When acquiring organizations, the unified target operating model can be used as a guidance. This gives room to standardize standard processes, but it also keeps the door open for processes that can not be harmonized. Harmonizing process that have to do with two (or more) different propositions is difficult and likely not going to work out.

The integration of an organization is not something that happens overnight. It will take some time and in the researched cases this differed from months to years. The duration of the integration has to do with how easy new employees are landing, processes are getting streamlined and synergies are achieved in propositions etc. In every Absorption case, that was subject to this research, it was observed that the integration plan deviated from reality. Most of the times, this happens because the integration was underestimated. Next to that, cost overrun is also a common phenomenon in absorption cases. There are a number of reasons why integrations do not happen smoothly in absorption M&As:

1. First of all, a lot of knowledge gets lost, because a lot of employees will

leave the organization. A common risk is that there are a lot of external employees, who often can easily leave their employer. In addition, a common thing is that there will be a lot of clashes between the cultures of the two organizations which also causes a lot of employee turnover which essentially means the loss of knowledge.

2. Next to that, there is often a lack of documentation, because most knowledge resides in the heads of the employees, rather than it being documented somewhere. This in combination with the turnover of employees causes a lot of trouble. This finding is backed up by Gartner which states that: "*Often business processes and IT platforms at target organizations are partially documented and this gets overlooked during M&As*" [53].

3. Also, a lack of knowledge about processes is a common thing. Employees tend to not see the full picture of what they are doing and often they are missing a lot of details of what is happening beyond their own scope.

4. Usually the integration strategy, during absorptive M&As, gets decided after the deal has been sealed. There is no strategy upfront, because the deal is often sealed from a financial perspective. That means that upfront there is not really a focus on integration questions from an Enterprise Architecture perspective.

4.1.3.2 Desk Research

A key lesson learned from the case of Cisco Systems, which has been discussed in subsubsection 2.3.2.4 Case Study: Cisco Systems, is that organizations should focus on reducing the number of integration problems, rather than becoming better at resolving them during the M&A process. The acquirer should identify those elements that could contribute to a difficult integration project and use its Enterprise Architecture capability to manage them [67]. Furthermore, the case study performed by Infosys concluded that, from an Enterprise Architecture perspective, before engaging in an M&A where the goal is eventually to integrate (absorption), an organization must be prepared for this by keeping the following in mind across all domains of Enterprise Architecture [32]:

- **Business Architecture:**
  - Align IT applications towards target business priorities and capabilities for the future enterprise. This helps strengthening the alignment between business and IT.
  - IT applications and services must have the right capabilities to support consolidated business processes. Infosys states that it is prudent to harmonize non-core or under-performing processes first [32].
  - Compliance with regulatory requirements (GDPR, (J)SOX etc.) of future business processes, applications and infrastructure.

  - What is the business and IT strategy of both organizations and what are differences in culture. What does the future in terms of way of (digital) working look like?

- **Information Systems Architecture (Data & Application):**
  - Mitigate operational risks: is some sort of IT back-up prepared in case something goes wrong during the integration?
  - What is the degree of Shadow IT in the organization. For instance, burden and liabilities which can be good business solutions towards standardization and optimization, but are either not documented or the official way-of-working.
  - Renegotiating contracts of same software vendors for same software product licenses and support (e.g. SAP, AWS, Microsoft, Oracle etc.) or similar capabilities products from competing vendors.
  - How much control does the IT department have: are there uncontrolled applications or services within the organization? Or is everything strictly controlled by the IT department.
  - Integrate to enhance existing business capabilities. Eliminate ambiguity in applications and services for instance. Infosys states that organizations must determine if the current set of applications meets future QoS (Quality of Service) aspects like availability, maintainability, reliability and security. Points to keep in mind here are: new future total users loads, new countries, new time zones, multilingual capabilities, backup windows etc. [32].

- **Technology Architecture:**
  - Know the IT assets (Apps, Infrastructure, Services, Skills-set) of the current and future target enterprise.
  - Technology misalignments across current and future IT portfolios with respect to enterprise technology standards. Infosys states that: "*Technology misalignments are relatively costly from overall maintenance and hence IT portfolio analysis can help to identify such misalignments and to lay out a roadmap to reduce the gaps.* [32]."
  - Enterprise technology debt: unsupported and legacy technology in the future IT portfolio (because of the integration).
  - Consider industry specific architecture trends when deciding on the roadmap of the future enterprise.
  - Re-define IT strategy, technology standards, and guidelines (principles) for acquired organizations before starting the actual integration. According to Infosys this helps avoiding confusion on deciding on technology stacks and right fit IT solutions, especially during M&As [32].

4.1.4 Enterprise Architecture Maturity

From an Enterprise Architecture perspective, the course of the M&A is tied to the level of maturity of the acquirer's and the acquired entity's Enterprise Architecture, which has been discussed in subsection 2.1.6 Maturity. Toppenberg et al. (2015) noted that the value created from M&As can be improved by drawing on an advanced Enterprise Architecture capability in the acquisition process [67]. According to Swindell (2015), Enterprise Architecture success factors for M&As include the following [58]:

1. A mature Enterprise Architecture function or framework.
2. A clear representation of your own organizational assets.
3. Acceptance of the value to be achieved from the Enterprise Architecture tools by the CEO and integration team.

All these factors essentially come down to the Enterprise Architecture maturity of an organization. In the end, it is all tied to the maturity of the Enterprise Architecture how hard (or easy) the M&A will turn out to be. During the researched cases, some best practices came forward for integrating Enterprise Architectures during M&As when a certain level of maturity is achieved. First of all, a best practice could be to establish a centralized generic platform at the parent organization's side with for instance large cloud platforms and ERP systems. Newly acquired organizations can easily join these platforms for the sake of the costs. Next to that, standardizing as much as possible in order to easily upgrade and add to the adaptability of the organization is a best practice that has to do with the maturity of the Enterprise Architecture. Additionally, child organizations should adhere to the target architecture and principles of the owners, for instance when working on two different cloud platforms. Finally, a best practice is to change the way of approaching solutions; an IT product needs be seen as a proposition that should be possible to integrate into a generic platform. A product does not need a dedicated back-end but should work on different platforms. In that way it would be possible to integrate platforms more easy. In other words, try to make your programs and servers generic so it does not matter on what platform they are running, but of course in this case working in the same stack will always lead to a cost benefit. To conclude, during an M&A, there always needs to be looked at what does the future architecture of the parent look like and how can the acquired platforms fit into that, or how can the acquired solutions be made to fit in that platform that the owner is using.

4.2 Category 1

In this section the empirical findings, which are specific to category 1 M&As, are being presented.

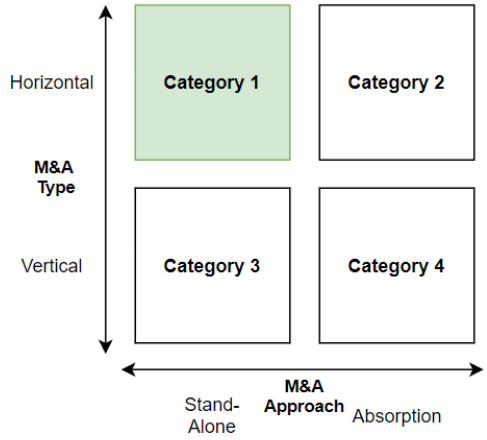

Figure 4.2: *Category 1 M&A*

4.2.1 Description

In category 1 M&As, the acquirer and acquired entity are performing the same or similar business activities and they are having the same or similar business capabilities. Therefore, these transactions are mainly aimed at expanding the customer base. However, the acquired entity remains a separate, stand-alone organization. When performing the same activities, it might seem odd to not integrate the organization, because in the end the two organizations are performing similar activities and therefore gaining synergies should be possible. There are multiple reasons why organizations decide to go for a stand-alone approach instead of an absorption approach in this case:

1. **Geographic Location** - The acquired entity is located in a different country/region. Laws and market regulations play a role in why an absorptive approach is not feasible or attractive to perform. This often has to do with the high costs involved (e.g. taxes or high costs in order to be compliant etc.).

2. **Multi-Label Strategy** - It has been decided that its necessary for the acquired entity to remain a separate brand. Reasons why this could be decided, is because the two organizations deploy different strategies in targeting customers and therefore separate brands are needed to capture market share.

As stated earlier in subsection 4.1.2 Stand-Alone M&As, it has been observed that in the researched cases, Stand-Alone M&As often transition into an Ab-

sorptive M&A later on. This is especially true for category 1 M&As, where the organizations have similar business capabilities and where similar business activities are being performed. At one certain point, the parent organization will always look into absorbing the child organization because of the high cost-to-serve for a stand-alone organization.

