



**FACTORS INFLUENCING THE DEPLOYMENT OF ENTERPRISE ARCHITECTURE IN
THE PROVINCIAL GOVERNMENT OF THE WESTERN CAPE**

by

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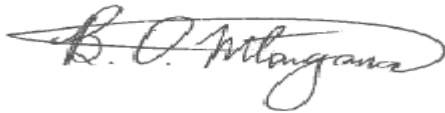
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DECLARATION

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ABSTRACT

The purpose of this research is to investigate Enterprise Architecture (EA) strategies, and experiences with EA in the Provincial Government of the Western Cape (PGWC). This research examines the organizational and individual impacts as well as the organizational and technological challenges associated with implementing EA. The principles of EA are conceptualised and mapped in a structured manner to obtain a means to assess the EA experiences of the PGWC.

The problem statement is: The efforts to implement Enterprise Architecture in the Provincial Government of the Western Cape have not delivered the desired benefits. This leads to the following objectives namely:

- To establish an understanding of EA concepts and the basis for these concepts.
- To investigate the current deployment status of the PGWC IT and business strategies.
- To identify the stakeholders involved in EA deployment and how they participate in the deployment process.
- To develop and propose a suitable framework for EA strategy deployment for PGWC.

The main research question for this study is: How can enterprise architecture be deployed in PGWC in order to deliver EA benefits (of reducing redundancy, achieving alignment between business and IT, minimising costs) to PGWC?

The main research sub-questions for this study are namely:

- How did PGWC choose EA frameworks for their EA strategies?
- How do PGWC deploy the chosen frameworks within the organisation?
- What steps could be taken in order to deliver the benefits of EA at PGWC?

The research philosophy is an interpretive qualitative approach. The methods for this research were an in-depth literature review, interviews with key role players, and questionnaires that gained information from a wider set of respondents. The aim of this study was to understand and explain the problems of implementing EA in PGWC. A guideline and an EA framework are proposed for organizations to assist in the deployment of an EA strategy.

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List of abbreviations and acronyms

ADM	Applications Development Manager
Ce-I	Centre for e-Innovation
CEO	Chief Executive Officer
CFO	Chief Financial Officer
CTM	Ce-I Top Management
DITCOM	Department Information Technology Committee
D	Director
DG	Deputy Director
DDG	Deputy Director General
DotP	Department of the Premier
EA	Enterprise Architecture
EGA	Economic, Governance and Administration
FEA	Federal Enterprise Architecture
GITO	Government Information Technology Organisation
IMBOK	Information Management Body of Knowledge
IT	Information Technology
ICT	Information and Communications Technology
IS	Information Systems
PGWC	Provincial Government of the Western Cape
RSA	Republic of South Africa
SG	Service General
SM	Services Manager
TM	Technology Manager
TOGAF	The Open Group Architecture Framework

Clarification of basic terms and concepts

Enterprise Architecture	It formulates the structure and architecture of Business, Information and IT strategies.
Deployment	To implement new application strategically.
IT Strategy	The long term planning of information technology for PGWC's IT Sector including governance, the business environment, development

	plans, solution delivery, resource management and infrastructure management.
Framework	Conceptual structure to guide a complete development of organisation.
Trends	Developments within enterprise architecture.
Significance	Importance of enterprise architecture in governance.
e-Governance	Electronic Governance: It serves electronic government technologies and services.

THE STRUCTURE OF THE THESIS

Below diagram 1 shows the structure of the thesis for the readers' orientation and convenience. The layout of this research is based on Mouton (2006).

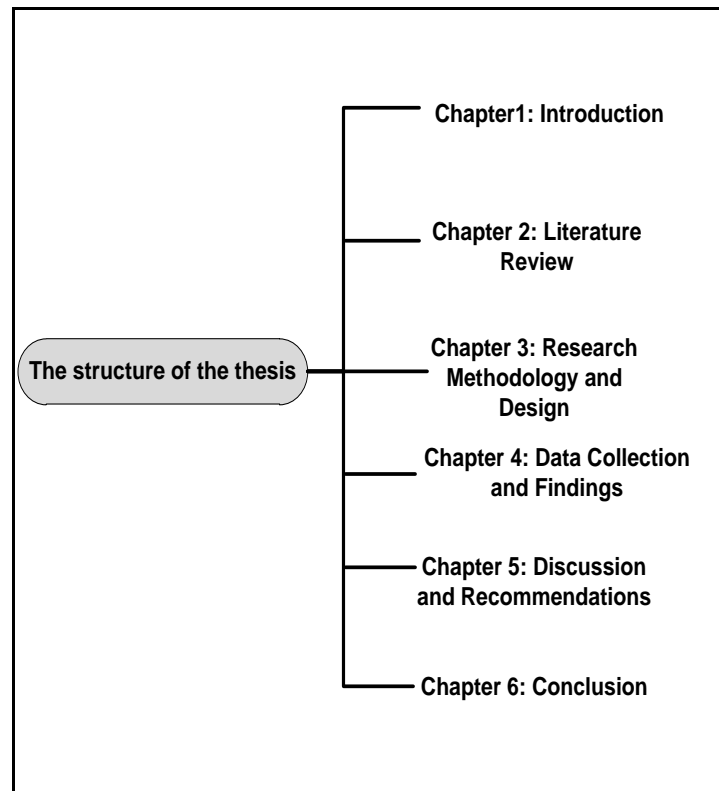


Diagram1: The structure of the thesis

Chapter 1: Introduction

The first chapter provides the introduction about enterprise architecture (EA) in PGWC and the background to the study. It also provides the problem statement, research question, aim and the objectives of the study. It is followed by the research design and methodology that is explained in Chapter Three, and also involves data analysis and findings. This chapter also covers the challenges facing PGWC.

Chapter 2: Literature review

The second chapter is the literature review. It has been compiled by means of an in depth analysis of the surveyed literature and provides an appropriate conceptual framework to the research problem.

Chapter 3: Research methodology and design

This chapter summarizes the research methodology and design used in this study. It explains the reasons for taking the qualitative approach and for the design methods that have been chosen, and explains why the methodology is appropriate.

Chapter 4: Data collection and findings

This chapter describes how the data is collected and presents a discussion of the findings.

Chapter 5: Discussion and recommendations

In chapter 5 the analysis of data is discussed and recommendations are given for the deployment of EA strategies in the PGWCs. The chapter also provides proposed guidelines, and an EA framework and process flow that could be used for the challenge that is facing PGWC.

Chapter 6: Conclusion

In this chapter the problem statement is discussed, conclusions are drawn and the answers to the research questions are evaluated. A reflection of the journey throughout the research is also presented.

CHAPTER 1: INTRODUCTION

Chapter 1 introduces the role of Enterprise Architecture (EA) in the Provincial Government of the Western Cape (PGWC). It includes the problem statement, research questions and the aim of the study. The methods used in this study are discussed in this chapter. Diagram 1.1 presents the layout of chapter 1.

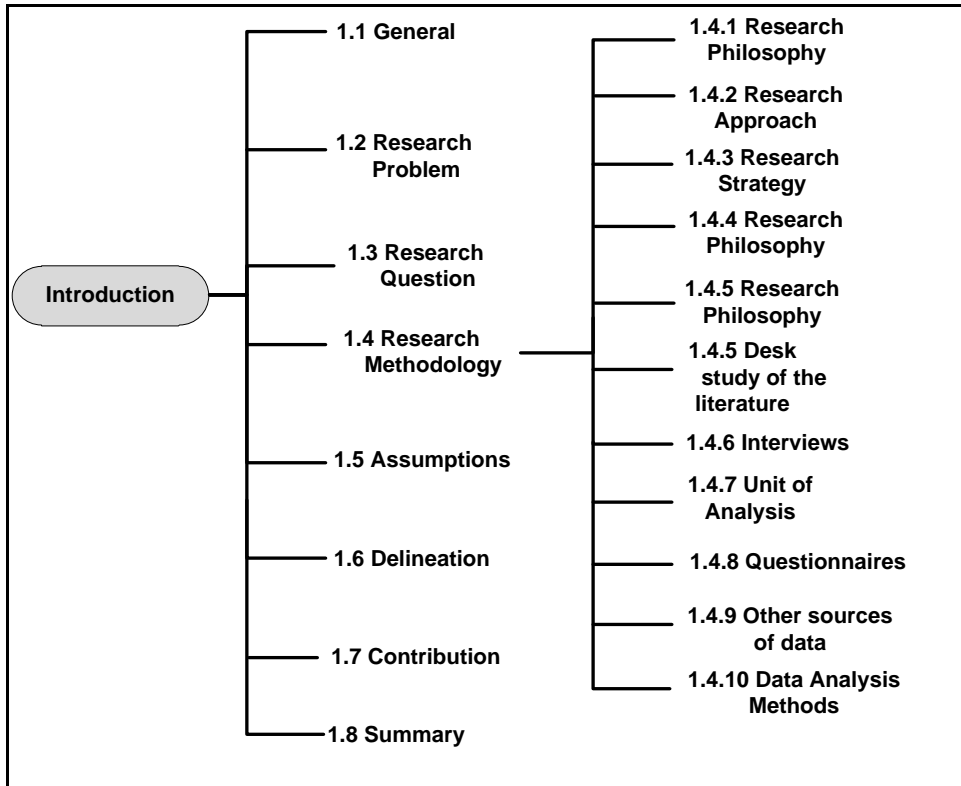


Diagram 1.1: Chapter 1 layout

1.1 General

PGWC is a large public organisation, striving to improve its general performance in terms of service delivery to the citizens of the Western Cape Province, South Africa. PGWC have been attempting to implement EA as a strategy in order to achieve the set goals and objectives. Efforts to implement EA in the PGWC have not delivered the expected benefits. It seems that further effort is still required to get the desired outcomes as determined by the goals and objectives of the PGWC.

EA is a means to enable managers in medium and large organizations to analyse the way that their organization works, and to improve its performance. EA addresses the purpose, structure and functioning of organizations, and embraces the systems and technologies that support their work. Some experts argue that EA is a *process*, rather than just a *framework* or a *method of thinking*, that includes the formulation of business strategy, strategy implementation planning, information systems analysis and design, operations research and project management (The Open Group, 2007; Bernard, 2010; Polgreen, 2010; Bytheway, 2011). It is further argued that EA leads to successful transformation of an organization by aligning its business processes and its information technology, with the infrastructural needs of the business (McKeen & Smith, 2008).

The alignment of business processes and business information is the means to achieve effective linkages between business needs and technology opportunities (Bytheway, 2004). EA contributes towards the future success of a business by providing rules and guidance for organisational change (Lankhorst & Lars, 2005). It further involves the logical and analytical procedures that are used in the development of business processes, information systems specifications, and infrastructure requirements, which are directly related to information management (McKeen & Smith, 2008). EA also allows for flexibility and adaptivity in the organisation, by recognising and accommodating the fundamental aims and objectives of the business (McKay, 2008).

Information Management involves all that deals with the information in business and assists businesses to determine how to communicate with management areas and to organise the information efficiently and effectively (Bytheway, 2004). The information management as shown in the IMBOK framework consists of five management areas and processes, which are presented in Chapter 2 section 2.7. The management areas are Information Technology, Information System, Business Process, Business Benefit and Business Strategy and the processes are projects, business change, business operations and performance management (Bytheway, 2004).

In summary, it is widely believed by experts that EA enables business and IT to work together and to transform the organization (Heald, 2006; Gartlan & Shanks, 2007; Iyamu, 2009; Hunter, 2009; Locke & Gallagher, 2011), but the practical implementation proves to be difficult in PGWC. The aim of this research is to understand and explain the challenges

of implementing EA in PGWC. The focus is on the Department of the Premier within the Centre for e-Innovation (Ce-I) in PGWC. Ce-I is a component of the Economic, Administration and Governance (EGA) as well as the Planning and Development Directorate in the Department of the Premier in Western Cape (Diagram 1.2). The scope of the enquiry must include the Ce-I component and all the sections within it, in order to gain a representative view of what can be done to deliver real benefits from the implementation of EA.

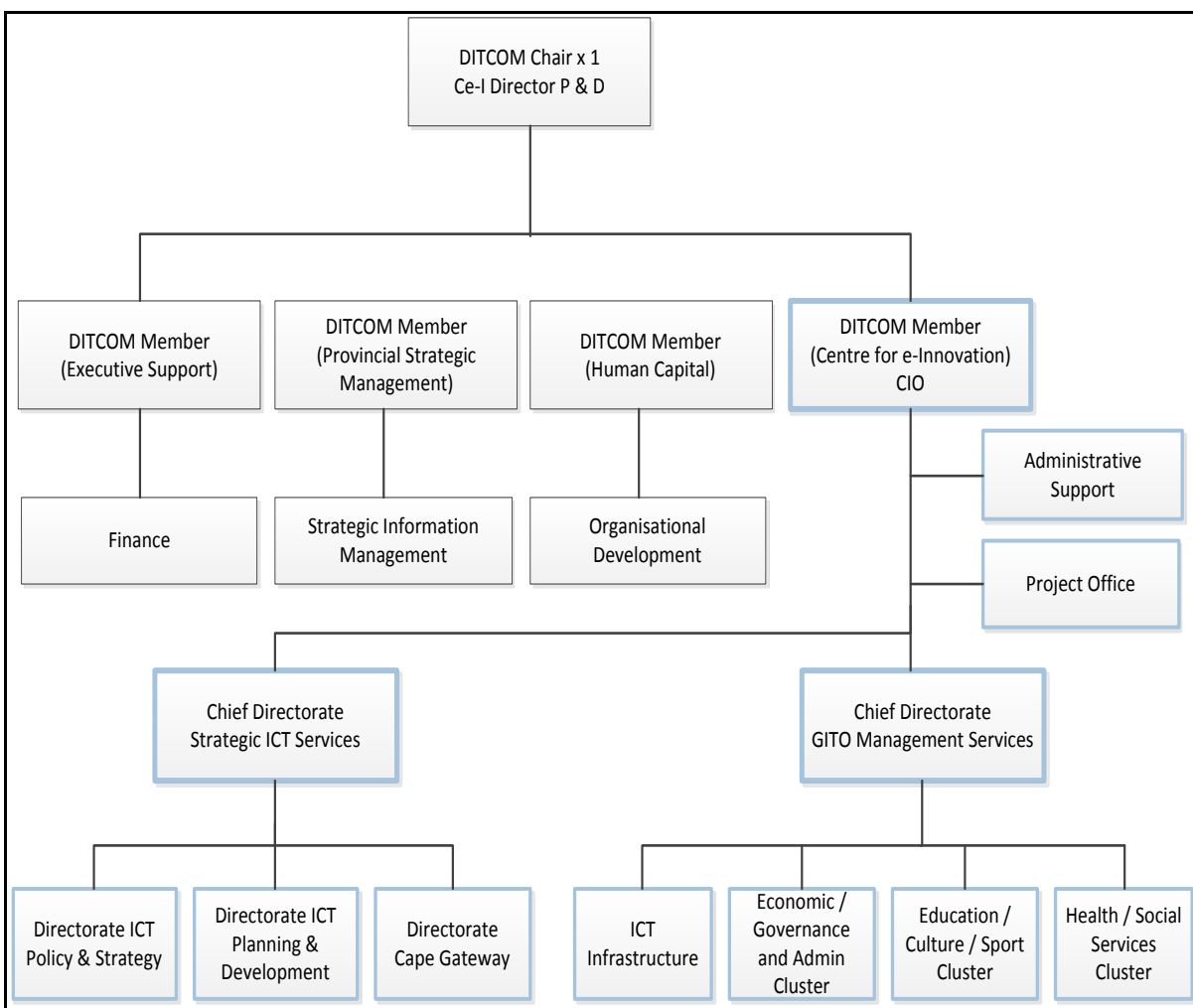


Diagram 1.2: Structure of the Centre for e-Innovation of the PGWC (PGWC, 2010)

1.2 Research problem

The main challenge that PGWC is facing is to find ways to deliver on the promises made to the public. If the promises are not kept, the result will be poor service delivery not only to the tax paying public but also to those who pay no taxes. This will result in tax payers

(constituents) refusing to pay taxes, leading to even poorer service delivery which in turn will overthrow the current elected representatives at the next election.