4.2.2 Impact on Enterprise Architecture

In this case, from an Enterprise Architecture perspective, the level of integration is minimal or not existent. The acquired entity will keep its own brand, own governance, management team etc.: it will remain a separate, stand-alone organization with its own processes and IT systems. So, there will not be any form of integration on Business, Information Systems or Technology Architecture and there is basically no impact on the Enterprise Architecture of the acquirer. However, this does not mean that the two organizations must completely operate as separate organizations. They can for instance align IT Security, IT audits, a shared control framework and shared security policies. Next to that, there could be looked into the possibility of sharing partnerships with certain (IT) suppliers. For instance, when the acquired entity is looking for a new IT platform, the first step that should be performed is that they will look at what is available at the owner: what are they using there and can we join them? Apart from that the organizations usually stay separate (otherwise it will be a category 2 M&A), and they are both responsible for their own IT infrastructure and processes. The relationship between the acquirer and acquired entity can be seen more as a collaboration/cooperation or an on arm's length relation, in which the acquirer will of course steer the organization, because in the end they are still the owner. However, in order to reduce costs, the owner will always look for some synergies, and that is why eventually these types of M&As are often transition into a category 2 M&A.

4.2.3 Findings

What often happens with category 1 M&As, is that they will eventually shift from a stand-alone organization to an organization that gets absorbed by its owner (a category 2 M&A). There are two reasons for this: the organization gets integrated to gain synergy and reduce ambiguity or the organization gets integrated in order to reduce costs because a stand-alone organization of course has a higher cost-to-serve in comparison to an organization that gets absorbed. Since, it is a horizontal M&A, the commercial activities and processes of the organizations are already similar, and therefore it is observed that the aim for reducing ambiguity, which brings a reduction of costs, is the main reason for this transition. This shift from stand-alone to absorption will lead to an autonomy conflict, because the organization will cease to exist. Therefore, long-term vision is key in these horizontal M&A deals where can be decided to either absorb the organization or keep it as a stand-alone organization. The following question needs to be asked: what does the world look like in 5 years and how must

the business operate then? Instead of only focusing on the short term, the focus must be on the long-term in order to take a better decision about directly integrating the organization (or not).

4.3 Category 2

In this section the empirical findings, which are specific to category 2 M&As, are being presented.

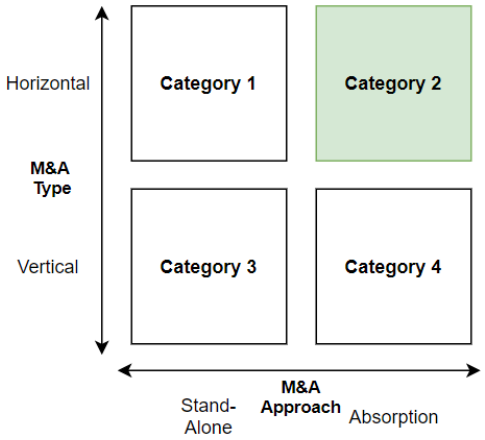

Figure 4.3: *Category 2 M&A*

4.3.1 Description

In category 2 M&As, the acquirer and acquired entity are performing similar business activities. The acquired entity gets absorbed by the acquirer and ceases to exist as an independent, separate organization. These M&As typically involve the acquisition of a (smaller) competitor. The focus in these types of M&As is on growth through acquiring the customers of the acquired organization. As stated in subsection 2.2.5 Drivers of M&As, these types of M&As, where the focus is on expanding customer bases in existing geographic markets, are the most common and the main reason why an M&A is performed [10].

In fact, the entire organization will be acquired, but basically the acquirer will get rid of everything except for the customers. Therefore what tends to happen is that the focus is more on the business (or financial) side of the M&A rather than on the IT side. In these cases, the acquirer gets informed in some way, usually by investment bankers, about the fact that a certain organization is available for sale. These M&A deals have a short time period before the final decision must be made, thus what often happens is that the acquirer visits the organization that is up for sale to ask them questions and attend some presentations about how they are operating their business in terms of business and IT.

Sometimes external parties are brought in order to support this, but mostly it will be just some visits to the organization with some sort of data room where a lot of questions will be asked to validate the organization on their IT and processes. There is a high level conversation about the architecture, for instance that there are a lot of external employees and what main systems are being used (SAP, AWS, Microsoft, Oracle etc.) This tends to be always an inadequate due diligence. Often, in these types of M&As, employees of the acquired organization are leaving. The knowledge of the organization usually resides inside of the head of these employees, so a lot of knowledge about processes, solutions, systems etc. gets lost. Thus, performing an adequate due diligence is challenging and almost impossible.

In the end, what usually happens, is on C-level they will look at how much customers the target has and how much the target will cost. Eventually a decision is taken whether the organization gets acquired or not. Thus, from an Enterprise Architecture perspective, IT does not really play a role in this decision; it is purely a financial/business decision. In the researched cases, IT did not have any impact on the final decision to acquire an organization or not, even though IT has a very big impact on the fact whether the M&A deal will turn out to be a success or not. The next thing that happens, is that people in both organizations are made aware of this deal. The management of the acquired entity gets replaced (or will leave voluntarily) and the next wave of employee turnover occurs as well. This is not typically a bad thing in these types of M&As, because it saves the costs of firing employees, but fact is that a lot of knowledge will be lost, because the employees will know a lot about what is going on in their organization. The focus in these types of M&As is purely on gaining customers, even though the acquirer could learn something from the processes and IT at the acquired entity, but they have a certain arrogance and therefore they are usually not interested in that. They think they are bigger and therefore better and therefore they just want to migrate the customers and move on.

4.3.2 Impact on Enterprise Architecture

Regarding the impact of these types of M&As on the acquirer's Enterprise Architecture, essentially these types of M&As are a data migration of customers. The impact on Enterprise Architectures during M&As are mainly caused by gaining synergies by harmonizing processes and integrating landscapes, both of this was not applicable in the researched cases for this type of M&A. There are some exceptions however, it could be possible for instance that systems of the acquired entity must be kept online because certain processes must be finalized or continue to run. What happens then is that these systems get archived and moved over to the acquirer's landscape and hey will be kept online for as long as necessary. Apart from that, in every case the main goal was: how can the customers from the acquired entity be moved over to the systems of the acquirer (or the other way round in some cases). From the integration types, which

have been discussed in subsection 4.1.1 Integration Consideration, the first option is the most common in these types of M&As. The main focus is thus on migrating data (migrating customers). So, in this case performing expensive integration operations would be a waste of time and money, because there are already two similar organizations. Therefore, the best option is to integrate to the organization that is the most appropriate or most mature, and that is usually the acquirer. The acquired entity (in fact the customer data) will basically be moved over to the acquirer. So, in general, the impact on the Enterprise Architecture of the acquirer is very limited. When looking at the domains of Enterprise Architecture, something needs to happen on the Data Architecture level: how is this organized within the acquirer and the acquired entity and how can the customers be successfully migrated from the acquired entity to the acquirer's landscape? It helps if the acquired entity was already using the same CRM system as the acquirer. Apart from an impact on the Data Architecture, there is no impact on the Technology Architecture. In essence, the result of these types of M&A is that a number or customers get added to the systems of the acquirer. However, in some cases it was observed that there was an impact on the Business Architecture. For instance, sometimes it was necessary to keep offering propositions of the acquired entity that deviated from the acquirer's propositions. Since the acquired entity ceases to exist, this means that action must be taken on the acquirer's end in order to keep fulfilling these propositions.

4.3.3 Findings

4.3.3.1 Desk Research

In horizontal acquisitions where gets decided to integrate, as is the case in category 2 M&As, the focus is more on application rationalization and reduction in the Opex and Capex costs by eliminating redundant or duplicate systems owned by both organizations (ambiguity) according to Infosys [31]. Examples are product rationalizations, CRM, billing, and order management platforms, etc. which can be harmonized more easily. Practice shows that these IT consolidations are time-consuming and very costly. Also this is usually a process which will take years [31]. Infosys' states the following recommendations for integration in category 2 M&As [31]:

- **Business-driven** - Use milestones (and business goals) to prioritize and phase the efforts for rationalization.
- **Innovation** - Use the IT consolidation and rationalization not only as an opportunity to reduce ambiguity, but also to capitalize on projects such as data center consolidation and cloud transformation to enable new service lines and technologies by increasing customer intimacy and revenue through expanded insights, VR/AR, IoT and big data etc.
- **Future forward** - Leverage cloud and architectures to simplify data and application transfer for future M&A and divestiture activities.

According to Strah and Taware (2017), data integrations (or migrations), which in essence these types of M&As usually are, will almost always exceed the estimated costs of the integration. By using enterprise data reference models, the structure of logical and physical data assets and data management resources within the enterprises can be identified [56]. They note that: "*effective data governance can significantly reduce the efforts for data integrations and provide key foundations for cloud and infrastructure consolidation and transformation efforts that may result* [56]."

4.3.3.2 Primary Research

- In these cases, customers get migrated from the acquired entity to the acquirer. Sometimes it is necessary (e.g. due to legal contracts) to keep offering the same products and services (propositions) as the acquired entity. It is logically to think that then the processes and systems will adhere to the standards/procedures of the acquirer. So, in other words, the processes of the acquired entity will be harmonized in order to fit in to the acquirer. However, in a lot of the researched cases, this was not always the case. The systems and processes must be suited to continue offering the products and services of the acquired entity.

- A pitfall can be the misalignment in the definition of propositions (products and offerings), for instance when dealing with private customers and business customers: where is a self-employed individual placed? A pitfall can be to maintain both definitions (of both organizations), however this will come back to haunt you and this will cause a higher cost-to-serve in the end. Therefore, when an organization continues to offer the services and propositions of the acquired entity, it needs some form of harmonization, and based on the research the conclusion is that this should happen right at the beginning. It is important that your systems and processes are suited to perform this harmonization.

- The last lesson learned is regarding dealing with ongoing work. Sometimes still work must be performed at the side of the acquired entity that stems from the past. For instance overdue payments, or other activities that can be traced back to the past. In order to facilitate this, old systems usually need to be kept online, but this is not always possible and then systems will be archived. Next to that, it is always the case that the acquired entity has contracts with customers. The acquirer must adhere to these contracts, which can also cause problems. Finally ongoing processes/changes or transactions need to be kept in mind during the integration, because it is not desired to disrupt the ongoing business.

4.4 Category 3

In this section the empirical findings, which are specific to category 3 M&As, are being presented.

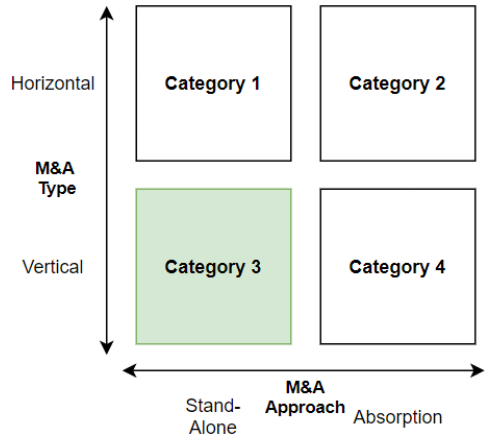

Figure 4.4: *Category 3 M&A*

4.4.1 Description

M&As that are classified as a category 3 M&A, are transactions where the acquirer acquires an entity that is performing different business activities (and has different business capabilities) and where there is basically no or limited integration: the acquired entity stays a stand-alone, separate organization from its acquirer. These types of M&As are often performed in the following scenarios:

- **Acquisition by a Conglomerate** - In case an organization gets acquired by a conglomerate, it usually has to do with a foreign acquirer, that is a reason why it is acquired with a stand-alone approach instead of an absorption approach.
- **Acquisition of a Start/Scale-up** - A smaller start-up or scale-up gets acquired by a (much) larger organization that operates in a different business sector.

These types of M&As are often performed as strategic investments by the acquirer. The goal of these acquisitions is mainly to grow by getting access to new or existing markets and to learn from the new acquired organization by acquiring technology and talent (knowledge). Also the diversification (in terms of capital) is a reason for performing this type of M&A. In category 3 M&As there is usually a different relationship with the owners. The owner will for example take place in the supervisory board where the goals and strategy of the organization gets decided. This is how the owner controls or manages the

organization. The owner sets goals and they support the strategy that the organization deploys as long as it goes well. If something goes wrong and/or goals will not be achieved, they tend to push for more control.

4.4.2 Impact on Enterprise Architecture

In terms of Enterprise Architecture, the organization will stay a separate organization with its own IT landscape, operations and independent business processes. From both an IT and business perspective there is not really an integration. In this type of M&A, there needs to be looked at the business, information systems, or technology architecture of both organizations and see if synergy can be achieved. Looking for synergies is an important aspect, but looking for synergies does not always mean that two separate organizations need to be fully integrated. Usually the technologies are not a problem or obstruction in this synergy question, but the procedures/business processes/the way-of-working are. In this type of M&A there is often not much room for gaining synergies, because the owner and child are performing too different activities from each other. Sometimes, HR processes and systems (like requesting leave etc.) and office automation (digital workplace: laptops etc.) of the acquirer is being adopted by the acquired entity because of the cost benefit, but that is not always necessarily the case. What also happened in both researched cases is that the acquired entity will look for available partnerships at the acquirer's side and it will be investigated whether they can join those partnerships for instance with large IT platforms such as cloud providers or ERP systems. A pitfall here is conflicting interests between the owner and the child.

In terms of technology or information systems architecture, there is not really any form of integration during these M&As and this stays separate. In category 3 M&As, the impact of the M&A on the business architecture would be related to the goals and strategy which are usually being set by the owners. Also culture in terms of business architecture is important, because conflicting cultures between the acquirer and acquired entity will lead often to employee turnover which will have a massive impact on the M&A, because a lot of knowledge will be lost. To conclude, the impact of M&As on the Enterprise Architecture usually has to do with synergies and harmonization. Synergies are not restricted to only the technology or IT side, but can also be gained on the business side. An example of where synergy can be gained on the business side in this type of M&A, is for instance with certain procurement activities which are applicable to both organizations.

4.4.3 Findings

- Category 3 M&As usually involve a conglomerate. It could be that the acquirer is a foreign entity. An important aspect of the M&A could then be complying with laws and regulations that are applicable to the owner. For instance, when the acquirer is located in a different country or operates

in specific sectors, it could be the case that it is necessary to explain how certain IT processes or change management (SOX) is being handled within the organization. This can have an impact on the Enterprise Architecture and might require changes in order to comply with these regulations.

- Category 3 M&As also could involve a start-up or scale-up. When acquiring a start-up or scale-up that performs different business activities (it has different business capabilities) and it stays a separate, independent organization (as is the case in category 3 M&As), this could be the true reason for their success. Due to being an autonomous organization, they could do their own thing, without needing to deal with the bureaucracy, procedures etc. of the acquirer. This is something that happens frequently when a corporate buys a smaller organization like a start-up or a scale-up. This bureaucracy is a big fear for smaller organizations when they will be acquired, because it will slow them down. In most businesses adaptability is key, and this is often something which a start-up or scale-up loses when getting absorbed by its owner.

4.5 Category 4

In this section the empirical findings, which are specific to category 4 M&As, are being presented.

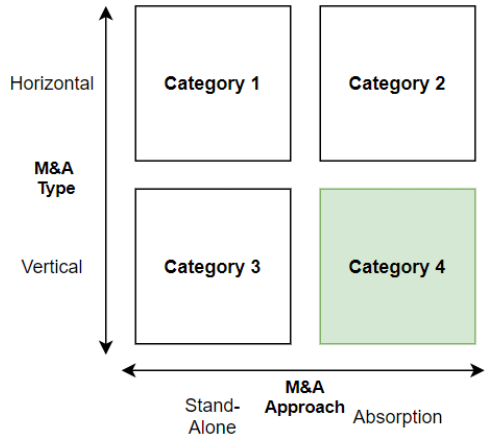

Figure 4.5: *Category 4 M&A*

4.5.1 Description

Category 4 M&As involve an acquired entity that ceases to exist as a separate, independent organization. Since it is a vertical M&A, it involves the acquisition of an entity that performs different activities. The main reason for these deals are to enter new markets, expand products or services, acquire technology

(solutions) or acquire talent (knowledge). Often, in these types of M&As, an organization is simply buying an entity for a specific solution that they do not have themselves: the typical make or buy decision. Practice shows, that organizations rather buy something than making or developing it in-house. Thus, the idea of this type of M&A is to either buy a solution. However, practice shows that in most cases organizations are buying the knowledge of the employees rather than a specific solution. This type of M&A often involves the acquisition of a start-up or scale-up. Due diligences in these cases are often fragmented and limited to some interviews with key knowledge holders. Category 4 M&As often (but not always) started as a stand-alone M&A, meaning that it was a separate entity (category 3 M&A) before being absorbed. Reasons why this transition happens, could be due to the fact that the organization did not live up to its expectations and the owner wants to reduce costs and/or get more control.