The lack of business and IT alignment impacts negatively on the expected service delivery of PGWC. As a result of this, PGWC decided to implement EA as a means to achieve a closer alignment between business and IT. The Zachman framework was chosen as a framework for alignment (Zachman, 2003). However, for the past 5 years PGWC have experienced severe business and IT problems when trying to implement the framework. The Zachman's Framework, since its implementation in 2006, has not delivered the expected outcomes, mainly because it does not cater for the needs of the business in practice. EA implementation was placed hold until 2009 when it was decided to change to the The Open Group Architecture Framework (TOGAF) methodology because it follows specific governance practices. Currently the TOGAF approach is still being used, but for PGWC in general, the implementation of EA has not delivered the required and expected benefits.

Problem statement

<p>The implementation of EA has not delivered the benefits as expected by the stakeholders in PGWC</p>

The aim of this study is to understand and explain the challenges of implementing EA in PGWC. The objective is to assist PGWC to deliver benefits from the implementation of EA by proposing a possible framework for EA deployment in PGWC.

The contribution is the proposed guidelines, EA framework and process flow for the deployment of EA, based on an understanding gained by the research, so that stakeholders' expectations of the PGWC can be met.

1.3 Research question

The main research question for the study is: **How can enterprise architecture be deployed in PGWC in order to deliver the EA benefits to PGWC?**

To understand the complexities of the problem at PGWC the following research questions and sub questions were asked:

Research question 1

How did PGWC choose EA frameworks for their EA strategies?

This question aims to understand the motivation behind choosing the specific methodologies and to determine the current status of EA at PGWC.

Research question 2

How do PGWC deploy the chosen frameworks within the organisation?

This question aims to gain an understanding of the strategic and tactical approaches of the EA implementation at PGWC.

Research question 3

What steps could be taken in order to deliver the benefits of EA at PGWC?

This question aims to determine the possible steps to be followed at PGWC in order to deliver the expected benefits as well as to see what possible risks PGWC needs to avoid.

1.4 Research methodology

1.4.1 Research philosophy

A subjectivist, interpretive philosophy was followed in the research study. Interpretivism was chosen because it takes into consideration the understanding of social life and shows the researcher how to discover a way to construct the meaning in natural settings (Harper, 1987; Saunders, Lewis & Thornhill, 2009). The researcher wanted to learn what was meaningful to study and experience in everyday life. Interpretivism has the foundation of social research techniques for achieving context and theories of human behaviour (Harper, 1987; Saunders, Lewis & Thornhill, 2009).

According to Johnson and Clark (2006) researchers need to be conscious of the philosophical commitments made through the choice of research strategy since it is important to understand what the researcher is investigating.

1.4.2 Research approach

An inductive research approach was followed. This was done as described by Saunders, Lewis and Thornhill (2009). The researcher wants to understand the context and nature of the problem as to why the deployed EA frameworks are not realising the expected benefits for PGWC. Easterby-Smith, Thorpe, Jackson and Lowe (2008) suggest that the inductive approach enables the researcher with decision making, on the research design, on which data are collected and on the procedures that are analysed.

The inductive approach also assists on research strategies and the choices that would work for the study and those that will not. It is argued that the different research traditions of knowledge allow the adaption of research design to cater for limitations (Easterby-Smith, et al., 2008).

1.4.3 Research strategy

The research strategy used is a case study, supported by a literature review as well as the analysis of PGWC strategic documents. A case study can be used for qualitative or quantitative research, but in this research, the case study is qualitative. Case study research requires advanced research skills on the part of the researcher and it is also a challenging research method, and is prone to inaccuracy (Benbasat, Goldstein & Mead, 1987). The case study strategy assists in gaining an understanding of the context of the research study and the processes that were followed (Morris & Wood, 1991).

Case study research enables the researcher to link abstract ideas in specific ways with the concrete specifics of cases observed in detail and also link micro level to macro structures and processes (Robson, 2002). According to Ragin (1994) and Yin (2003; 2009) the case study includes several types of cases, such as groups, organisations, events, geographic units and movements. It is used to construct the representations based on in-depth knowledge of cases (Ragin, 1994, Yin, 2003). As this research is about the implementation of EA at the PGWC the research strategy best suited for the research is that of the case study.

Robson (2002) defines a case study as “a strategy for doing research which involves an empirical investigation of a particular contemporary phenomenon within its real life context using multiple sources of evidence”. Yin (2003) emphasizes the importance of context

within a case study, how it is explored and understood, and how it is limited by the quantity of data that can be collected. There are four case study strategies described by Yin (2003): single case, multiple case, holistic case and embedded case. The holistic case study is suitable here because the researcher is currently employed in the chosen PGWC organisation. However, because the research also examines various departments within the organisation, more than one unit of analysis is involved, hence it is necessary to also use/follow an embedded case study (Yin, 2003).

1.4.4 Data collection methods

The research data were collected in a systematic way by means of a desk study, to establish what is seen to be good practice, and from staff of the Centre for e-Innovation in the Planning and Development Directorate in the Department of the Premier, in order to understand the experiences of EA within the PGWC. Interviews with semi-structured questionnaires were conducted (Robson, 2002; King, 2004; Easterby-Smith, et al., 2008). The researcher used a semi-structured questionnaire in order to allow the conversation to flow without restrictions. The semi-structured questionnaire was used as a guideline for the interviewees (Table 3.3).

1.4.5 Desk study of the literature

The study of the literature permitted an assessment and consolidation of what is currently seen to be good practice in the deployment of EA in organisations, and an understanding of the opportunities and challenges that it actually presents. The study was based on the methodology as described by Okoli and Schabram (2010). The researcher also studied the internal policy documents, which outline the business strategies used by PGWC.

1.4.6 Interviews

Interviews are described as the discussion of two or more people (Kahn & Cannel, 1957). Interviews were done (Brassard, 1988) to gain an understanding of enterprise architecture as experienced in PGWC. Semi structured questionnaires were used to interview the unit of analysis.

1.4.7 Unit of analysis

Senior and lower managers involved with EA, and also experienced employees that understand the business and have EA-related skills were interviewed. For the interviews,

the sample included the group of Application Development Managers (ADM), Technology Managers (TM) and employees of the Planning and Development Directorate including the IT department employees and senior managers. Planning and Development Directorate consists of twenty staff including the managers. Ten key role players were interviewed. The selected participants were chosen because of their knowledge and experience about EA in PGWC.

1.4.8 Questionnaires

Semi structured questionnaires were used to elicit research data from a wider selection of employees in PGWC. The design of the questionnaires was mainly based on the IMBOK framework (Bytheway, 2004) as well as literature and inputs from experienced researchers and EA experts. The questionnaire was validated by experienced researchers and industry experts.

1.4.9 Other sources of data

The focus of the literature and document review was done to establish the best practices that are being used to implement EA. Data from the interviews and questionnaires was compiled from sources within the Department of the Premier in the Planning and Development Directorate, including papers, articles, journals, books and policy documents. The Directorate is responsible for planning and developing projects and services across departments, and therefore it was necessary to extend data collection into other departments within the provincial government.

1.4.10 Data Analysis methods

The analysis was principally concerned with a comparison of PGWC experiences with best practice. Data compiled from the desk study, interviews and questionnaires, were analysed and compared by means of summarising, categorising and establishing themes (Creswell, 1994; Punch, 1998; Saunders, et al., 2009).

1.5 Assumptions

It is assumed that the Implementation of EA is a high priority in PGWC, and that transparency in the organisation will be experienced during the research time period. It is further assumed that there is a political will to successfully implement EA within PGWC.

1.6 Delineation

Not all the departments of the PGWC were interviewed for this study. Only four departments were selected because of time constraints. Nine departments were excluded from this study. The focus was on the Department of the Premier within Ce-I as illustrated in figure 3. Many employees were excluded from the research due to the time frame, cost value of work to be done in the organisation and availability of the employees (see Unit of analysis Chapter 3 section 3.7.4). No implementation of any EA framework was attempted during the study.

1.7 Contribution

The research outcomes contribute towards an effective, integrated and cost effective EA deployment in PGWC, and propose guidelines, EA framework and process flow that could assist in a successful EA implementation within PGWC.

This research further contributes towards an: Increased understanding of alignment between the IT and business processes. Better business & IT budget prioritization and support of system development.

The outputs of the study are:

- A guideline of EA strategy deployment factors.
- A framework for EA strategic implementation.
- An EA process flow.

1.8 Summary

The implementation of EA in PGWC has not delivered the benefits that were expected by the business. The main research question was: How can enterprise architecture be deployed in PGWC in order to deliver the desired benefits? The question was answered by carrying out a subjectivist, interpretivism research study with an inductive approach based on a case study. Data collection was done by means of semi-structured interviews, as well as literature and document reviews. Data analysis was done by summary, categorisation, and theme development.

To conclude, it is argued that by working with the design of business processes and information, EA provides for a better structure and alignment between business and IT strategies (Infosys, 2005).

CHAPTER 2: LITERATURE REVIEW

2.1 Introduction

Enterprise Architecture as a discipline has been widely published on since Zachman’s (1987) seminal work (McGovern, Ambler, Stevens, Linn, Sharan & Jo, 2003; Fowler, 2003; Schekkerman, 2004; Lankhorst & Lars, 2005; Ross, Weill & Robertson, 2006; Spewak & Tieman, 2006; Sessions, 2007; Bernard, 2010; Lapalme, 2011). This literature review discusses the purpose of EA, EA strategic issues, business and IT strategies and the alignment between business and IT. Some of the EA frameworks and their methodologies are discussed. Diagram 2.1 presents the structure of Chapter 2.

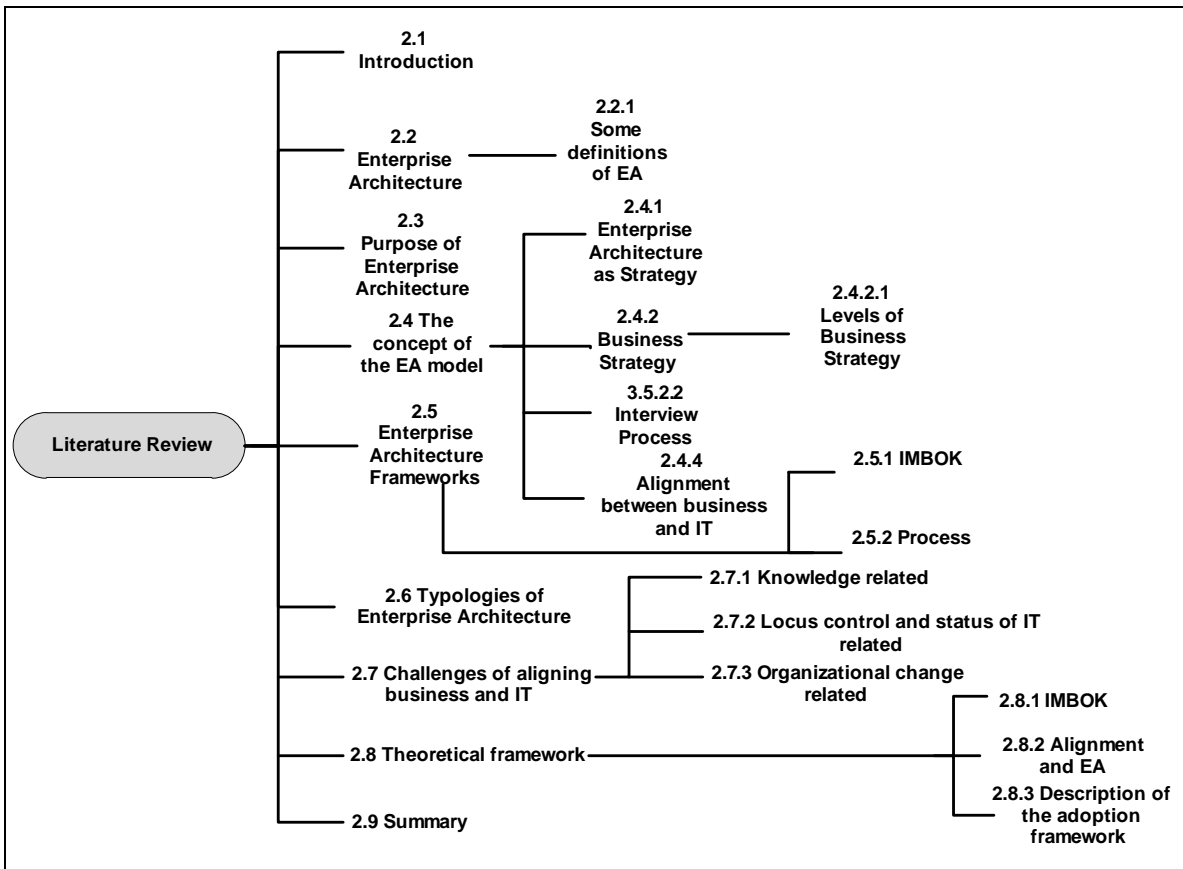


Diagram 2.1: Graphical representation of Chapter 2

2.2 Enterprise architecture

In South Africa according to Iyamu (2009) some EA implementation successes have been reported in the private sector. Although serious attempts to implement EA have been made in, for example, the Provincial Government of the Western Cape, no successes have been

reported from the public sector¹. EA, although successfully implemented in some developing and developed countries has little success in less developed countries (Bigman, 2007:12; Chatterji, 2007:1). Table 2.1 illustrates successful EA implementations in developed, developing and less developed countries.

Table 2.1: Successful implementations of EA in some countries

Country name	Developed country	Developing country	Least developed country
England	√		
Japan	√		
Australia	√		
United States	√		
South Africa		√	
Europe	√		
China		√	
Zambia			√

In Table 2.1 Zambia is defined as a less developed country located in Africa. EA has not been successfully implemented in Zambia. Zambia is planning to upgrade their infrastructure which may improve the success rate of successful EA implementation (Malakata, 2011). South Africa, that is defined as developing country, has some successful EA implementations.

According to Zachman (1987:67) EA is a mechanism “for defining and controlling the interfaces and integration of all the components of a system.” The Zachman framework refers to an ontology and classification which consists of five questions namely WHAT, HOW, WHEN, WHERE and WHY. Zachman (1996:20) also describes EA as “models² or “*descriptive representations*” that are relevant for describing an enterprise according to management’s requirements and maintained over the period of its useful life”.

¹ Public sector organization is owned by the government. Private sector organization is owned by its shareholders and is not part of the government.

² A model represents a part of reality (target) which was specified by a modeling view and described by modeling facilities to the purposes for recognition, understanding, and manipulation of the target.

Schekkerman (2011:1) explains EA as “an understanding of all the different elements which make up the enterprise and how these elements interrelate.” Lankhorst and Lars (2005:85) define EA as “a coherent whole of principles, methods and models that are used in the design and realization of an enterprise’s organisational structure, business processes, information systems and infrastructure.” Gartner (2005:4) defines EA “as a strategy to bring together, business owners, information specialists and the technology implementers. It creates a process to ensure that everybody understands the vision, nature, the scope and the impact of the changes.” EA as a strategy is defined as “an integrated set of actions aimed at increasing the long term well-being and strength of the enterprise, relative to the competitors, enabling the IT part of an organisation to bring change and make the organisation more effective and efficient in order to drive business benefits” (Ward & Peppard, 2002:57). Grigoriu (2009:36) defines EA as “the blueprint” to guide conversations around the themes of architecture, the relationships between structure and purpose and the value to anyone of architectural notions. The author compares the ideas of Zachman (1987), Henderson and Venkatraman (1993) and Ward and Daniel (2005:6), after which he then combines important issues such as business change management, IT project management, improved business operations and business performance management, all in the interests of supporting and fulfilling business benefits and strategy. The Federated Enterprise Architecture (FEA) model combines the Zachman and TOGAF frameworks (Sessions, 2007). The TOGAF framework refers to a process which offers government structures to support all government activities (Polgreen, 2010).