4.5.2 Impact on Enterprise Architecture

The impact of an M&A on the Enterprise Architecture usually has to do with gaining synergies. In these cases, when integrating an organization that performs different activities, they are likely to serve different segments with different propositions. It is important to look for synergies so that propositions could be integrated. However, this should not be forced: if there are no synergies to be gained, then there should not be integrated and harmonized if that means that the acquired organization can not fulfill its propositions anymore (unless it gets decided to discontinue the offering of a specific proposition). In that case, rather than aiming to gain synergies, the focus should be more on a 'advanced collaboration or cooperation' or the streamlining of certain processes/propositions. It will be more a search for cohesion rather than really gaining synergy, with different and conflicting propositions the latter, gaining synergy, is hard to do. In terms of impact on the Enterprise Architecture, apart from some specific processes and systems tied to specific propositions, the acquired entity will basically be 'plugged-in' into the owner: standard processes like HR, finance, IT (employee laptop etc.), customer care (market communications), are easier to integrate because what happened in all of the researched cases is that the integrated organization will just make use of what is already available at the owner. However, deviating processes specifically in place for certain propositions are hard to harmonize. The impact on the technology and information systems architecture depends on the need for certain systems and processes for delivering certain propositions. It could be that the acquired entity still needs some of its systems and processes in order to continue delivering some of its propositions, in that case it means that there will be an impact on the technology and information systems architecture. However, apart from that, the acquired entity is expected to just adhere to the processes and systems of that of its owner, that is why it gets absorbed. In terms of business architecture, in these cases there are always people that will leave the organization, because they will need to adhere to the processes of the owner and that is something that they are not always willing to do. Therefore, when looking at the domains of Enterprise

Architecture, the most impact will be at the business architecture: the people and processes needed for specific propositions.

4.5.3 Findings

4.5.3.1 Desk Research

In case of a vertical M&A where gets decided to integrate, as is the case in category 4 M&As, Strah and Taware (2017) note that: "*vertical integrations succeed when adopting multiple and parallel work streams that create both top- down and bottom-up roadmaps to address different revenue and business cycles of different organizations across industry verticals. Having core teams to address systems of record (reduce technical and architectural debt) and systems of engagement (innovate and introduce new capabilities) can also accelerate the pace of integration and ensure focus on innovation and business goals* [56]." Based on their research, they have come-up with the following best practices for category 4 M&As [56]:

- **Align service and offerings** - Align services and offerings with business architecture and business operation. In addition, create shared services with consistency at the core and agility at the edge.
- **Infrastructure independent Applications** - Deploy infrastructure independent business applications and gain resource optimization across centralized and business led IT functions.
- **Data-driven Architecture** - Data-driven architecture for customer services and products allows more changes (customization) via configuration and reduced time to market.
- **Unifying services** - Enhance unified purchase and service path by decomposing the monolithic legacy core into smaller capabilities to deliver better digital experience.
- **Aim for a Service Oriented Architecture** - In a vertical integration a best practice can be to deploy a hybrid approach of micro services for certain processes (updating catalog, order entry etc.). based on API first, interoperability, and standardized Integration. This is also known as a Service-oriented based architecture. In theory, this is an ideal option in vertical acquisitions, but as discussed earlier in subsection 2.1.6 Maturity this requires a high maturity of Enterprise Architecture deployment, something which is not the case in the majority (94%) of organizations.

According to Mack (2005), it is a critical factor to identify a new Enterprise Architecture when the difference is great between established operating models and the new one during M&As. The consolidation will have to provide the base for this new architecture, while supporting the current business process operation and its transition [37].

4.5.3.2 Primary Research

From the primary research, the document analysis and interviews, the following key lessons are learned from category 4 M&As:

- **Buying a solution or knowledge** - When engaging in category 4 M&As, a lot of people tend to think that a specific (IT) solution is being bought when the organization gets acquired, but is that really the case? Most of the times the acquirer wants in fact the people with the knowledge that have built the solution, but this is often overlooked. When a lot of employees leave the acquired organization, which is a common effect of an M&A, the acquirer ends up with nothing. In these cases, it is important that the acquirer is aware of the fact whether they are buying a solution (i.e. a certain IT system) or that they are in fact buying knowledge.
- **Scalability of solution** - When the acquirer is aware of the fact that a solution is being bought, rather than knowledge, it is key-crucial that this solution is scalable and mature, otherwise it will not work out. It also helps if the solution is a standard or common solution meaning that people with special knowledge are not needed. For instance, if a solution is built on Oracle; there are a lot of people who have experience with Oracle meaning that employee turnover (loss of knowledge) will not be that catastrophic. Next to that, timing can be a factor in this: if a solution gets integrated straight away at the beginning, research showed that it works better than working with solutions next to each other overtime.
- **Culture is an important aspect of the integration** - Culture must not be underestimated, a lot of people will leave an organization due to conflicting cultures between their organization and that of the acquirer. If an innovative organization gets acquired and integrated in an incumbent parent organization, which is not really innovative, this will definitely not work out. In the end, knowledge comes from innovation and when buying innovation, the old culture needs to be maintained, otherwise the acquired organization will be killed and the deal will turn out to be a waste. The threat of conflicting cultures is one of the biggest challenges during these integrations, this can be purely "how are we getting along wise", as well as conflicting ways of working. For instance, when employees are used to having the responsibility to come up with solutions themselves, instead of getting told what the solution needs to be. The same goes for procedures around changes, in larger organizations this will conflict with what is normal in a start-up or scale-up. Culture is a very important aspect in an integration and a big risk is to underestimate the impact of conflicting cultures. Coping with conflicting cultures is an important factor for the success of the integration. In order to mitigate this risk, the following steps can be undertaken:

    1. Enforce no (major) change in way-of-working. The integration as well as the adaption of new employees takes some time. When ab-

sorbing an organization, the way-of-working in both organizations needs to be kept in mind and whether it fits in the new organization. For instance, the way-of-working in a start-up is completely different than in a big corporate. Dissolving teams is something that needs to be avoided and the lack of an innovative culture will be killing. When integrating a start-up or scale-up, it is important that the the culture does not get lost when absorbing these organizations into the acquirer. This can be done in two ways:

(a) The culture of the acquired entity can be adopted in the organization of the acquirer. However, this means that it needs to be adopted in the entire (IT) organization of the acquirer, something which is not always feasible.

(b) A twin organization can be created which essentially means that the two cultures are being kept next to each other within an organization.

2. Prevent corporate/enterprise characteristics like complex procedures for changes etc. Of course HR, procurement, IT (office automation) processes are always getting integrated so that is something that can simply not be avoided. The new employees should be given the time to adapt to this.

- **Vision & long-term commitment** - A clear vision and long-term commitment during an M&A is important. Thus, how do both organizations look at the future, as well as why this M&A did take place. A major pitfall is that the owner has an unclear vision of what should happen to the organization they have integrated. This often happens when an acquirer integrates a former stand-alone organization (category 3 M&A) which got integrated because it had a negative business case for instance. It is important that there is a clear rationale behind the decision to integrate. This is key because it drives all of the following processes. If the acquirer is not clear about this, a risk is employee turnover and this often leads to a snowball effect that will lead to even more employees leaving the organization and therefore essentially knowledge will be lost. A clear vision is important because people want to identify themselves with the organization. Integrating two organizations with conflicting visions will neither work out as this will also lead to employees leaving the organization.

4.6 Validation

Two interviews have been conducted in order to validate the results of this research. In this section, the outcomes of these two interviews will be described.

4.6.1 Interview 1

The first interview was conducted during the research and was more focused on the approach of this research as well as general potential results that could come

out of it. The interview deviated from the protocol which has been described in appendix F Validation Interview Protocol. The questions had been sent upfront to this individual, but apart from that he was mainly focused on what he wanted to say based on his knowledge, rather than discussing these questions.

First of all, the interviewee agreed with the chosen approach of this research by dividing M&As based on approaches and types, as is discussed in section 3.2 Category Selection: "*So, yeah absolutely. I think to answer your first question: what do you think about this approach in terms of categorizing the types of M&As and trying to understand which ones they are and how they are occurring? I think it is smart because we then understand what is the purpose of the merger or the acquisition and what type or what is the approach to actually executing the M&A. And that will give us some insight into how the business model is going to change, what sort of integration needs to take place.*"

Besides that, the general impact and why so many M&As fail was discussed: "*Even in the strong economic environment leading up the pandemic, 40 percent of corporate and private equity leaders reported that half of their M&A deals fail to achieve any value. And then we also looked at what is the key factor in achieving success for any transaction and out of a plurality of responses, basically, effective integration was one of the keys to success. So this actually lends credence to your thesis topic and this idea around, can we improve M&A activity through the inclusion of Enterprise Architecture in this process?*" In the opinion of the interviewee, effective integration is one of the keys to success in an M&A. By knowing why so many M&As fail, it was discussed how M&A activity can benefit from IT and Enterprise Architecture. There are two challenges during M&As from an Enterprise Architecture perspective according to this interviewee: "*1. IT struggles to establish clear expectations for technology benefits realization without an understanding of the overall organization strategy and 2. IT to spend too much time reducing the objectives of M&A delaying planning and realization of technology.*" The ultimate solution, according to this interviewee, was to identify capability instances that fast track integration plan. This goes hand in hand with the degree of how mature the Enterprise Architecture practice is within an organization, as is depicted in Figure 2.19 Four stages of Enterprise Architecture Maturity. When discussing more about the maturity of Enterprise Architecture, the interviewee agreed that this has indeed an impact on the success of an M&A because a more mature Enterprise Architecture will lead to a more effective integration: "*Yeah, I would say you could draw a pretty strong correlation to why a lot of M&As are failing and one of the key factors in a successful transaction is the fact of effective integration.*"

4.6.2 Interview 2

The second interview was conducted as one of the last steps of this research. The protocol of this interview has been described in appendix F Validation Interview Protocol. All findings that have been discussed in the interview, as given in the

protocol, were findings that the interviewee recognized. In this section some of the results of this interview will be given.

A key finding of this research, regarding the impact of an M&A to the Enterprise Architecture, is that usually the technologies are not a problem or obstruction in this question, but the procedures/business processes/the way-of-working are. The interviewee told that: "*The organizational part (i.e. Business Architecture) is always lagging behind the IT part (i.e. Technology & Information Systems Architecture).*" According to the interviewee, this has to do with sensitivities, complexities but also compliance. In other words, this statement of the interviewee substantiates this key finding of this research. Next to that, The focus always tends to be laying more towards the 'hard' side of the M&A, so how can costs be reduced, what processes and systems will be used etc. However, a key finding of this research is that culture must not be underestimated. Culture can be seen as the sensitivities and complexities which the interviewee talked about.

The interviewee agreed on the finding that a more mature Enterprise Architecture will lead to easier dealing with M&As. This is applicable to both the acquirer and the acquired entity. What usually happens is that pre-merger, the acquirer will bring visits to the acquired entity and they will ask them a lot of questions about how they are running their business and IT. However, in most cases, these organizations will not have documented their IT properly. This in combination with another key finding of this research: people leaving the organization, will lead to the fact that there is an unclear overview. A mature Enterprise Architecture can be a solution here. The interviewee reacted: "*In this trajectory, that we call discovery, we will ask questions about the IT landscape of the acquired entity, if they have even documented that in the first place. Usually this goes like: yes, explain it to us, but in most cases they have nothing and this is also caused by that fact that a lot of employees did already leave the organization at the time it got acquired. All these employees had knowledge about IT, processes etc. But usually due to a lack of time this was never really documented. In a mature organization this entire process would be different.*"

Next to that, it is important as an acquirer to not only focus on your own interests, but also to put yourself in the acquired entity's perspective. The acquired entity usually does not want to deal with all the fuss of an M&A. The interviewee noted: "*We need to take into account that these organizations are not that keen to change their entire IT landscape. This means that we also have to set certain priorities in order to give them some space. Because in some cases it is not even desirable to integrate to our architecture, because the acquired entity will have better solutions themselves.*" This statement substantiates the key finding that integration is not by default the best option. A reason for this is that: "*These organizations usually have more knowledge then the acquirer on certain aspects because they are already longer active in those markets.*" The acquirer also usually thinks that the M&A project is the most important thing for this acquired entity, but that is usually not the case, so sometimes forcing

this integration is not in everyone's interest.

From an Enterprise Architecture perspective, the rationale of the M&A is also key-crucial. When deciding to integrate or not, there needs to be a clear rationale of why this entity will be acquired (or not) and why this entity will be integrated (or not). It needs to be clear: are we buying market share/customers, are we buying a specific solution and is this solution just a system or is it in fact really knowledge? The interviewee noted: "*Yes, I agree, because in the end with just IT assets: you are nothing. If you do not manage to keep the people/knowledge behind those ideas, it is all a waste of time and money. In some cases this means that you need to give in on certain aspects.*" The interviewee described the following scenario which he dealt with in the past: "*For example, nowadays there is not much custom-built software anymore. When you are acquiring an organization with software engineers that build custom software, you do not want to lose these people as a result of the M&A. If they for example are working with iMacs, but your entire organization is on Windows, you need to give in, because otherwise it is guaranteed that they will eventually leave and then you will end up with nothing.*" This does not mean that these employees can do anything that they want, eventually they will also need to adhere to the acquirer's policies etc., however they need to landed smoothly within the organization in order to keep the knowledge and for letting them transfer these knowledge to other people.

Chapter 5

Discussion

In this chapter, discussions about this research will be made. It starts by giving a summary of the key findings of this research. After that, the research questions of this research will be answered briefly. Finally, the internal and external limitations of this research and potential future work will be discussed.

5.1 Summary of key findings

The course of an M&A transaction depends heavily on the context of the deal. However, based on this research, in which 12 M&As have been researched from an Enterprise Architecture perspective, general key findings can be discovered.

M&As are often mentioned in the same breath with integrating organizations by gaining synergy and harmonizing business and IT processes. The overestimation of the value of an M&A deal and the realization of synergies between the organizations are both one of the key errors made during M&As [2]. Fact is that 70 to 90% of the M&A transaction simply fails [23], and maybe that is caused by this status quo of always wanting to consolidate and gain synergy by integrating organizations. The existing research and literature also tends to see the term "Mergers & Acquisitions" often as a merger of equals and it is always focused on integration, gaining synergy and harmonization, and therefore the research and knowledge is mostly based on these aspects. This is also the reason why desk research was only included in the results of category 2 and category 4, because there is no focus on M&As when there is not a case of integration (Stand-Alone cases).

In this research, it became clear that integration was not always the best option in every case. Therefore, the key question must not be: how can we cope with the integration or how are we going to integrate Enterprise Architectures? But, should we even integrate in the first place? Or is it preferable to keep the entity a stand-alone organization and focus more on an extensive collaboration? It is important that there is a clear rationale behind the decision to integrate as well as the decision to acquire the organization in the first place. This is key because it drives all of the following processes. Next to that, it is also important to keep the interests of the acquired entity in mind, rather than only focusing on the

acquirer's interests and priorities. The acquirer usually thinks that the M&A is the most important project for the acquired entity, however that is usually not the case. In this research it has been observed in most of the cases, especially in category 4 M&As, that integrating (absorbing) was not always the best option for the acquired entity which essentially means that it was also not the best option for the acquirer.

It is not that integrating is by definition a bad thing, it is for instance the most suitable option in category 2 M&As, where the focus is mainly on acquiring customers and market share. However, for those cases, it should be noted that when 'plugging-in' acquired organizations into the most suitable architecture, this is way better than looking for synergies and trying to integrate and harmonize separate architectures. In absorption cases, the acquired entity should be 'plugged-in' into the chosen architecture, processes and systems should not be mixed as the research showed that this will end up in a mess in most of the cases. If certain additional processes and systems are absolutely necessary to continue with in order to keep fulfilling certain propositions, of course these can be integrated (or added) into the acquirer's architecture. However, when integrating an entity into the acquirer's architecture, the architecture with the most suitable processes and systems, i.e. the most mature architecture or operating model, should be leading.

From an Enterprise Architecture perspective, the course of the M&A also has to do with the level (or degree) of maturity of the acquirer's Enterprise Architecture. In general, how more 'generic' (how more mature) your architecture is, the easier it will be to integrate newly acquired organizations into your architecture. This is also shown in the case of Cisco Systems which has been discussed in subsubsection 2.3.2.4 Case Study: Cisco Systems. The maturity of Cisco's Enterprise Architecture is they key to their growth-through-M&A strategy. Thus, how complicated (or easy) the M&A will turn out to be, has the do with the maturity of the acquirer's Enterprise Architecture as well as the Enterprise Architecture of the acquired entity.

The maturity of the Enterprise Architecture also has to do with the acceptance of it within an organization. In multiple cases, the involvement of Enterprise Architecture, or Enterprise Architects, during M&As happened as an afterthought rather than Enterprise Architecture being consulted upfront. This means that there will be no clear integration strategy upfront which is tied to the earlier finding about having no clear rationale for the integration.

In all researched cases, employees of the acquired organization were leaving the organization. In general, the best employees will always leave first. This means that a lot of knowledge, which resides in the heads of these employees, also gets lost. This had a massive impact on the integration strategy and the pre-merger stage. When engaging in M&As, this must be kept in mind as it touches all domains of Enterprise Architecture. Especially in category 4 M&As

this pitfall must be kept in mind. In this type of M&A, often a certain (IT) solution is being acquired. However, as the research showed, is in fact really a certain solution (or system) being acquired or is it rather the knowledge (the people) behind the solution.