EA as methodology or strategic tool is used by many companies in an attempt to bridge the alignment gap between business and IT (Gartner, 1985). The implementation of these frameworks is costly and in some cases limits the needed innovation agility required by companies in less developing countries, in order to be competitive role players locally, nationally and internationally. Bytheway (2004, 2011) presents the Information Management Body of Knowledge (IMBOK) as the framework that aligns IT and business strategies and gives a foundation for implementing EA in an organisation. For this study the IMBOK has been used as the framework (also see par. 2.5.1 for details).

2.3 Purpose of enterprise architecture

EA can be used to transform a business by means of aligning business and IT, in that it connects units of diverse businesses (Bernard, 2010; Diann, 2003). Heinckiens (2007) believes that EA aligns IT with business strategy intending to create a better future for the business. He also highlights that EA provides a platform to understand the business structure and enables business to work with projects in order to successfully deliver benefits within the environment.

According to Platt (2007) EA contains the following perspectives: business, application, information and technology. The business perspective involves the operation of business processes and standards. The application perspective involves the processes and standards of the organisation. The information perspective depends on data such as files and documents for the organization to function effectively. The technology perspective involves the physical hardware, systems, programs and networking that are used by the organisation.

2.4 The concept of the EA model

Diagram 2.2 represents the initial concept of an EA from the researcher perspective. Enterprise Architecture consists of a top-down approach by aligning business and IT strategies. EA strategy combines IT and business strategies. Diagram 2.2 below shows the basis about the formulation of an EA, while the IMBOK framework presents the processes that are followed in order to align IT and business. The detailed IMBOK framework is presented in section 2.5.1.

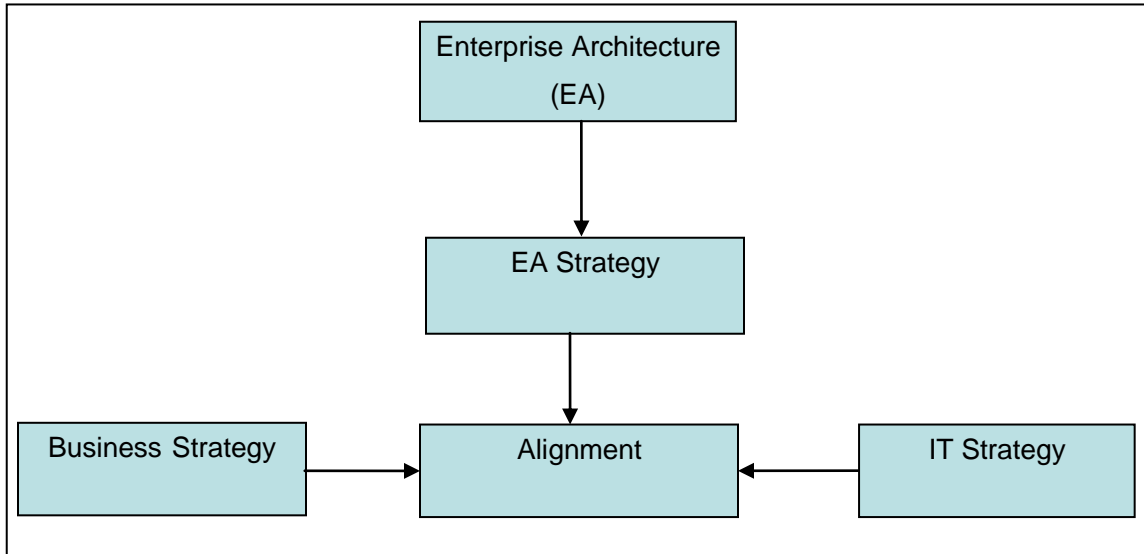


Diagram 2.2: Initial Concept Model EA

2.4.1 Enterprise architecture as strategy

Ross, Weill and Robertson (2006) consider that the building of an EA strategy gives an IT-dependent organisation faster returns from their IT investment, whilst minimising risk and costs. EA informs the organization about its location on the IT map by classifying a change plan for building a desired “to-be” architecture, the scope of which incorporates all the computing of the enterprise. Some identified IT-systems have been designed, implemented and maintained by application architecture (Hjort-Madsen, 2007). He also believes that governance and communication are the key roles to link the break between EA and application architecture.

Finkelstein (2002:12) defines EA governance as “a critical component of EA that provides for continuous improvement, migration and measurement of business systems, so that business and technology merge to meet the mission of the enterprise”.

Pieterse (2006:1) explains EA governance as “the decisions that are taken to influence the future design of the IT environment, ensuring the design integrity of the business, and those decisions that have to be made outside the IT domain”. EA governance becomes important when it is implemented and understandable by EA management and IS (Hjort-Madsen, 2007).

Pieterse (2006:16) sees IT governance as “the services that are operational and delivered by IT and which address aspects such as project management, configuration management, problem management, business planning, disaster recovery planning, managing procurement policies, standards, guidelines and procedures”. EA governance has given vocabulary and reference points for delivery across all government language levels (Hjort-Madsen, 2007). Brooks (2009:1) explains EA governance as “a means to ensure that an organisation’s IT investments are closely aligned with its business goals and processes, so that the limited IT resources available are allocated to areas that have the highest impact on organisational performance.” The IT Governance Institute (2010:1) defines IT governance as “the leadership and organisational structures and processes that ensure that the organisation’s IT sustains and extends the organisation’s strategies and objectives”.

Pries-Heje and Hjort-Madsen (2008:25) find that EA in government is used for transformation and modernization and is endorsed as a key tool for driving these processes. In government there are two streams for EA, namely: IT architecture as a constant, and business architecture as a driver. These streams work together but have different views, methods and procedures. Pries-Heje and Hjort-Madsen (2008:31) also state that EA in government is driven by method and it cannot transform government by itself.

E-Governance highlights the different categories of governance procedures and the way they are conducted in the public sector. E-Governance needs to focus on learning the government systems, in order to improve the organisational standards, to manage change, to foster incorporation and to build a strong relationship between government and its citizens (Grönlund & Horan, 2005). The importance of IT governance and especially the role that EA plays in IT governance in governments as a whole cannot be underestimated and more research needs to be done on this specific topic.

Others, such as Lankhorst and Lars (2005) argue that EA gives value to business and is the starting point for supporting the alignment between IT and business. EA models and frameworks are useful to projects and systems because they give direction for the alignment of business and IT strategies. EA can be used to manage organisational difficulties and it also gives a system design view whilst guiding methods for systems

development (Lankhorst & Lars, 2005). Changes in architecture depend on the environment and the opportunities that may occur in business as well as in technological developments, but in this context of change, EA serves to design business processes and to build applications that contribute to business objectives and those that conform to regulations. EA increases information flow between the business and IT sides of the organisation and increases the awareness of stakeholders as to the importance of good information management. It facilitates successful change in business (Lankhorst & Lars, 2005).

These authors see EA as a process consisting of different phases to be followed. The process view gives communication to the stakeholders, and a simplified version of their ideas is depicted in diagram 2.3 below.

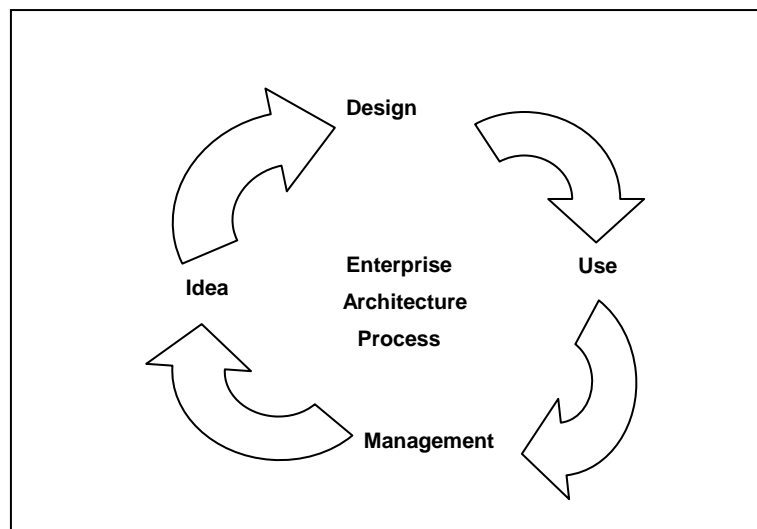


Diagram 2.3: Life cycle for design process (Lankhorst & Lars, 2005)

According to Lankhorst and Lars (2005), the process view of enterprise architecture is useful because it highlights the ideas of how EA is processed and provides a means to evaluate actual experience.

Other authors have different views of how EA works (Diann, 2003; Schekkerman, 2004; Ross, Weill & Robertson, 2006; Sessions, 2007; Macehiter & Ward, 2007; Lidderdale, 2009; Bernard, 2010) and these authors also define EA in different ways, as reported in section 2.2.1. (Diann, 2003) illustrates the wide array of views on EA. One of the views

such as “EA is a process (rather than a framework or method of thinking) that consists of business strategy formulation, strategy implementation planning, information systems analysis design, operations research and project management” (Bernard, 2010:14) and another view “EA can be considered as the sum of all the different elements that are understandable and how they link to each other to make an enterprise” (Schekkerman, 2004). According to Lim Banda, Keats and Darries (2005:2) “EA is an enabler of strategy that serves to align business and IT operations, aspects of an institution that are often in strong tension with one another”. The establishment of EA ensures the alignment of programs and projects to a common strategic vision.

2.4.2 Business strategy

Business strategy is concerned with the match of internal potential of the organisation and its external environment. It analyses the set of techniques for better understanding of a company’s position in its actual and potential marketplace. Strategy symbolizes the focus of application and the foundation of regulations for organizational economics and sociology (Kotelnikov, 2001). The business strategy shows the direction an organisation can take, and shows how to achieve the set goals and objectives. It also shows the scope of an organisation and how it can compete successfully with other businesses and meet stakeholder’s expectations. It also includes the resources required in order to be able to compete (Campbell, Stonehouse, Hamill & Purdie, 2004).

2.4.2.1 Levels of Business Strategy

According to Bytheway (2004:113), strategy is about change. It gives the direction of knowing where you are, knowing where you should be and knowing where you want to be. Formulating a strategy need not be complicated, but implementing it can be challenging. Strategy incorporates a set of actions by increasing the enterprise’s strength and its long-term well-being, and by giving the structure of what is expected to the organisations within the enterprise.

According to Johnson and Scholes (1987) there are several levels of strategies that exist in an organisation namely: corporate, functional and operational strategies.

Corporate Strategy concerns the scope and purpose of the business to meet stakeholder expectations. This is an important level because it gives guidelines on strategic decision-making throughout the business (Johnson & Scholes, 1987).

Functional strategy concerns the medium term plans and actions organisations need to take in order to support the operational strategies.

Operational Strategy concerns the processes of a business, resources issues and people involved. It concerns the business delivery use and the strategic direction at the business unit level (Johnson & Scholes, 1987).

2.4.3 IT strategy

Bytheway (2004) explains the significance of aligning business and IT strategy in the organization. This is because without implementing the strategy, there might be complications in the organisation when deploying information systems if there is no direction on why, how, when and where these systems to be deployed. Lamb (2010:221) states that the IT Strategy focuses on strategic IT matters on how to make IT work for businesses and to improve company performance. The IT strategy also focuses on examining the ways of developing the full potential of information systems from existing and new IT products. The strategy offers senior IT management all they need to know about benefiting from information technology and information management through case studies and interviews with the most influential key figures in the IT industry.

2.4.4 Alignment between business and IT

By aligning business and IT, the organisation can utilise the capabilities within IT to improve the business outcomes (CognITech, 2002). The motivation for alignment comes from a focus on strategic business planning and long-range IT planning in the previous years (Symons, 2005:12). Symons (2005) states that alignment between business and IT strategy symbolises the by-product of IT structures and processes that form part of an organisation's regulations. According to Gregor, Hart and Martin (2007:16) EA enables the alignment of business and IT strategies.

Research on EA indicates that alignment between business and IT increases with the implementation of an EA strategy through improved IT effectiveness and business performance. Business and IT alignment resulting from arrangements in a firm's infrastructure have positive impacts on business performance (Lee, Kim, Paulson & Park, 2008).

2.5 Enterprise architecture frameworks

Sessions (2007) groups EA into four different types of methodologies namely: Zachman Framework, Gartner Framework, The Open Group Architecture Framework (TOGAF) and Federal Architecture Framework (FEA). In Table 2.2 the attributes of these methodologies are compared by listing their advantages and disadvantages. A fifth methodology namely Information Management Body of Knowledge Framework (IMBOK) is also added and discussed (Bytheway, 2004, 2011).

Table 2.2: Comparison of Four Enterprise Architecture Methodologies as well as the IMBOK supply chain (Bytheway, 2011, 2004; Sessions, 2007)

Details	(i) Zachman	(ii) Gartner	(iii) TOGAF	(iv) FEA	(v) IMBOK
Attributes	<ul style="list-style-type: none"> Methodology / ontology described as classification – it's not a framework although is called so because it consists of five columns for design process. Presented a controlled way to obtain the information with respect to the EA (Zachman, 1999). This shows a top down approach in sequence method. This shows a logical structure for categorizing and arranging the representations of an organisation in different dimensions (Pereira & Sousa, 2004) – framework as it applies logical structure for categorizing and establishing the enterprise descriptive demonstrations. This conceptualizes any information involved in system architecture. This represents the range of different views and stages for an organization (Zachman, 1999). This consists of five columns of WHAT, 	<ul style="list-style-type: none"> An enterprise architectural practice, it is a methodology. It brings together the owner of the business, specialists for the information and the technology deployers. It makes sure that everybody understands and shares a single vision. It creates the process for enterprise-architecture vision to ensure that everybody understands the nature, the scope and the impact of the changes (Gartner, 2005). Gartner views the enterprise architecture as about strategy, not about engineer. 	<ul style="list-style-type: none"> This framework described as process and is precisely, it is a framework as it defined accurately in process. It is well developed and useful to the research. It consists of Architecture Development Method (ADM) component consisting of four consistent sub-architectures which are business, information, application and IT (The Open group, 2002). It offers governance structures to support all governance activities. It involves the existing IT governance processes, organizational structures and capabilities, and it complements the process viewpoint of 	<ul style="list-style-type: none"> It is a complete methodology – as it creates an EA. It could be seen as deployment of EA methodology. It has both a comprehensive taxonomy like Zachman and an architectural process like TOGAF. It can be seen as either a methodology for creating an EA or the result of applying the process to a particular enterprise. It consists of five reference models: business, service, components, technical and data. 	<ul style="list-style-type: none"> Academically derived from a wide-ranging review of related research into information management strategies. Some comparability to the ideas of Zachman. Explains the generation of organisational value from information technology investments. Based on concepts of management competencies in managing: technology, systems, processes, benefits, and strategy - extending from engineering right through to strategy. Includes consideration of the movement of value by means of IT projects, business change management, improved business operations, and performance management.

Table 2.2: Comparison of Four Enterprise Architecture Methodologies as well as the IMBOK supply chain (Bytheway, 2011, 2004; Sessions, 2007) continues...