Apart from that, the impact of an M&A on the Enterprise Architecture usually has to do with gaining synergy and harmonizing processes. It has been observed that the technologies are usually not a problem or obstruction in this synergy question, but the procedures/business processes/the way-of-working are. Therefore, what has been observed in most of the cases, is that the most impact will be on the Business Architecture: the harmonization of propositions and processes, rather than on the Technology or Information Systems Architecture. This finding is substantiated by the distribution of synergies during M&As as shown in Figure 4.1 Distribution of synergies during M&As: only 13% of the synergies exclusively has to do with IT (Technology Architecture & Information Systems Architecture).

When looking at all stand-alone cases, key is to collaborate and (if possible) gaining synergies on standard processes like HR and office automation etc. and working together by joining partnerships for instance. Integrating these cases just because you are the owner, is not the way to go and it is observed that this will usually not work out. However, it has been observed that most of the stand-alone M&As will eventually transition into an absorption M&A, meaning that these stand-alone organizations will eventually be absorbed and fully integrated into the acquirer. Often, this happened because the strategy and the goals of the acquirer behind the initial reason to acquire the organization (the rationale) were not clear upfront. Other reasons why this happens is because the acquirer (the owner) wants to reduce costs and/or get more control.

When looking at absorption cases, cases where gets fully integrated, the focus always tends to be laying more towards the 'hard' side of the M&A: how can cost be reduced, what processes and systems will be used etc. However, a key finding of this research is that culture must not be underestimated. Reducing costs, integrating systems and harmonizing process is all fun, but in the end the 'soft' side, the people (the knowledge), the way-of-working and the culture, is also a key-crucial aspect that must not be underestimated. Furthermore, the integration of an entity is not something that happens overnight. The integration will take some time and in the researched cases this differed from months to years. On top of that, in every absorption case that was subject to this research, it was observed that the integration plan deviated from reality.

5.2 Research Questions

In this section, the research questions and main question of this research will be answered.

Research Question 1: What is Enterprise Architecture?
To conclude, there are a lot of different definitions of what Enterprise Architecture exactly is. However, in some way everything comes down to the following description: Enterprise Architecture is a coherent set of principles, methods, and models used in designing and comprehending the structure of an enterprise, including their business processes, information systems, and IT infrastructure [35]. Enterprise Architecture aligns the business and the IT landscape in organizations concurrently by managing the increasing system complexity [47].

In section 2.1 Enterprise Architecture of this thesis, Enterprise Architecture has been described more in depth and different aspects of Enterprise Architecture have been covered.

Research Question 2: What are Mergers & Acquisitions?
The term "merger" refers to the merging of two organizations where one new organization will continue to exist and the term "acquisition" refers to the acquisition of assets by one organization from another organization [20].

In section 2.2 Mergers & Acquisitions of this thesis, the definition and different aspects such as types and approaches to M&As have been described in depth. The reason for this question was to find out what types of M&As could be distinguished in order to perform a better targeted case study.

Research Question 3: What is the impact of Mergers & Acquisitions on an organization's Enterprise Architecture?
Based on the answer on the second research question, four types of M&As have been classified. For each of these four types, the impact on the Enterprise Architecture has been described in depth in chapter 4 Results.

In general, it can be noted that the impact of an M&A on the Enterprise Architecture turned out to be very limited. The impact of an M&A on the Enterprise Architecture usually has to do with gaining synergy and harmonizing processes. In two categories (1 and 3), there was basically no integration because the organizations would stay stand-alone organizations. In the other two categories (2 and 4), the integration was not really an integration as in gaining synergy and harmonizing processes, it was observed more to be like a plug-and-play: how can the acquired entity be 'plugged-in' into the acquirer's organization.

Research Question 4: What are challenges, best practices, pitfalls and strategies for dealing with Mergers & Acquisitions from an Enterprise Architecture perspective?
In chapter 4 Results of this thesis; challenges, best practices, pitfalls, and strategies for dealing with M&As from an Enterprise Architecture are described based on general findings, and category-based findings. Fact is that the majority of the M&As turns out to be a failure and therefore this research delivered a lot more pitfalls and challenges to keep in mind rather than best practices or strategies.

Main Question: How can organizations cope with integrating Enterprise Architectures in case of Mergers & Acquisitions?
The main goal of this research was finding out how organizations could cope with integrating Enterprise Architectures. In the beginning, it became quickly clear that not every M&A is the same. Therefore, in order to cope with them, different types of M&As must be distinguished in order to handle each individual case better. Therefore, it has been decided to classify different types of M&As based on the literature and available academic research regarding M&A. In chapter 4 Results of this thesis, general and category-based findings are given on how organizations can cope with integrating Enterprise Architectures in different categories of M&As. The most notable key finding from an Enterprise Architecture perspective would not be how can we cope with integrating, but should we even integrate in the first place?

5.3 Limitations

There are internal and external threats to the validity of this research which need to be mentioned. First of all, this case study has been conducted at one organization. All of the 12 researched cases involved this organization and every interview participant had a relation to this organization, as most of them were employees of this organization or were connected in a different way, for instance by working in subsidiaries (as a result of the M&A). This means that some sort of bias is already in place. If this exploratory research was conducted at a different organization, it is likely that some of the outcomes would be different. Next to that, this study being conducted at one organization, can cause that some specific results only apply to that organization or to the specific sector in which the organization operates, in this case that would be the energy sector. In order to try mitigating these limitations, two interviews have been conducted with individuals outside of the environment in which this study was conducted.

There are also some limitations which are tied to the selection of interviewees. In all of the 12 researched cases, as stated in the results, it was observed that people were leaving the organization at the announcement of the M&A deal or later on in the M&A process. Logically, this also involved people who could have been interesting to interview because of their affinity with Enterprise Architecture. However, because of people leaving the organization, it was not possible to always interview everyone involved during the M&A process at the time. Next to that, the host organization always allocated just one Enterprise Architect on a certain M&A project. This means that in most cases only one person had knowledge about a case from an Enterprise Architecture perspective. In order to mitigate this, also a document analysis was being performed. However, as can be seen in Research Methodology chapter of this thesis, this was not possible to do in some of the cases. On top of that, the available documentation, that would be interesting to analyze from an Enterprise Architecture perspective, was also very limited in all cases where a document analysis was possible.

5.4 Future Work

As described in the previous section, this case study has been performed in one environment and all examples involved the same organization. Logically, in future research it can be useful to conduct this research in other environments, in order to determine whether these results are applicable there as well.

In addition, future work could entail more in-depth categories. The categories in this researched were based on two dimensions: Approach and Type of M&A. It was observed in some of the cases that size could also be a difference. So, future work could be to include a size aspect to the selection of categories. Next to that, some cases did not really fit fully in the approach they were mapped to. In some occasions, there was not really a case of a case being either 100% a Stand-Alone or 100% Absorption, but more somewhere in between. Future work could also entail a more specified dimension of approaches to M&As.

Chapter 6

Conclusion

The main goal of this research was to find out how organizations can cope with integrating Enterprise Architectures in case of M&As. M&As are believed to be one of the toughest phenomenons organizations have to deal with and the fact that 70 to 90% of the M&A transactions turns out to be a failure [23], speaks already for itself. Coping with integrating Enterprise Architectures during M&As, starts by distinguishing the different types of M&As which an organization can engage in. This research showed that different types of M&As can be distinguished and it has been discussed how each of these types requires different action to be taken from an Enterprise Architecture perspective. This is an unique approach, as previous literature and research tends to see M&As as just one single phenomenon where the focus is mainly on gaining synergy and the consolidation, harmonization or the integration of Business and IT systems and processes. Furthermore, when coping with integrating Enterprise Architectures during M&As, the first question that must be asked is: should we even integrate (Absorption) in the first place or is it better to keep the acquired organization separate (Stand-Alone)?

Based on the available literature and academic research regarding types and approaches to M&As, four categories of M&As have been classified. In essence, all possible M&A transactions that occur can be plotted on this model which classifies four categories of M&As. 12 M&A transactions were subject to this research. All of these 12 M&A transactions have been classified as being one of the four categories. For every category, based on at least 2 cases of an M&A transaction, the impact on the Enterprise Architecture, challenges, best practices and common pitfalls from an Enterprise Architecture perspective, have been described based on experiences gained in the past. Fact is that the majority of the M&As turns out to be a failure and therefore this research delivered a lot more pitfalls and challenges to keep in mind rather than best practices. However, in the end this research created some sort of lessons learned/handbook for future M&As. Nevertheless, it must be noted that it is not a full prescribed handbook or process of how exactly must be dealt with M&As from an Enterprise Architecture perspective. This is basically impossible to make given the finding that the context of every M&A is key-crucial as a lot of variable factors play a role in an M&A transaction, amongst which the maturity of Enterprise Architecture is found to be a key factor. In addition, there are some

improvements and suggestions provided for future research in section 5.4 Future Work. To conclude, this study gave a good idea of what could go wrong and what points should be kept in mind from an Enterprise Architecture perspective when engaging in future M&As.