	HOW, WHERE, WHO, WHEN and WHY that represents the design artifacts between the roles of design process (Zachman, 1999).		Lankhorst and Lars (2005).		
Advantages	<ul style="list-style-type: none"> • Taxonomy completeness 	<ul style="list-style-type: none"> • Practice guidance • Business focus • Governance guidance • Partitioning guidance • Time to value • Process completeness 	<ul style="list-style-type: none"> • Process completeness • Vendor neutrality • Information availability 	<ul style="list-style-type: none"> • Reference-model guidance • Maturity model • Prescriptive catalog 	<ul style="list-style-type: none"> • Simple to understand. • Comes with a 144-point competency assessment instrument. • IMBOK handbook is available, free of any costs. • Handbook provides specific guidance on tools and techniques to deal with problems
Disadvantages	<ul style="list-style-type: none"> • Process completeness • Practice guidance • Maturity level • Reference-model guidance • Governance guidance • Partitioning guidance • Prescriptive catalog • Time to value 	<ul style="list-style-type: none"> • Taxonomy completeness • Information availability • Reference-model guidance 	<ul style="list-style-type: none"> • Maturity level • Business focus • Governance guidance 	<ul style="list-style-type: none"> • Time to value • Business focus • Process completeness • Information availability 	<ul style="list-style-type: none"> • No commercial support available

2.5.1 Information management body of knowledge framework (IMBOK)

Bytheway (2004) explains that information system is not the only entity to move the business forward, business activity areas also contribute to strategy. The business activities and how they can contribute to strategy are valuable. Nor is IT is not the only entity that can move business forward but some entities such as Human Resource Management, Product Development and Marketing can play a significant role in strategic direction and success.

IMBOK defines the activities that are based on value adding where IT delivers the services and business strategy is the driver for realization. It also describes the five domains of management and their areas of concern.

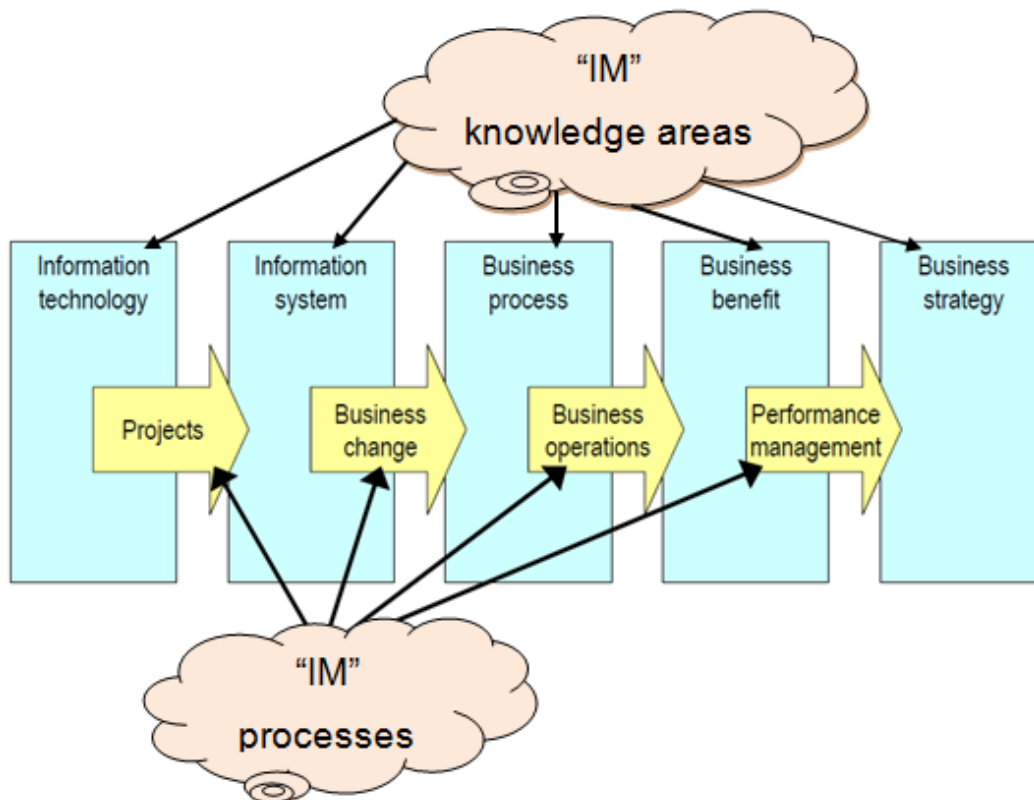


Diagram 2.4: The Information Management Body of Knowledge (Bytheway, 2004)

Diagram 2.4 above represents the five different knowledge areas: information technology, information system, business process, business benefit and business strategy:

- **Information Technology:** In the organisation, the communication equipment that is used in various technologies is known by the IT maintenance group at all times. Challenges arise when the technology changes on a daily basis.
- **Information System:** The systems development section is responsible for establishing and sustaining the information systems. The designations such as systems analysts, database designers and IT specialists are in this particular section, the systems developers ensure that the functionality is up to standard as the technology may change on a daily basis.
- **Business process:** Business processes are working with the information systems, ensuring that they both work according to the required standard (Bytheway, 2004).
- **Business benefit:** Business benefit generates a positive outcome when the projects have met the clear business objectives standards, business case analysis and costs understanding for the business.
- **Business strategy:** There may be a misunderstanding of business towards the senior management when showing the business strategy to top management. Development of strategies gives direction to the organisation, and must be supported by a written document, clearly stating the tasks of everyone (Bytheway, 2004).

2.5.2 Processes

- **Projects:** The procedures taken by the project manager are described by each project process to control and manage the element of the project. The projects have unique goals and requirements, and they are created to determine the business process with the outputs produced. In the organisation, projects are undertaken at all levels and involve one or more employees (Bytheway, 2004).
- **Business change:** People are resistant to change, especially if their skills are to be affected by a new information systems operation. If people do not understand what is required from them then there can be a tendency to misinterpret the requirements involved in the change and this can cause them anxiety and stress (Bytheway, 2004).

- **Business operations:** A business needs to produce services to its customers at the desired level. The services and goods produced according to business standards deliver value to customers, based on the business expectations. Knowledge of these standards directs how the business operates with the improved business processes (Bytheway, 2004).
- **Performance management:** The performance management optimizes people's output by observing quality and quantity, and also by improving people and every organisation's overall performance and service delivery. It is when the business strategy meets the expectations of the business operation. The organisation needs to be ensuring that it is capable of producing the good services (Bytheway, 2004).

2.6 Typologies of Enterprise Architecture

The approach of this study falls within the Enterprise Ecological Adaption School because it seems to be a helpful guide as to where research may be focused (Lapalme, 2011). The IMBOK framework processes used in this study align with the school's organisational knowledge. Lapalme (2011) presents the three schools of EA. These schools are called "schools of thought" on enterprise architecture and named 1) Enterprise Ecological Adaption, 2) Enterprise Integrating and 3) Enterprise IT Architecting. EA has a variety of definitions in the literature and one term is used with different meanings.

- **Enterprise Ecological Adaption School**

This school acquires organisational knowledge from the environment to allow the alteration of enterprise-in-environment and to be innovative. The environment within the enterprise is compatible by achieving the expected goals. This has been described as "the means for organizational innovation and sustainability" (Lapalme, 2011).

- **Enterprise Integrating School**

The enterprise strategy can be implemented by designing all the features of EA including IT. This school specialises in systems, thinking of the strategy and thus

designing the enterprise. The school has been known by its members as “the link between strategy and execution” (Lapalme, 2011).

- **Enterprise IT Architecture School**

The alignment of EA is through business strategy, designing and is dependent on IT management skills. The IT usage of systems applications, cost and duplication of the applications is minimal. The school has been described as “the glue between business and IT” (Lapalme, 2011).

2.7 Challenges of aligning business and IT

Pandit (2012:11) highlights that some members of management struggle to achieve the IT/business alignment and to understand the business needs. Most theories on the alignment between business and IT are done for large organisations. The studies strongly suggest that companies following a simultaneous planning and integration approach can make better use of IT (Pandit, 2012:12). The alignment between business and IT raises awareness about the importance of developing IT and business strategies together. They also argue that theories based on large organisations can also be applied to small and medium sized organisations. Lapalme (2011) points out that there might strategy implementation in smaller organisations can be challenging because of the lack of management and other skills.

It is important to note that the differences between resources and expertise available in small and medium size companies might complicate the assessment and management of alignment between business and IT within these organisations.

Organisations are faced with fundamental challenges of aligning business and IT (Townson, 2008). In the past, many organisations faced only the fundamental challenges of business that had nothing to do with IT. Once IT budgets were needed, then alignment issues came to the face. According to McGee (2008) some people are looking at the challenge of IT being aligned with business rather than equalizing the partnership, because it seems that IT is being obedient to business. McGee (2008) also thinks that IT and business alignment remains vague because the language keeps on changing in order to keep up with the current challenges. The IT people use technical

words when describing the challenges and this causes the management to be unsure about what needs to be addressed to achieve IT and business alignment.

According to Nugent (2004) there is a common methodology used for IT and the business alignment cycle that introduced an understandable framework, that the IT organisation could approve, to manage the collective of activities. The cycle consists of four phases namely: plan, model, manage and measure. Other challenges are shown below regarding the alignment between business and IT:

2.7.1 Challenges of alignment related to knowledge

The fact that IT executives lack business knowledge and that management leaders lack knowledge of or experience in IT, is a stumbling block in any business attempting to align business and IT with the organisations' goals and objectives (Pandit, 2012). The sharing of knowledge becomes difficult and in consequence the organisation fails to gain any significant benefit from an EA implementation.

2.7.2 Challenges of alignment to change in an organization related

The adjustment of change in strategic alignment becomes a challenge in any organization where the process takes too long. The distrust of IT by employees in the organisation, when there is an attempt to align business and IT, also contributes towards the alignment challenges of the organisation (Pandit, 2012).

2.8 Theoretical framework

2.8.1 The Information Management Body of Knowledge (IMBOK) Framework

The IMBOK framework describes the five domains of management and their concerns. This is then placed against the main pillars of EA that have been used for this study namely the formulation of the business strategies, planning and implementation, information systems analysis and design and operations and Project management as shown in diagram 2.7. Diagram 2.4 which is copied from section 2.5.1 for the convenience of the reader below, shows the features of IMBOK framework and the knowledge areas (Bytheway, 2004). The knowledge areas and processes shown in diagram 2.4 have been discussed in section 2.5.1.

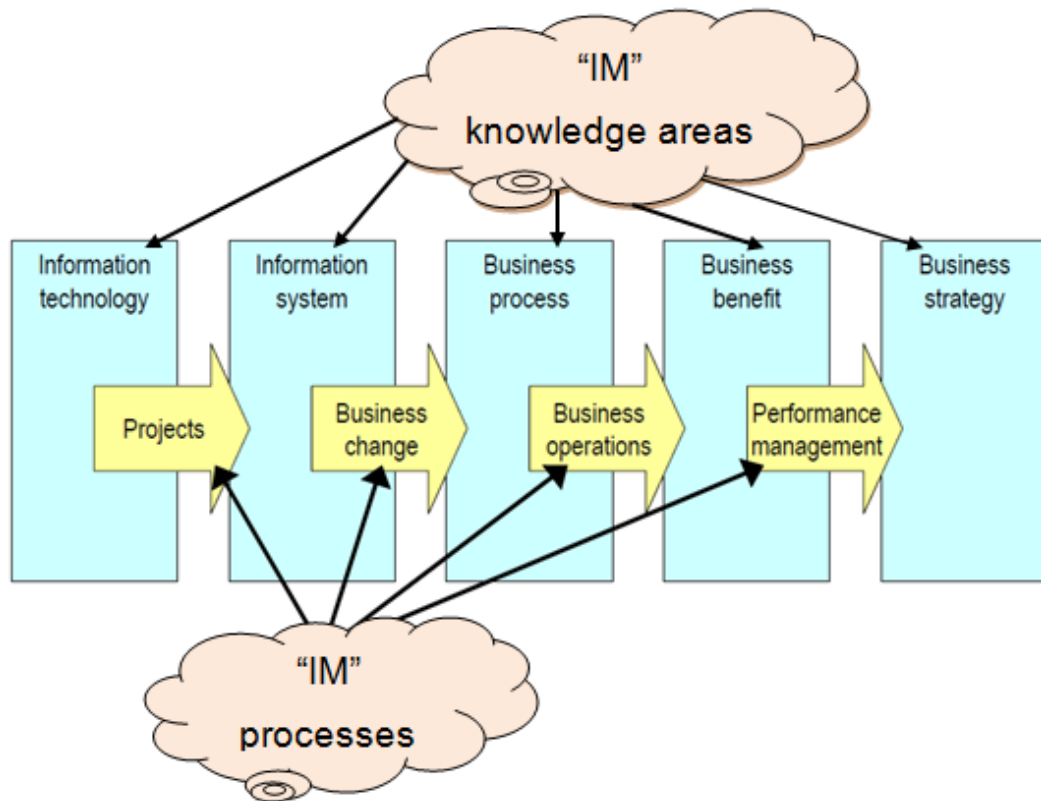


Diagram 2.4: The Information Management Body of Knowledge (Bytheway, 2004)

The main critique against this process flow is that it is only one directional whilst business is circular in character. To address this critique, Bytheway (2011) added business process flows to the framework as shown in diagram 2.5. The iterative nature of processes is demonstrated in diagram 2.5. The knowledge domains namely Information Technology, Information systems, Business processes, Business benefits, and Business strategies are interlinked with specific processes and information needs.

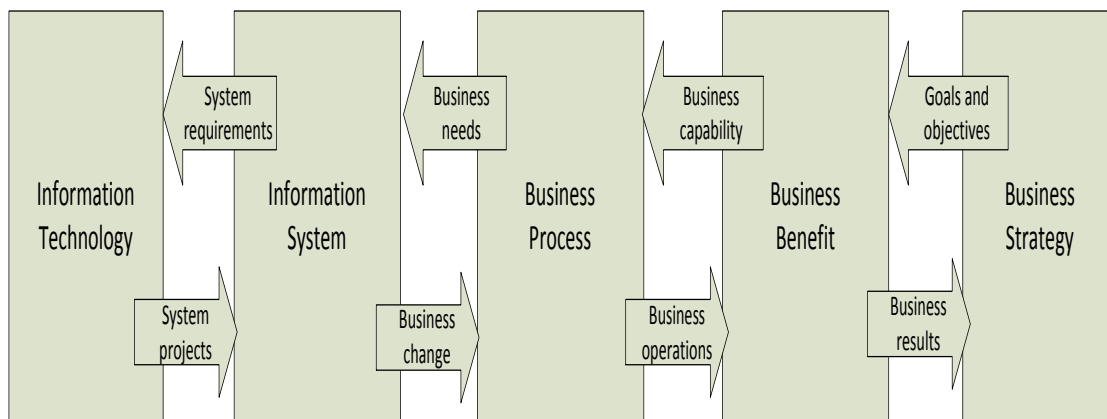


Diagram 2.5: IMBOK framework (Bytheway, 2011)

The cyclic approach re-iterates the on-going process between business and IT. A further short fall in the framework is the lack of the role that vision plays, together with the goals and objectives in the alignment of business and IT. Diagram 2.6 is a proposed adapted framework where vision has been added, and the goals and objectives moved to the position where the goals and objectives can direct the business strategies.

From the literature and after in-depth discussion with Bytheway (2012) the IMBOK framework is the theoretical framework chosen for this study. The process as proposed by Bytheway (2012) is adopted and applied in the PGWC context. Diagram 2.6 displays the adapted framework from the IMBOK framework that has been proposed to be used in this research as the theoretical framework. The framework is used to explore implementation and alignment issues within PGWC. The abbreviations in the boxes are defined within the figure at the bottom.