6.1 Reflection

I am ending this thesis by taking the opportunity to briefly reflect on the entire process of conducting this research and writing this thesis. I am very happy with what I have achieved in the end and I am also extremely proud given the current circumstances: this entire research has basically been conducted remotely from my bedroom without any physical contact whatsoever. Upfront, I had no idea what to expect as an outcome of this research and whether it would even deliver something meaningful. Therefore, in the beginning, I was more focused on the approach and the methodology rather than on what eventually the result was going to be. Next to that, my understanding of what Enterprise Architecture entails and what considerations can be made during M&As, was quite different from how it turned out to be in practice. I would have expected that it had more to do with architecture reference models for instance. However, as the research progressed, I started more and more to get a feeling of this and in the end I am convinced that I delivered something meaningful. When reflecting purely on the results and key findings, I had expected that the difficulties and challenges would be more on the Technology Architecture side rather than the Business Architecture side including the people, culture, procedures, the processes and way-of-working etc. This can also be caused by the fact that prior to this research, I considered an M&A more to be like a 'Merger of Equals'. In case of a true 'Merger of Equals', the impact on the Enterprise Architecture is much bigger than in take-overs or acquisitions, especially on the technology and data domains of Enterprise Architecture, because in this case there would be much more ambiguity because there are two 'equal' organizations. However, as is discussed in subsubsection 3.2.1.2 M&A Approaches, these types of M&As do basically not exist and therefore the impact of an M&A on the Enterprise Architecture, as well as the results of this research, are quite different from what I expected. Furthermore, even though my knowledge about this topic was limited upfront, I would have said always integrating during M&As is just a given and of course this should always happen, but now I beg to differ with this. Lastly, I have tried to create a model, similar to the model in Figure 3.1 The Category Selection Model, with some sort of an overarching summary of the results, but this turned out to be too reductive and therefore I have decided to not include such a model in the end.

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Appendix A

Interview Protocol

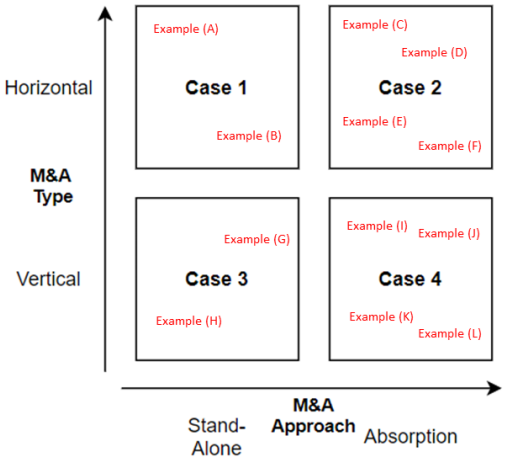
Due to the current restrictions, all interviews have taken place online via Microsoft Teams. During the interviews, a slide deck was used that functioned as an interview protocol. At the start of the interview, the slides would be presented to the participants. This slide deck, containing 5 slides (4 slides and a title slide which is not included in this appendix as it is not of any added value), started with the context (types of M&As, approach to M&As and a description of the cases) and explaining the goal of this research. This followed by a brief description about the interview itself and eventually the questions. The interview questions on slide 4 were not visible for the participant during the interview, after the third slide, the slides would not be shared anymore. In total, 13 interviews took place for this research. A detailed overview of the interviews can be found in subsection 3.3.4 Interviews. Below, the slides of the interviews are given:

Context

- The goal is to find out how organizations can cope with integrating Enterprise Architectures in case of Mergers & Acquisitions. We will focus on experiences and knowledge gained (best practices, pitfalls etc.) from cases in the past. The aim is to learn from these experiences and to set guidelines for the future.
- There is not just one type of M&A, therefore we will focus on four different cases based on different types and approaches to M&As;
  - Types of M&As;
    - **Horizontal M&A** - The target organization, which is subject to a Merger or Acquisition, is performing **similar** business activities as its acquirer. (e.g.: when acquiring a (smaller) competitor)
    - **Vertical M&A** - The target organization, which is subject to a Merger or Acquisition, is performing **different** types of business activities in comparison to its acquirer. (e.g.: when acquiring an organization more up- or downstream in the supply chain)
  - Approaches to M&As;
    - **Absorption** - The organization that will be acquired (the target) is completely absorbed by the acquirer. The business processes of the acquirer dominate, and the acquired organization must adopt these.
    - **Stand-alone** - The acquired organization remains independent from its acquirer. The acquired organization remains a separate, stand-alone organization with only some integration of support services (phones, laptops, networks, data centers etc.) to achieve for example economies of scale

2

Cases



Case 1:
In this case, the target organization operates in a similar business sector, meaning that it performs similar business activities as its acquirer. The target organization will be acquired/merged with a stand-alone approach meaning that the target organization remains independent from its acquirer. The acquired organization remains a separate, stand-alone organization.

Case 2:
In this case, the target organization operates in a similar business sector, meaning that it performs similar business activities as its acquirer. The target organization will be acquired/merged with an absorption approach. This means that the target organization is completely absorbed by the acquirer. The business processes of the acquirer dominate, and the acquired organization must adopt these.

Case 3:
In this case, the target organization performs business activities that differs from its acquirer. The target organization will be acquired/merged with a stand-alone approach meaning that the target organization remains independent from its acquirer. The acquired organization remains a separate, stand-alone organization.

Case 4:
In this case, the target organization performs business activities that differs from its acquirer. The target organization will be acquired/merged with an absorption approach. This means that the target organization is completely absorbed by the acquirer. The business processes of the acquirer dominate, and the acquired organization must adopt these.

3

Interview Protocol

- Approximate duration of the interview is 1 hour.
- I want to recorded the interview in order to transcribe the interview later, on do you agree with that (yes/no)?
  - Afterwards the recording will be removed.
- The transcript of the interview will be anonymized.
  - In the final thesis no individuals (or organizations) will be mentioned.
- Do you have any remaining questions before we start?

4

Case Questions

- Can you recall why this approach (stand-alone or absorption) was chosen in this case?
  - Was it chosen from an EA perspective, or was EA not consulted for this decision at all?
  - Do you (still) agree with this approach, or would you have chosen a different one?

- How was the integration of Enterprise Architectures dealt with in this case (for example focus first on process harmonization, application landscape etc.)?
  - What was the impact? What happened/changed?
    - Business Architecture
    - Data and Application Architecture
    - Technology Architecture
  - Was there even a case of integration?

- What were best practices or strategies for performing this integration of Enterprise Architectures in this case?
  - In other words, what actions would you repeat if you'd need to do this again?

- What challenges were faced in this case for dealing with the integration of Enterprise Architectures? And what do you believe were pitfalls in this case?
  - For example, what has been done that you wouldn't do again / or do differently in the future?

5

Appendix B

Interview Transcripts

All interview transcripts are delivered separately with this thesis.

Appendix C

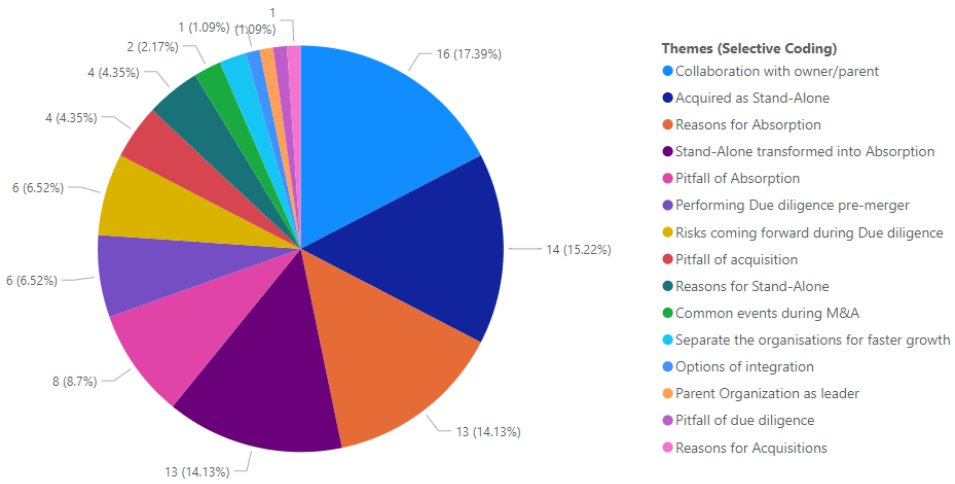
Codebook

The full codebook is delivered separately with this thesis.

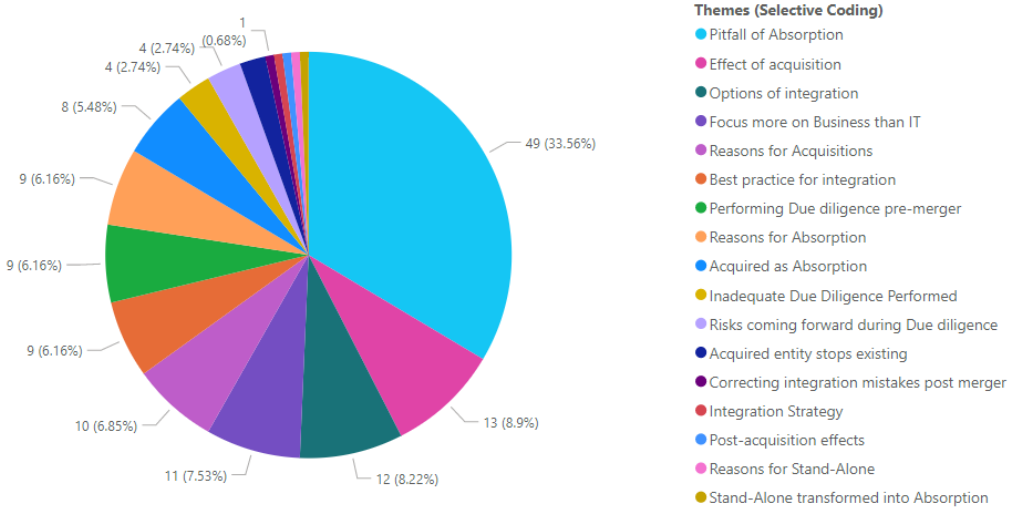
Appendix D

Themes in the Data

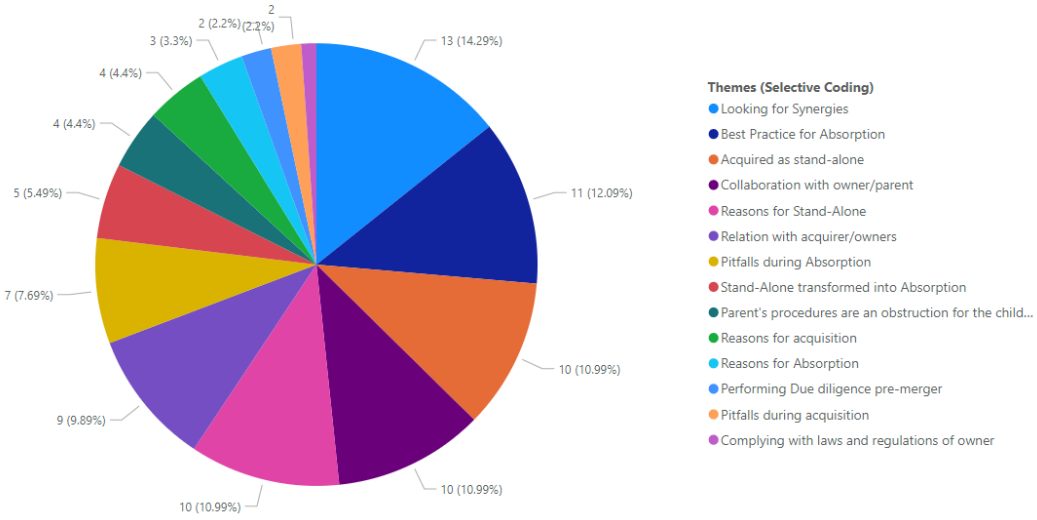
The themes found in the data related to Category 1 M&As:



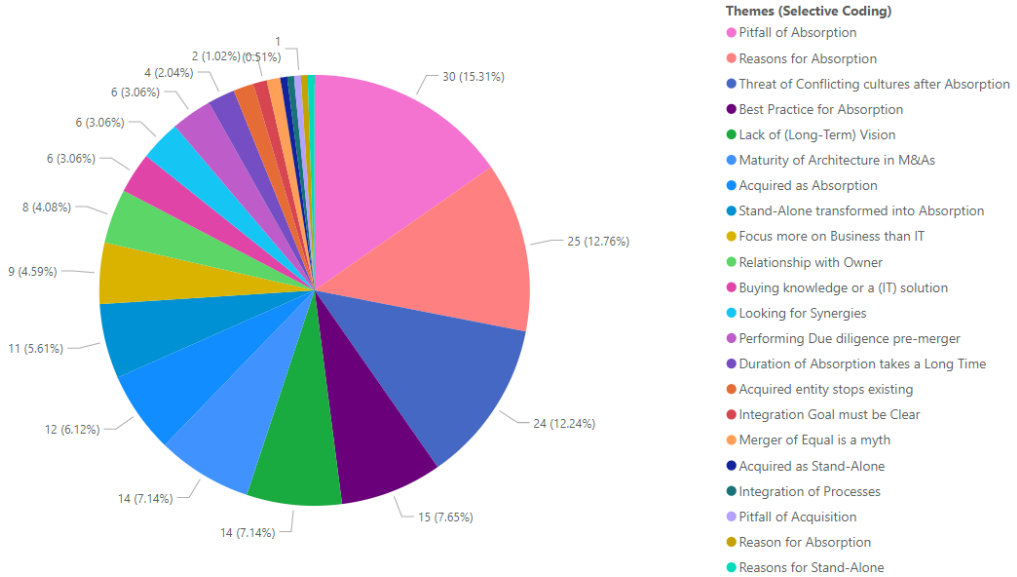
The themes found in the data related to Category 2 M&As:



The themes found in the data related to Category 3 M&As:



The themes found in the data related to Category 4 M&As:



Appendix E

Memos

All memos are delivered separately with this thesis.

Appendix F

Validation Interview Protocol

- **Approximate duration of this interview is 30 minutes.**
- **I want to record the interview in order to transcribe the interview later on, do you agree with that (yes/no)?**
- **Afterwards the recording will be removed.**
- **The transcript of the interview will be anonymized.**
- **In the final thesis no individuals (or organizations) will be mentioned.**
- **Do you have any remaining questions before we start?**

1. What is your experience with Enterprise Architecture in combination with Mergers & Acquisitions?
2. During M&As, from an Enterprise Architecture perspective, the main focus is usually on integrating, consolidating etc. Do you recognize this and do you think that we should not ask how do we integrate, but should we even integrate? The rationale (vision and long-term commitment) must be clear of the M&A, for instance are we buying a solution or knowledge, or just customers (market share) etc.?
3. Reasons to integrate an organization are: gaining synergy, get control, reducing cost-to-serve. Usually, a due diligence is performed upfront. Of course, the context is very important, but overall do you think that integration is always the best option or maybe keeping it a stand-alone organization?
4. In case of absorbing, or integrating, is it really about consolidating and gaining synergy, or more like a plug-and-play. For instance, the entity that takes over has already a lot available and we basically plug the acquired entity into that? Three options here are:
   - Use acquirer's architecture
   - Use acquired architecture
   - Create a new architecture

   Keeping laws & regulations and maturity & scalability of architecture in mind.
5. The impact of an M&A on the Enterprise Architecture has to do with gaining synergy and harmonizing processes. Usually the technologies are not a problem or obstruction in this synergy question, but the procedures/business processes/the way-of-working are. This is also cause by people leaving the organization and a lack of documentation. How do you experience this?

6. In Absorption cases, the focus always tends to be laying more towards the 'hard' side of the M&A, so how can we reduce costs, what processes and systems are we going to use etc. But a key finding of this research is that culture and employee turnover must not be underestimated. Reducing costs, integrating systems and harmonizing process is all fun, but in the end the 'soft' side. Do you agree with that based on your experience?
7. In stand-alone cases, key is to collaborate and gain synergies on standard processes (if possible) and working together with partnerships for instance. Wanting to integrate these cases just because you are the owner is not the way to go. Do you agree or disagree with this based on your experiences?
8. Thus, how complicated (or easy) the M&A will turn out to be, has the do with the maturity of your Enterprise Architecture and also the degree of acceptance of Enterprise Architecture. What is your opinion about this statement?

Appendix G

Validation Interview Transcripts

All the transcripts of the validation interviews are delivered separately with this thesis.