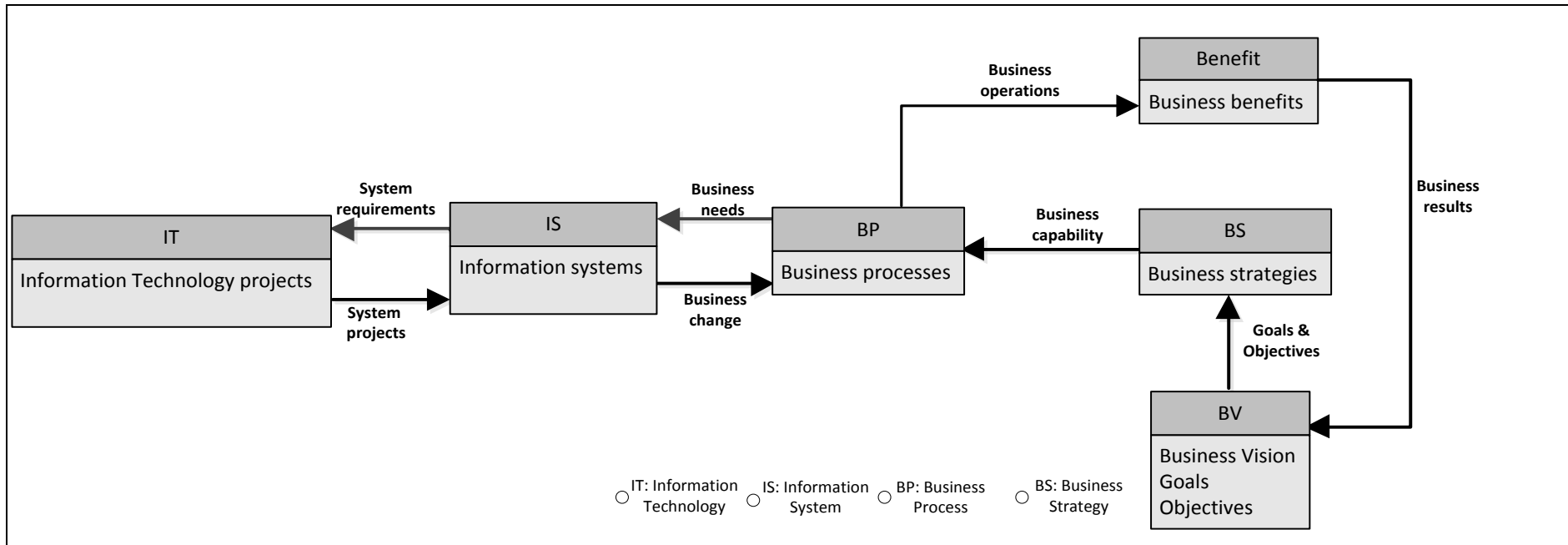
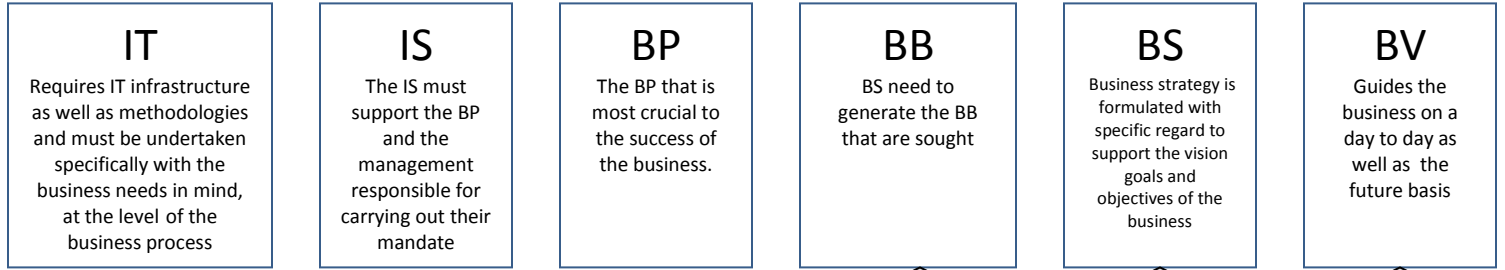
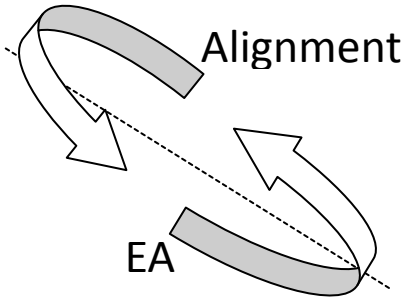


Diagram 2.6: Adapted framework from IMBOK framework (Bytheway, 2011)

Diagram 2.7 is an attempt to show the relationships between the business value chain including the processes (business vision, business strategy, business benefit, business processes, information systems and information technology) and the technology architecture (formulation of business strategy in terms of information technology, planning and implementation, information system analysis and design, operations research and project management).



Formulation of business strategy

Business strategy is formulated with specific regard to the benefits that are sought, and the processes that are most crucial to the success of the business

Business strategy is formulated with specific regard to the vision, goals and objectives of the company. These strategies translate into a value chain that will lead to the benefits that are sought.

Planning Implementation

Implementation is concerned with who does what & how. In the matter of information systems, this requires IT acquisition, project planning and business change management

Implementation is concerned with who does what & how. In the matter of information systems, this requires IT acquisition, project planning and business change management

Information systems analysis and design

Systems analysis, design and implementation requires IT infrastructure and must be undertaken specifically with the business needs in mind, at the level of the business process

Systems analysis, design and implementation requires IT infrastructure and must be undertaken specifically with the business needs in mind, at the level of the business process

Operations research and Project Management

Project Management can extend over the whole spectrum, or it can be combined with or within the silos as given or between departments and divisions

Project Management can extend over the whole spectrum, or it can be combined with project from other divisions or even outside projects such as outsourcing

Diagram 2.7: Adaption of adaption framework from IMBOK framework

The IMBOK process in diagram 2.8 as proposed by Bytheway (2012) is very useful in aligning business and IT in terms of the business processes in the value chain, and the IT systems and architecture supporting the processes and value chain. The IMBOK process also links the business strategy with IT. In these figures the importance of the business vision as well as its position in the IMBOK value chain is shown. The frameworks offered in diagrams 2.7 and 2.8 take into consideration all aspects of the processes involved to align business and IT.

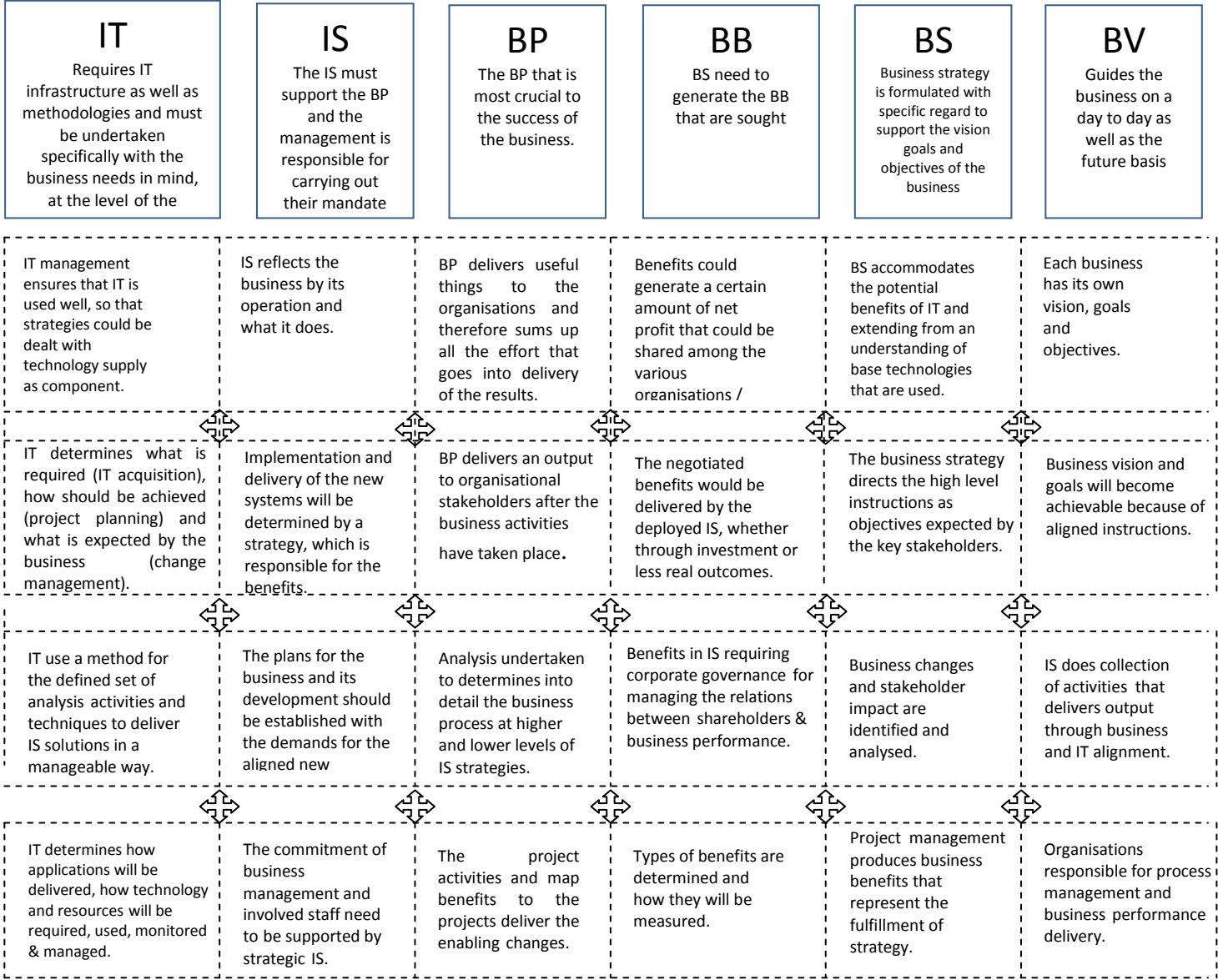
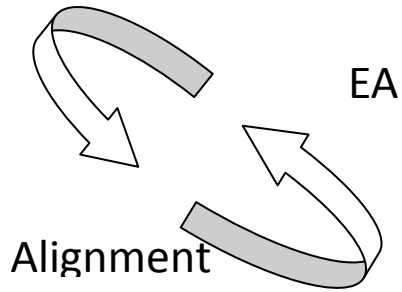


Diagram 2.8: Detailed adaption of adaption framework from IMBOK framework

2.8.2 Alignment and EA

Diagrams 2.7 and 2.8 are adaptations of IMBOK framework of Bytheway (2011). The author of the IMBOK framework made a large contribution to the framework as presented above. The two frameworks should be read as one as they align with each other. The framework differs from Bytheway (2011) in that the knowledge areas are expanded by adding the Business Vision as a component. The argument is that if the Business vision is not pertinent in the framework and every action is not measured against the business vision then the measure of achievement of the successful implementation and sustainability will be reduced.

The business vision and business value are integral parts of the formalisation of the business strategies. They guide the planning and implementation processes. The business processes must be supported by IS and IT systems. The IT infrastructure requires the analysis of systems, design and the implementation based on the business needs and at the business process level. This is a complex environment and should be guided by good Project Management that can extend over the whole spectrum, or it can be combined with projects from other divisions or even outside projects such as outsourcing. In the case of large projects, programme management should be considered as a means of reducing the risks.

2.8.3 Description of the adapted framework

The following section provides a description of the adapted framework for the study.

a) Formulation of business strategy

IT:

IT management ensures that IT is used well, so that strategies can be dealt with and technology components can be supplied. It defines the applications required to acquire, develop and operate existing and future applications. It determines how applications will be delivered, how technology and resources will be required, used, monitored and managed.

IS:

IS reflects the business by its operations and what it does. The staff involved and the management in the business environment require strategic information system support, for all the plans and the developments taking place during the alignment and establishment of the new systems. The implementation and delivery of the new systems

will be determined by this strategy, which is responsible for the benefits that will be brought about.

BP:

The mission and vision need to be set out so that the business is able to develop and agree, with clear understanding at a high level, on what needs to be achieved. Service delivery improves when business processes are applied in the organisation, thus adding value.

BB:

The context of the organisation value chain can be seen in the benefits of information systems, by considering one interface between two of the main role players in the chain. Business benefits are generated when profits are received that can be collected by all the organisations. The supply and demand can be matched accurately through appropriate information sharing, internal systems making a special contribution to efficiency and effectiveness.

BS:

Business strategy is formulated with specific regard to the benefits that are sought.

BV:

Each business shared its own vision, goals and objectives.

b) Implementation planning

Implementation planning determines what is required, how it should be achieved and what is expected by the business. Implementation planning executes the processes to be taken when installing, configures, testing and running for any changes or activities that have been done to the system. This verifies the scope of the project and also checks the quality standards of the project.

c) Information systems analysis and design

This stage analyses all that is required by the business and the system design takes place. Each system has input, processing and output. It forms the group of elements that are linked to each other. It forms part of the system development life cycle that assists in developing a system project plan, analysis (including feasibility study), system design, implementation & testing and maintenance stages.

d) Operations research and project management

Project management deals with the management style that is required and expected by the business, project style, managing risk and costs. It involves the plan, monitoring and controlling of all the activities of project leaders, system analysts, developers and network

technologists in the development, working with the live projects. It manages the outsourced information technology projects and the design. It researches and implements the latest trends and best practice in ICT project management. It also ensures that technical and functional standards are observed and prepares hardware, software and staffing budgets.

2.9 Summary

The history of EA shows the guidelines and different views on EA (Zachman, 1987; Henderson & Venkatraman, 1993; Robert, Bizzaro & Selfe, 1997; Lamb, 1998; Anson & Schweger, 2000; Troyka, 2002; Ward & Peppard, 2002; Sessions, 2007). Several case studies and some text books (Johnson & Scholes, 1987) show the different views of business and IT strategies. The three schools, as presented by Lapalme (2011), is a helpful guide as to where and how research may be focused. The approach of this study falls within school 3 namely the Enterprise Ecological Adaption School.

Chapter 2 describes the five different frameworks on Table 2.1 above. The IMBOK framework was chosen to be used for this study because it shows clearly the processes of the Information Management methodology. It can also be used as a tool to understand the attempted implementation Zachman and TOGAF at PGWC. IMBOK consists of five knowledge areas namely information technology, information system, business process, business benefit and business strategy.

The chapter highlighted some views on EA, based on alignment between IT and business strategies and how it could be implemented. After reviewing the literature, the initial model presented in diagram 2.3 is deemed inadequate and an over simplification of a very complex phenomenon. For the research to be done the adapted IMBOK framework of Bytheway (2011) was used as it presents not only ontology but it also includes methodologies and processes.

CHAPTER 3: RESEARCH DESIGN AND METHODOLOGY

3.1 Introduction

Chapter 3 outlines the research philosophy, approach and strategy followed during this study. A description of the data collection methods, data analysis tools as well as ethical considerations concludes the chapter. Diagram 3.1 is a representation of the layout of Chapter 3.

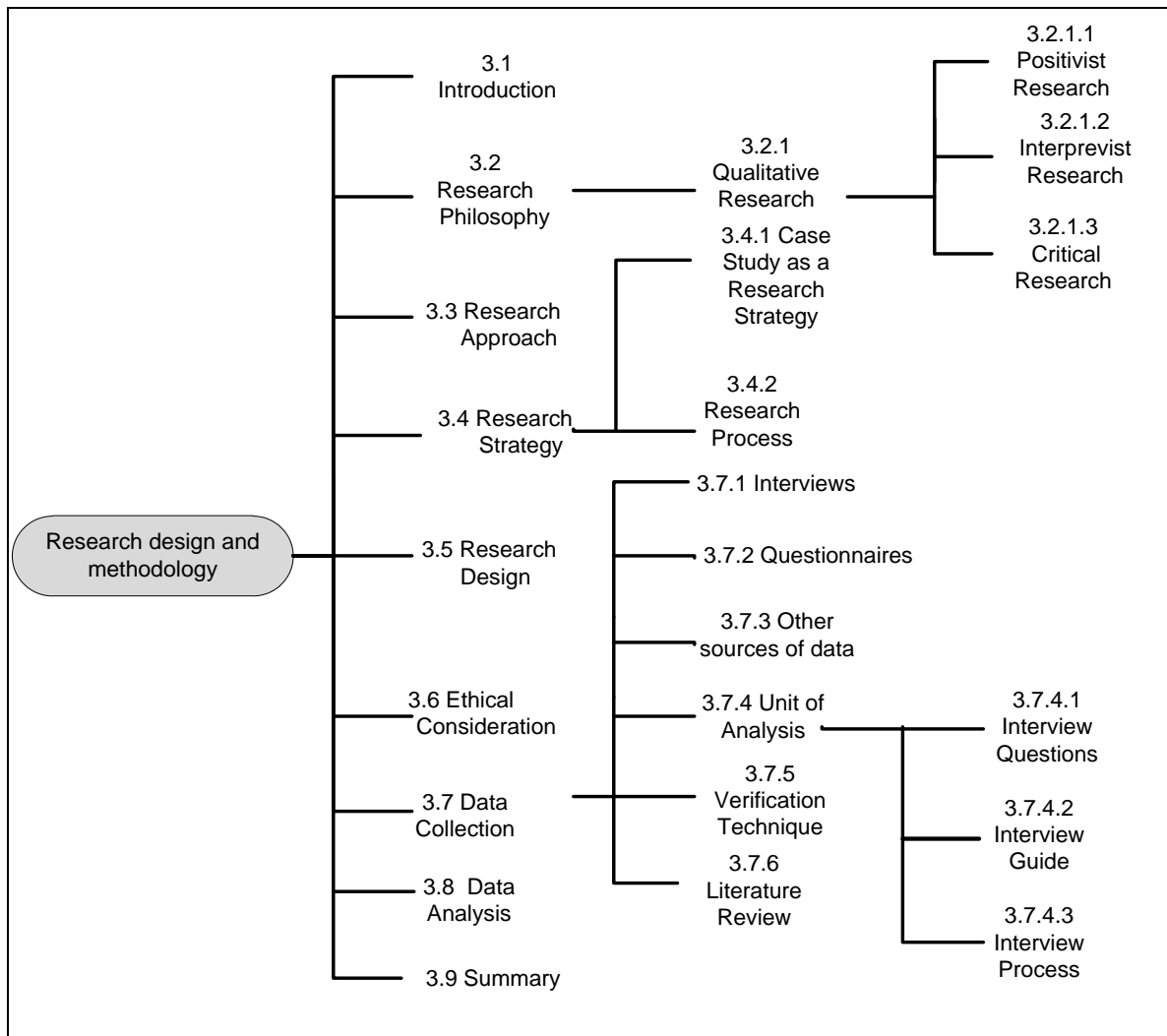


Diagram 3.1: Graphical representation of Chapter 3

An interpretive ontological structure is followed due to the social construct of EA. Niewenhuis (2010:110) defines ontology as “the study of the nature and form of reality.” The assigned participants try to understand the phenomena by accessing through the meanings of the interpretive research. The study is based on an underlying assumption about what represented valid research and which research methods were appropriate.

The inductive approach determines the way of thinking about conducting the research and also explains whether the research is explicitly or implicitly about the EA (Trochim, 2006). The chosen research approach is qualitative and the strategy being used is inductive in nature (Saunders et al., 2009; Neuman, 2011). The research strategy is a case study (Yin, 2009).

3.2 Research philosophy

Couch (1987:106) and Neuman (2011:93) define the epistemology as “the issue of knowing the world around and what makes a claim about it true.” It includes what a researcher need to produce the knowledge and its production. Guba and Lincoln (1994:112) define epistemology as “an acceptable knowledge in a field of study.” According to Woody (2005) “research comprises defining and redefining problems, formulating hypotheses or suggested solutions, collecting, organising and evaluating data, making deductions and reaching conclusions.” Research contributes to the existing body of knowledge making for its advancement. It tracks down the truth with the assistance of study, observation, comparison and experiment. It searches the knowledge through objective and systematic methods of finding solutions to problems.

In the effort to search for knowledge, whether objective or subjective, the philosophical foundation is important. The position the researcher takes, contributes to the knowledge gained. Saunders et al. (2009) state that there are two major ways of thinking about research, namely Ontology and Epistemology. Niewenhuis (2010:110) defines ontology as “the study of the nature and form of reality.” It deals with what and how questions, but this study will not look at this case study from an ontological stance, it will focus on epistemology.

The philosophical base of interpretive research is hermeneutics and phenomenology (Boland, 1985). Interpretive approach to qualitative research includes Boland's (1991) and Walsham's (1993) work. Interpretive research starts by understanding how respondents see the world and [then] understands the logic and rationale behind what might at first seem extraordinary behaviours (Blaikie, 1993). It aims to interpret how people conceptualise the world. The findings of this research are looked at from an epistemological subjective, interpretive point of view.

Interpretive studies generally attempt to understand phenomena through the meanings that people assign to them and interpretive methods of research in IS are "aimed at

producing an understanding of the context of the information system, and the process whereby the information system influences and is influenced by the context" (Walsham, 1993). Interpretive researchers' access to reality is through social constructions such as language, consciousness and shared meanings (Kaplan & Maxwell, 2005). Interpretive research does not predefine dependent and independent variables, but focuses on the full complexity of human sense making as the situation emerges (Kaplan & Maxwell, 2005).

3.2.1 Qualitative research

Qualitative research depends on conceptual analysis and presentation. It is used where it is important to understand the meaning and interpretation of human social arrangement such as decision making. Qualitative research understands the matters by considering the behaviour of people in the situations and outlooks the context within which they act (Kaplan & Maxwell, 2005). Qualitative methods are characterised as those that aim to explore meaning and that produce non-numeric data. According to Kaplan and Maxwell (2005) qualitative data can be produced a by range of data-collection techniques, which are:

- Participant observation in which the researcher participates, to some extent, with the study group.
- In-depth interviewing to explore the attitudes and experiences of individuals.
- Focus groups.
- Audio-taping naturally occurring talk such as consultations between expert and a researcher.
- Analysing textual or pictorial data such as diaries or photographs to explore what they can tell about the individuals that produced.

In this study the research data was collected in a systematic way by means of a case and desk study, to establish what is considered to be good practice, and from staff of the Centre for e-Innovation in the Planning and Development Directorate in the Department of the Premier, in order to understand the experiences of EA within the PGWC. The methods used for this research are an in-depth literature review, interviews with key role players, and questionnaires that gain information from a wider set of respondents. Diagram 3.2 below represents the three epistemologies that contribute to the qualitative research.

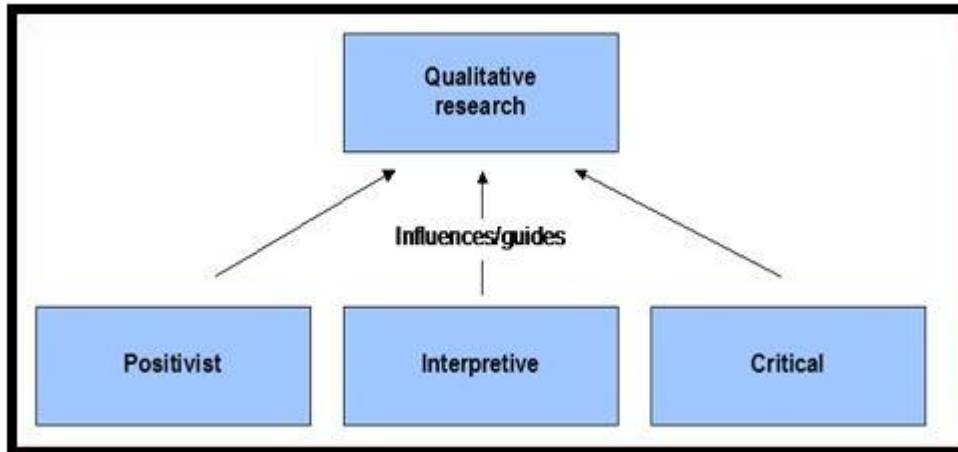


Diagram 3.2: Research epistemologies in qualitative research (Myers, 1997)

The three epistemologies that are seen to be adequate and beneficial when doing the research are positive, interpretive and critical (Orlikowski & Baroudi, 1991). Qualitative research was developed in the social sciences to support the study of cultural and social developments (Myers, 1997).

3.2.1.1 Positivist research

This research is associated with several social theories: structural-functional, rational choice and exchange-theory (Collier, 2005). Positivist research is for natural sciences. Positivist research implies that a researcher begins with a cause effect relationship that logically derives from a possible law or general theory. This assumes that the reality is objectively grown as researchers shifted away from social reform-oriented studies with fewer techniques modeled on those used in the natural sciences.

3.2.1.2 Interpretive research

Interpretive research, as mentioned in 3.2 starts by understanding how respondents see the world and then understands the logic and rationale behind what might at first seem extraordinary behaviours. It aims to interpret how people conceptualise the world.

Klein and Myers (1999) have set seven principles for the evaluation of interpretive research. These principles have to be observed when conducting interpretive research. These principles come from two sources namely: the practice of anthropological research and the understanding of the underlying philosophy of phenomenology and hermeneutics. Klein and Myers' (1999) suggested seven principles are shown in Table 3.1 below.

Table 3.1: Principles of Interpretive Study Research (Klein & Myers, 1999)

No	Principles of Interpretive Research	Explanation
1	Fundamental principle of the hermeneutic circle	This accomplished the understanding of humanity by supporting its significance parts and what has been formed.
2	Principle of contextualization	This reflects the social and historical background for the entire research, and it reflects the transparency of respondents on the investigation.
3	Principle of interaction between the researchers and the subjects	This illustrates how the research data were socially created through the interaction between the researchers and participants.
4	Principle of abstraction and generalization	This states graphic details discovered by data interpretation through the application of principles that describes the concepts of human understanding and social action.
5	Principle of dialogical reasoning	This shows the understanding to possible challenges between the theoretical assumptions guiding the research design and actual findings.
6	Principle of multiple interpretations	This requires perceptive to possible variations in interpretations among the participants that expressed in several stories of the same cycle.
7	Principle of suspicion	This shows observant to possible unfairness in the stories compiled by the participants.

Table 3.1 presents the important principles that need to be observed when doing interpretive research. These principles equip the researcher with valued tools, and enable the research to progress. These principles show that it is important to ensure that the data are interpreted in a well organised concise manner by the researcher, and they also give the procedure on to how interpret the data for EA. This shows that interpretive research is determined by the data collected regarding the deployment of EA in the organisation.

3.2.1.3 Critical research

Habermas (1996) states that critical researchers believe that social reality is historically constituted and that it is produced and reproduced by people. Although people can consciously act to change their social and economic circumstances, critical researchers recognize that their ability to do so is constrained by various forms of social, cultural and political domination (Habermas, 1996). The main task of critical research is seen as being one of social critique, whereby the restrictive and alienating conditions of the status quo are brought to light. Critical research focuses on the oppositions, conflicts and contradictions in contemporary society (Habermas, 1996).

3.3 Research approach

The research approach illustrates the importance of an effective strategy to increase the validity of social research (Creswell, 2007). This research focuses on an inductive approach, because a theoretical understanding needs to be gained during and after the empirical data has been collected.

The research approach is based on the assumption that social reality has an objective ontological structure and that individuals are responding agents to the objective environment (Morgan & Smircich, 1980). The assumption behind the positivist paradigm is that there is an objective truth existing in the world that can be measured and explained scientifically (Cassell & Symon, 1994). It involves counting and measuring events and performing statistical analysis on a body of numerical data (Smith, 1988).

The triangulation method combines the methods of both the qualitative and quantitative research, and it is explained as the eight-step process (Johnson & Onwuegbuzie, 2004). The two methods, namely quantitative and triangulation are not appropriate for the current research because the quantitative approach is either descriptive or experimental (Lee & Bean, 2007). This research follows a qualitative research method and is based on the philosophy of interpretive social science as described by Neuman (2011) as social research that puts emphasis on meaningful social action, socially built meaning and value relativism. Neuman (2011:70) defines the inductive approach as “an approach for developing or confirming a theory that begins with concrete empirical evidence and works toward more abstract concepts and theoretical relationships.”

3.4 Research strategy

According to Neuman (2011) the research strategy consists of five goals namely:

- capacity for building strength on research systems,
- priorities that support the research on income countries,
- standards creates valuable research practice and enables research tools and materials,
- translation for ensuring quality into research products and policy and also
- organisation empowering the research culture and improves the management and coordination of research activities.

The research strategy gives direction to the efforts, makes sure that the efforts have been planned properly and enable the research to be conducted methodically. It assists researchers to improve the quality of research and saves time.

3.4.1 Case study as a research strategy

Case study, as a strategy describes a research method. The following discussion shows how the case study can be used. Case study is the common qualitative method used in information systems research (Orlikowski & Baroudi, 1991; Alavi & Carlson, 1992; Robson, 2002; Yin, 2003, Yin, 2009). Robson (2002:178) defines case study as “a strategy for doing research which involves an empirical investigation of a particular contemporary phenomenon within its real life context using multiple sources of evidence.” Yin (2003:146) defines the case study as “when the boundaries between the phenomenon being studied and the context within which it is being studied are not clearly evident.” Case studies are compatible to IS research, since information systems studies of organizations has shifted to organizational from technical issues (Benbasat et al., 1987).

Case study research can be positivist, interpretive, or critical, depending upon the underlying philosophical assumptions of the researcher. Benbasat et al. (1987) and Yin (2002) are supporters of positivist case study research, whereas Walsham (1993) supports interpretive in-depth case study research. In recent years Yin (2009) also includes the possibility of a case study as an in-depth interpretive strategy. This research is based on a case study.

3.4.2 Research process

Blankenship (2010:1) explains the research process as a “systematic process that focuses on being objective and gathering a multitude of information for analysis so that the researcher can draw a conclusion.”

According to Van de Ven (1992) the research process strategy varies and cannot be contained within any paradigm. He advises researchers to be clear about the meaning of process in their research, to be explicit about the theory of process and to design a research process in a manner consistent with the definition and theory of process.

Van de Ven (1992) argues that process is often used in three ways in the literature:

- As logic used to explain a casual association in a variance theory
- As a category of concepts that refer to actions of organizations and
- As a sequence of events that describes how things change over time.

This process is useful for the current research because it shows the framework that explores the issues facing the PGWC.

3.5 Research design

Research design deals with a logical problem and not a logistical problem (Yin, 2003). The research design ensures that the evidence obtained enables the researcher to answer the initial question as clearly as possible. Obtaining relevant evidence entails specifying the type of evidence needed to answer the research question, to test a theory, to evaluate a programme or to accurately describe some occurrence. The logic model has been designed to help organize the justification and design of this study. A working version of the logic model is provided in Appendix D.

3.6 Ethical considerations

The standard of ethical social research principles such as privacy, anonymity and confidentiality used in this research was based on (Neuman, 2011). The researcher agreed to conform to accepted standards and principles expected of not revealing an interviewee's name, to acquire the permit provided in Appendix B to do the interviews from governmental departments of PGWC, to endeavour at all times to ensure that the data collected is only used for research purposes and also not to circulate the information of PGWC. The interviewees were provided with the academic letter in Appendix C giving permission for doing this research.

According to (Leedy & Ormorod, 2005) harm might be caused by:

- observing the behavior of informants without their being aware,
- allowing personal information to be made public which informants would want to be kept private, and
- failing to observe/respect certain cultural values, traditions or taboos valued by the informants.

Several methods for dealing with these issues may be recommended:

- informing the interviewees that the interviews are recorded and
- ensuring the confidentiality of the data obtained.

3.7 Data collection

The data collection methods used were a questionnaire, literature, interviews and internal documents. The research data was collected in a systematic way, to establish what is seen to be good practice, and from staff of the Centre for e-Innovation in the Planning and Development Directorate in the Department of the Premier, in order to understand the

experiences of EA within the PGWC. The two principal perspectives followed by the study are interviews and questionnaires.

3.7.1 Interviews

Interviews were used (Brassard, 1988) to get an understanding of enterprise architecture as it has been experienced in PGWC. Interviews targeted the senior and lower managers involved with EA, and also experienced employees that understand the business and have EA-related skills. For the interviews, the sample included the group of Application Development Managers (ADM), Technology Managers (TM) and employees for the Planning and Development Directorate including the IT department employees and senior managers. The Planning and Development Directorate consists of twenty staff including the managers. Eight key role players were interviewed.

3.7.2 Questionnaires

Questionnaires can be used to elicit research data from a wider selection of employees in PGWC. The design of the semi-structured questionnaires was guided by the IMBOK framework (Bytheway, 2004). The questionnaire was based on the literature review and the experience of other researchers to ensure that all questions were concise and well understood. Questions were put in a systematic sequence to ensure the flow of the interview.

3.7.3 Other sources of data

The focus of the literature and document review was to establish best practice as seen by experts of all kinds from various sources. Data from the interviews and questionnaires were compiled from sources within the Department of the Premier in the Planning and Development Directorate, including papers, articles, journals, books and policy documents. The Directorate is responsible for planning and developing projects and services across departments, and therefore it might be necessary to extend data collection into other departments within the provincial government.

3.7.4 Unit of analysis

The units of analysis for this study were the employees of PGWC. PGWC consists of thirteen departments. These departments are the Department of the Premier, Community Safety, Provincial Treasury, Environmental Affairs and Development Planning, Economic Development and Tourism, Sports and Culture, Local Government, Human Settlements, Education, Health, Social Development, Transport and Public Works and Agriculture.

The selected participants were employees of PGWC. They belonged to different divisions and in the roles that involve EA within the organisation such as:

- Enterprise Architecture Specialists
- Application Development Manager
- Services Manager
- Technology Manager

These employees are engaged with EA business and IT on a daily basis. The key roles that were selected focused on aligning business and IT in order for EA to be implemented in the organisation. The selected participants in the organisation provided the input regarding the EA perspective and also on how it relates to other functions in IT.

Background information was obtained from each participant to ensure that they have appropriate knowledge of EA and that they understand the business and IT applications, to ensure that they can provide valuable feedback for the interviews. The researcher was also aware that the participants were experienced in their fields and highly qualified. Table 3.2 displays the research interviewee profile for the employees, with whom interviews were conducted, for this research.

Table 3.2: Summary of interviewee profile

Interviewee	Division	Designation	Years of Experience
1	Ce-I: Policy and Strategy	Director	9
2	Ce-I: Planning and Development	Enterprise Technologist	4
3	Ce-I: Planning and Development	Enterprise Architect	11
4	Ce-I: Planning and Development	Enterprise Architect Specialist	7
5	Ce-I: Data Support	Service Desk Support	5
6	Ce-I: Infrastructure	Technology Manager	18
7	Ce-I: Economic, Governance and Administration	Services Manager	23
8	Ce-I: Economic,	Application	26

	Governance and Administration	Development Manager	
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Table 3.2 lists the division in which the employee worked, their designation as well as the number of years of experience worked in their particular fields, in order to provide a clear understanding of, and details about the participants.

3.7.4.1 Interview questions

Interviews were used as the main data collection techniques. The interview questions were designed to ensure that the necessary data was collected for this study. The questions were designed according to a particular theme and its objectives as shown above on section 3.6.4.1 of the interview guide. The summary of the interviewees' respondents is provided on Appendix F. The four major themes had the following objectives:

- To develop a proposed suitable framework for EA strategy deployment for PGWC.
- To establish an understanding of EA concepts and the basis for these concepts.
- To identify the stakeholders involved in EA deployment and how they participate in deployment process.
- To investigate the current deployment status of the PGWC IT and business strategies.

3.7.4.2 Interview guide

According to Bogdan and Biklen (1982) qualitative interviews may be used as the primary strategy of data collection or with the combination of observation and document analysis. An interview uses open-ended questions that have been agreed and will cater for individual differences. Patton (1990) states that they there are three types or qualitative interviewing namely:

- Informal, conversational interviews
- Semi-structured interviews and
- Standardized, open-ended interviews

Strauss and Corbin (1990:175) define the qualitative interviews as “any kind of research that produces findings not arrived at by means of statistical procedures or other means of quantification”.

Table 3.3: Interview guide

Interview Question	Theme	Objective
1. What framework(s) did PGWC choose for their strategies?	Choosing suitable framework for PGWC	Develop a proposed suitable framework for EA strategy deployment for PGWC
2. What is the current status of EA in PGWC?		
3. How did PGWC go about choosing the different framework(s)?		
4. How do PGWC deploy the chosen frameworks within the organization?		
5. What could the benefits of EA for PGWC be?	Benefits of EA	Establish an understanding of EA concepts and the basis for this.
6. What do you understand about EA be in the context of PGWC?		
7. In your opinion what do you think about EA		
8. What are the stakeholders' expectations from EA?	Expectations and Alignment	Identify the stakeholders involved in EA deployment and how they participate in deployment process.
9. What is the attitude about the alignment between IT and business?		
10. What are the issues that influence the deployment of EA?	Deployment of EA	Investigate the current deployment status of the PGWC IT and business strategies.
11. What have been done so far to address those issues?		
12. What is generally seen to be "best practice" or "good practice" in the deployment of EA?		
13. What can PGWC consider to improve the deployment of EA?		

An interview guide (Table 3.3) directs a list of general topics or questions that the interviewer wants to explore for each interview and it ensures limited interview time. It assures that the same information is obtained from each individual and that there are no fixed responses. The interviewer is free to investigate within the programmed areas in the semi-structured interviews. In qualitative research designs, interview guides can be customized to focus awareness on areas of particular importance or to exclude questions the researcher has found to be unproductive for the goals of the research (Lofland & Lofland, 1995).

3.7.4.3 Interview process

Fontana and Frey (2000) believe that interviews need to follow a procedure. Figure 14 below shows the steps to be followed for interview process.

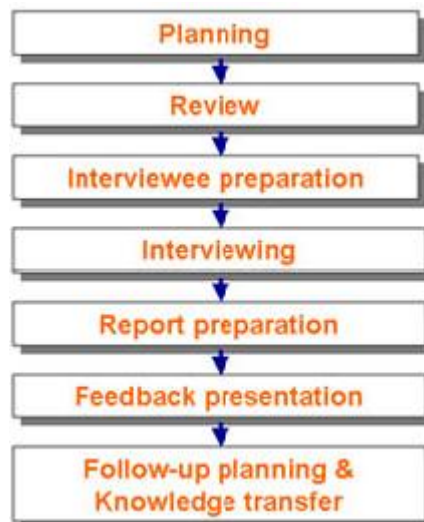


Diagram 3.3: Interview process (Fontana & Frey, 2000)

Diagram 3.3 highlights the steps that were followed when conducting the interviews. The research interview questions were drafted for interviews with the participants within PGWC and the researcher ensured that they were not complex. The review was done to check that the questions were in sequence and that the process for each flowed well, before conducting the interviews.

Each participant was given a brief description of the research and they were also informed that a permit had been granted to do the interviews within the departments in PGWC. Participants were informed about the purpose of the research and how it would contribute to the body of knowledge and within the organisation. They were requested to participate in one-on-one interviews and informed that their interviews would be recorded using the Dictaphone. After receiving their approval, meetings were scheduled for a week in advance for each individual to diarise the meetings.

The interviews were scheduled for an hour for each individual. Most interviews took between 50 minutes and an hour, but some took less time. Interviews were conducted in the departments within PGWC.

The researcher introduced themselves and gave a brief background of the research. The research interview questions guide that had been prepared was explained to the interviewee, and a brief description of what it entailed was given. The questions were asked in a sequential order, but some of the interviewees were able to provide more information that went deeper, and sometimes the answers covered other questions that had not been asked yet.

After conducting the interviews, the information was gathered and copied into an MS Word format document, and a report was prepared.

3.7.5 Verification technique

The answers to the interview questions were given back to the interviewees to find out whether the transcriptions had been done correctly and reflected what the interviewees had intended to say. The verification of interview answers was done by visiting all the EA experts and the interviewees, after the interview responses had been compiled and analysed (Kvale, 1989; Creswell, 1997).

The interview questions for EA determines if the EA questions meet the standards and if their outputs are correct. It also ensures that data has been validated through academic level.

3.7.6 Literature review

A Literature review examines data from range of sources that ultimately results in the compilation of known information on the subject of the research (Okoli & Scahbram, 2010). Useful information can be derived from a range of sources such as journal articles, internal organisation reports and databases. It is frequently used when information already exists on a theme so that this information can be collected in a concise manner and provides an informative report.

Further study of the literature permits an assessment and consolidation of what is currently seen to be good practice in the deployment of EA in organisations, and an understanding of the opportunities and challenges that EA actually presents.

3.8 Data analysis

Data analysis is principally concerned with a comparison of PGWC experiences with best practice. Data compiled from the desk study, interviews and questionnaires, were analysed and compared. The qualitative data analysis approach was used (Creswell, 1994) in order to establish some of the main directions in the collected data by looking at the summaries, categories and themes (Punch, 1998; Saunders, et al., 2009). Findings were derived from the analysis and interpreted to give possible recommendations for the deployment of EA in organisations such as PGWC.

3.9 Summary

The chapter described the research design and methods that were used in the research. It began with an introduction to research methodologies. The research philosophy section gave more details about the qualitative research which was followed, including why interpretive research was chosen. This was followed by the seven principles of qualitative interpretive research. The research approach is inductive.

The research strategy followed describing how the case study and literature review were used in the research. The research design that followed explained that it was necessary to ensure that everything was done based to a high academic standard. The data collection section followed, giving details about the collection and compilation of data from the case study, literature review, interviews and questionnaires and internal documents. It was explained that data was verified using the verification technique.

Findings will be derived from the analysis of the collected data in the data analysis section and interpreted to give a definition of issues affecting EA in PGWC.

CHAPTER 4: DATA COLLECTION AND FINDINGS

4.1 Introduction

The chapter presents the data collection and data analysis. According to Brynard and Hanekom (2006:3) “research encompasses the interpretation of data in order to reach a conclusion”. In order for results to be valid, the data to be collected should be reliable, and appropriate. The key aim of this study is to understand and explain the problems of implementing EA in PGWC. The objective is to assist PGWC to deliver benefits from the implementation of EA by proposing a possible framework to align business and IT in PGWC.

The data was collected through a case study where, semi-structured interviews were conducted and official documentation available from PGWC was considered. The literature review covered the articles from various sources including several data bases and websites.

In this chapter the focus is on the interviews (section 4.4.5) in order to understand the problems influencing the deployment of EA in PGWC. The recordings of the interviews were shared with the interviewees’ for their own references. The results of the data collected are used to do a preliminary test on the EA processes.

The structure of chapter 4 is represented in Diagram 4.1 below. The case study discussion is followed by profiling the interviewed participants. The interview guide is then discussed. The responses on the questions that were directly linked to the problem statement through the appropriate research questions were analysed. Chapter 4 ends with a summary of the data collected from the departments of PGWC followed with summary of the chapter.

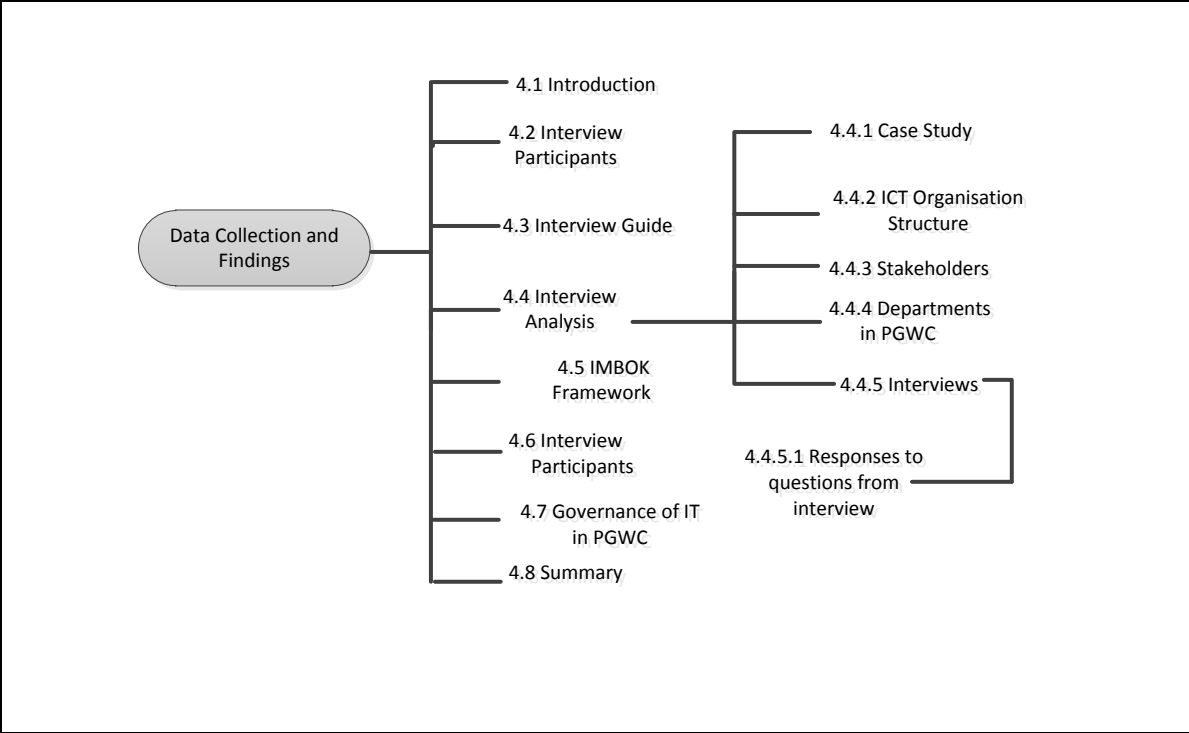


Diagram 4.1: Graphical representation of Chapter 4

Chapter 4 contains the following subsections: interview participants, interview guide, interview analysis and interview questions. Then it covers the proposed EA processes from the IMBOK framework, applying the framework, the governance of IT in PGWC and finally the summary of the chapter.

4.2 Interview participants

The selection criteria for the interview participants were discussed in detail in Chapter 3, section 3.6.1. The selected interviewed participants are employees of PGWC organization, including the EA experts from the Planning and Development division. Table 4.1 below shows (also Table 3.2) the interviewee profile, the division as well as the designation of each individual that was interviewed in the organization. The interviewee names are recorded as part of the data collection but not indicated in the thesis.

Table 4.1: Summary of interviewee profile

Interviewee	Division	Designation	Years of Experience
1	Ce-I: Policy and Strategy	Director	9
2	Ce-I: Planning and Development	Enterprise Technologist	4
3	Ce-I: Planning and Development	Enterprise Architect	11
4	Ce-I: Planning and Development	Enterprise Architect Specialist	7
5	Ce-I: Data Support	Service Desk Support	5
6	Ce-I: Infrastructure	Technology Manager	18
7	Ce-I: Economic, Governance and Administration	Services Manager	23
8	Ce-I: Economic, Governance and Administration	Application Development Manager	26

The selected participants are a combination of senior and lower experienced managers involved in EA, and employees that understand the business and have EA related knowledge. For the interviews, the sample included the application development manager, the technology manager, employees and EA experts from the Planning and Development division within PGWC, including IT employees.

4.3 Interview guide

In qualitative research designs, interview guides can be customized to focus awareness on areas of particular importance or to exclude questions the researcher has found to be unproductive for the goals of the research (Lofland & Lofland, 2005). The interview questions were prepared to ensure that the interviews adequately addressed the following objectives:

- To investigate the current deployment status of the PGWC IT and business strategies
- To identify the stakeholders involved in EA deployment and how they participate in deployment process
- To establish an understanding of EA concepts and the basis for these concepts
- To develop a proposed suitable framework for EA strategy deployment for PGWC

4.4 Interview Analysis

4.4.1 The Case Study

The Republic of South Africa (RSA) is divided into nine provinces. This study was done at the Provincial Government of the Western Cape (PGWC) in the Department of the Premier (DotP) which is one of the thirteen departments that constitute the PGWC. DotP consists of five divisions namely: Private Office of the Premier, Office of the Director General (DG), Governance and Integration, Institutional Improvement and Development and e-Innovation. There are thirteen departments within the PGWC. These departments are the Department of the Premier, Community Safety, Provincial Treasury, Environmental Affairs and Development Planning, Economic Development and Tourism, Sports and Culture, Local Government, Human Settlements, Education, Health, Social Development, Transport and Public Works and Agriculture.

The Centre for e-Innovation (Ce-I) is a branch within the Department of the Premier in PGWC, managing the ICT needs of (the above mentioned)[all thirteen] departments (PGWC, 2010). The Ce-I's vision is to *“facilitate the direction of effort in such a manner that it meets the concerns and requirements of the relevant EA stakeholders within PGWC.”* (PGWC, 2010). Ce-I is seen as one of the remaining provincial ICT units because it has the directorates that provide services to other branches. Ce-I is divided into two chief directorates namely Strategic ICT Services and the Governance Information Technology Organisation (GITO) Management Services. Chief directorate: Strategic ICT Services have the following units namely ICT Policy and Strategy, ICT Planning and Development and e-G4C. Chief directorate: GITO Management Services has the following units namely ICT Infrastructure, GITO Health Social Development, GITO Education, Cultural Affairs and Sport and GITO Economic, Governance and Administration.

4.4.2 ICT organisational structure

Diagram 4.2 shows the structure of the Ce-I ICT department in PGWC. The study focuses in the Department of the Premier, in the Centre for e-Innovation in PGWC. The Chief Information Officer is the head of Ce-I and also a member of the Departmental Information Technology Committee (DITCOM) who has an Administrative Support and Project Office, which takes part in Ce-I's decision making. Ce-I is divided into two chief directorates which are Strategic ICT Services and Government Information Technology Organisation (GITO) Managements Services, and these directorates are further sub-divided.

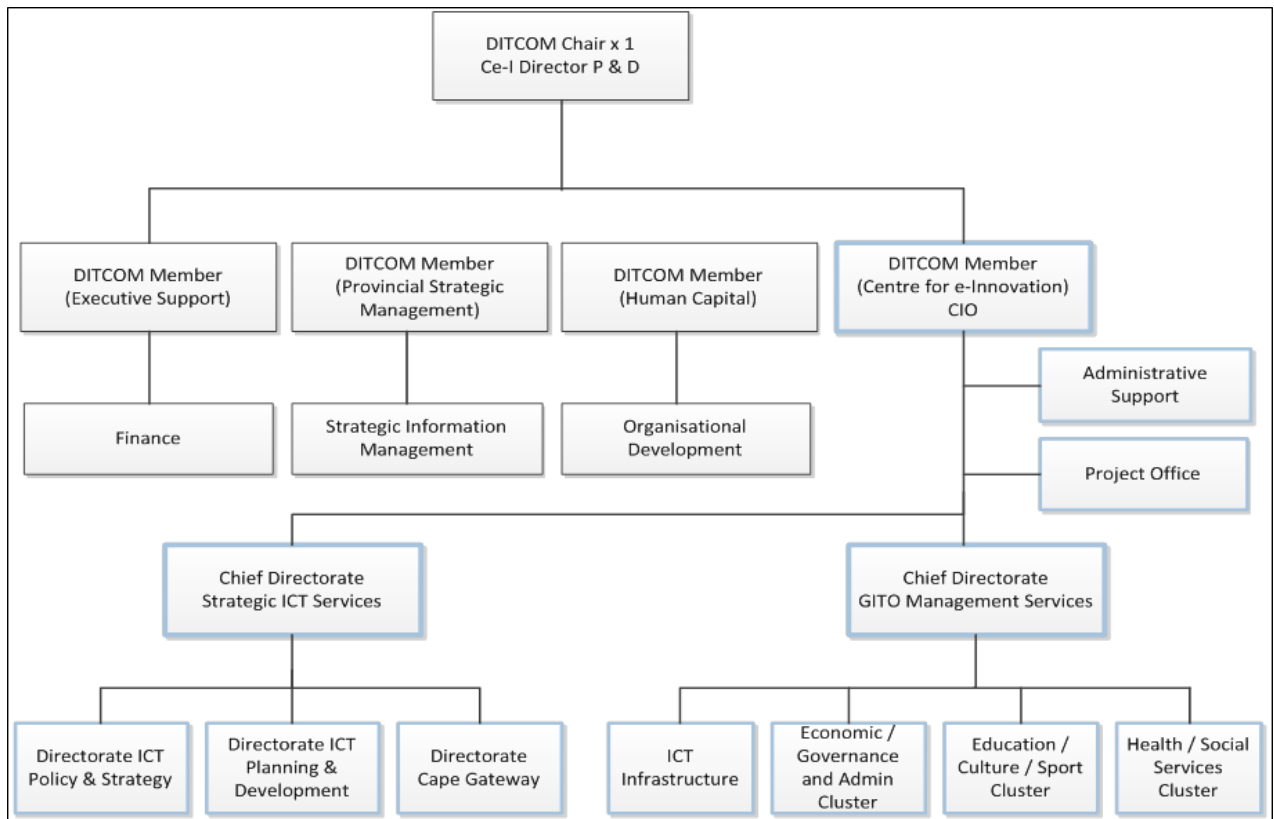


Diagram 4.2: ICT Organisation structure and PGWC Ce-I: ICT Strategy (PGWC, 2010)

4.4.3 Stakeholders

The following stakeholders in the PGWC were identified for EA because they are involved in the EA decision-making process. They are the following: Chief Executive Officer (CEO) Chief Financial Officer (CFO), Chief Information Officer (CIO), Program Management Office, Line Management i.e. Senior Business Managers and Executive Management i.e. Heads of Departments Directors (Ds), Director Generals (DGs), Service Generals (SGs), Deputy Director Generals (DDGs) and Chief Director (CDs).

4.4.4 Departments in PGWC

The Department of the Premier is the umbrella of all the other twelve departments and ensures that services are provided for and delivered to all of them. Each department has a different vision. This situation poses a potential problem for the successful implementation of any EA framework, strategy, methodology or process, as these visions do not always support each other. It could be said that this individual vision of the DotP is a rather strange way to manage a “company” as the main vision must be the overarching vision, with the other departmental visions supporting the main vision. It can therefore be seen that different agendas have been created, resulting in a confused and complex IT environment.

Table 4.2 below selects three of the high level departments within PGWC, to show each individual vision, objective and business strategy. Not all the departments are selected to be shown.

Table 4.2: PGWC departments with individual visions, objectives and business strategies

PGWC Departments	Premier
Premier Cultural Affairs & Sport Environmental Affairs and Development Planning Economic Development & Tourism Community Safety Education Health Provincial Treasury Transport & Public Works Local Government Human Settlements Social Development Agriculture	Vision: Building an open opportunity society for all in the Western Cape Objective: To render efficient, economic and effective administrative support services to the premier on a daily basis To provide departmental management support Business Strategy: Premier is responsible for providing support to PGWC
	Human Settlement
	Vision: Developing integrated & sustainable HS with access to social and economic opportunities for all the province's citizens Objective: To be effective agents of change in capacitating & supporting municipalities To facilitate delivery through sound administration & engagement of all governments & social partners Business Strategy: HS is responsible for promoting sustainable integrated HS development in WC
	Community Safety
	Vision: Safer open opportunity society for all, free of the fear of crime Objective: To promote freedom & opportunity for all people of the province by improving efficiency & effectiveness in safety and security Business Strategy: CS may investigate any complaint of police inefficiency in relations of the WCG

Table 4.2 shows that each department has its own vision, objective and business strategy and that they are completely unrelated to one other.

4.4.5 Interviews

4.4.5.1 Responses to questions from interviewees

The questions posed to the selected interviewees are linked to the research questions and sub questions where applicable (Table 4.3). The responses of the interviews were voice as well as text recorded. The summary of the interviewees' responses is provided in Appendix F. The summary of the results is provided in Appendix E.

Table 4.3: Linking the research questions, sub questions and interview questions

Research questions	Sub research questions	Interview questions
Research main question	How is enterprise architecture be deployed in PGWC in order to deliver the benefits?	
1.What framework(s) did PGWC choose for their EA strategies?		Q1. What framework(s) did PGWC choose for their strategies?
		Q2. What is the current status of EA in PGWC?
2. How do PGWC deploy the chosen frameworks within the organisation?		Q3. How did PGWC go about choosing the different framework(s)?
		Q4. How do PGWC deploy the chosen frameworks within the organization?
3. What steps could be taken in order to deliver the benefits of EA at PGWC?	3.1 What benefits do EA offer to the organisation?	Q5. What could the benefits of EA for PGWC be?
		Q6. What do you understand about EA be in the context of PGWC?
		Q7. In your opinion what do you think about EA
	3.2 What are the stakeholders' expectations from EA?	Q8. What are the stakeholders' expectations from EA?
		Q9. What is the attitude about the alignment between IT and business?
	3.3 What are the issues that influence the deployment of EA?	Q10. What are the issues that influence the deployment of EA?
		Q11. What have been done so far to address those issues?
	3.4 What is generally seen to be "best practice" or "good practice" in the deployment of EA?	Q12. What is generally seen to be "best practice" or "good practice" in the deployment of EA?
		Q13. What should PGWC consider to improve the deployment of EA?

4.4.5.2 Responses to interview questions:

Q1: What framework(s) did PGWC choose for their EA strategies?

Question 1 determines what framework(s) PGWC chose for their strategies. Table 4.4 below indicates the framework that PGWC tried to follow when planning to do the EA deployment.

Table 4.4: Question 1 and summarized responses

Question 1	Summary of data collected from interviews
What framework(s) did PGWC choose for their strategies?	<ul style="list-style-type: none"> • In the past five years PGWC adopted the Zachman's and FEA frameworks • They followed the components of Zachman's framework • TOGAF is the current architecture of choice

Interviewee 3 mentioned that for the past five years PGWC tried to use components of Zachman's framework to meet the expectations of PGWC. This strategy was unsuccessful. What is of more concern is that for but one interviewee no other interviewee even mentioned that TOGAF is currently the EA of choice. This is important as it seems that the TOGAF strategy is also heading for failure.

Question 1 Response Summary:

The Zachman's and FEA frameworks were adopted by PGWC but they did not meet the expectations of PGWC.

At this point of time (2012) the TOGAF is the architecture of choice

Q2: What is the current status of EA in PGWC?

Question 2 probes the interviewees in order to get the current status of EA within PGWC. Table 4.5 below highlights the current status of EA in in PGWC.

Table 4.5: Question 2 and summarized responses

Question 2	Summary of data collected from interviewee
What is the current status of EA in PGWC?	<ul style="list-style-type: none"> • Gathered information on business strategy • Foundation has been laid and documentation has been done • Still on baseline information • Still in the planning phase • In development stage

The interviewees gave different responses on the status of the EA at PGWC. Interviewee one states that the status of EA at PGWC is in the planning phase. Interviewees two, three, six and eight agree that the status of EA is in the development phase and they are gathering information on business strategy. PGWC is compiling the information and preparing the documentation which involves government policies.

Question 2 Response Summary:

There are inconsistencies to the question and the interviewees do not know exactly what the status of the deployment of EA is within PGWC.

Q3: How did PGWC go about choosing the different framework(s)?

Question 3 is asked to determine whether interviewees new, were aware part of choosing the frameworks deployed at PGWC. Table 4.6 represents the evasive answers from the interviewees.

Table 4.6: Question 3 and summarized responses

Question 3	Summary of data collected from interviewees
How did PGWC go about choosing the different framework(s)?	PGWC evaluated different frameworks, e.g. Zachman's, FEAF, but TOGAF provided practical approach to doing EA. The national government also uses TOGAF, so PGWC are aligned with national government.

None of the interviewees could give any clear indication of how the selection took place.

Question 3 Response Summary:

The interviewees could not explain or demonstrate how the frameworks were selected.

Q4: How do PGWC deploy the chosen frameworks within the organization?

Question 4 explores how the TOGAF framework is being implemented by PGWC. Table 4.7 below summarises how PGWC deploy the chosen framework within the organization.

Table 4.7: Question 4 and summarized responses

Question 4	Summary of data collected from interviewees
How do PGWC deploy the chosen frameworks within the organization?	<ul style="list-style-type: none"> • PGWC have tried to deploy FEA and Zachman's frameworks but neither of them delivered the benefits as expected by business. Currently PGWC is in the process of developing certain components of the TOGAF administrator viz. business, information, application and technology. • In some instances PGWC went further

	by developing opportunities and solutions for specific requirements.
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Table 4.7 It is not clear from the answers that a specific approach for the deployment of the EAs were followed. No evidence of a deployment strategy or methodology could be uncovered.

Question 4 Response Summary:

No deployment strategy or methodology was followed within PGWC.

Q5: What could the benefits of EA for PGWC be?

Question 5 is asked in order to explore what benefits the interviewees expected after the implementation of EA. The responses of the interviewees are shown in Table 4.8.

Table 4.8: Question 5 and summarized responses

Question 5	Summary of data collected from interviewees
What could benefits of EA be?	<ul style="list-style-type: none"> • Reduce cost implication, save on budget and time • Eliminate duplication of systems • Plan the foundation and agile to change • Change in technology • Improve on time response • Information to be accurately • Consolidating information • Library of processes and one common frame for entire organization • Improve on communication • Add employee standards and infrastructure in the organization

Question 5 Response Summary:

Interviewees had dispersed expectations of EA benefits.

Q6: What do you understand about EA in the context of PGWC?

Question 6 also endeavors to get a better understanding of how the interviewees understand EA within the context of PGWC. Table 4.9 shows the responses of the interviewees understanding of EA within the context of PGWC.

Table 4.9: Question 6 and summarized responses

Question 6	Summary of data collected from interviewees
<p>What do you understand Enterprise Architecture (EA) in the context of PGWC?</p>	<ul style="list-style-type: none"> • It is a health plan when deploying infrastructure, agile and how it affects the organization • It is for planning and give guidelines on business processes • It consolidates organisation's information • It quickly generates reports • It provides transverse solution within departments • It's a practice that adding value and putting business and IT together • It uses IT for all business strategy • It brings business closer into technology • It involves IT with business processes and infrastructure • It is easier to operate • It is a sharing of data and infrastructure, to work better

It's clear that two out of eight interviewees do not understand EA although they are aware of the concept.

Question 6 Response Summary:

The interviewees do not fully understand the principles of EA and the benefits to the organization.

Q7. In your opinion what do you think about EA?

Question 7 is the follow up to Question 6 to gain a better understanding of what the opinions of the interviewees entail about EA (Table 10).

Table 4.10: Question 7 and summarized responses

Question 7	Summary of data collected from interviewees
In your opinion what do you think about EA?	<ul style="list-style-type: none"> • It's all about consolidating information for the organisation • EA has a view of all the business and ICT of the organization

Question 7 Response Summary:

Only two interviewees were able to give a limited view on EA and the importance of it in the organization.

Q8: What are the stakeholders' expectations from EA?

Question 8 is a follow up question to derive the stakeholder's expectations. Table 4.11 below highlights the **stakeholders'** expectations from EA.

Table 4.11: Question 8 and summarized responses

Question 8	Summary of data collected from interviewees
What are the stakeholders' expectations from EA?	<ul style="list-style-type: none"> • Integrate on EA, policies would be changed • Assisting on IT deliverance in the organization • Understanding and implementation of EA, would bring change • Deliver model of business services

The perception of the interviewees of what the stakeholders expected was that by implementing EA, needed changes could be affected. This would result in a better alignment of business and IT therefore improve service delivery. The interviews were conducted with the stakeholders at PGWC and the six of the interviewees shared almost the same view about EA.

Question 8 Response Summary:

EA is seen by the stakeholders as a change agent to bring about more alignment between business and IT.

Q9: What is the attitude within PGWC on the alignment between IT and business?

Question 9 is posed in an attempt to determine the alignment “climate” between business and IT. Table 4.12 below highlights the attitudes expressed on aligning between IT and business.

Table 4.12: Question 9 and summarized responses

Question 9	Summary of data collected from interviewees
What is the attitude about the alignment between IT and business?	<ul style="list-style-type: none"> • There are recognition of shortcoming between business and IT • People don't like change because they don't understand EA and IT as well • Some of the employees are not happy with the alignment between business and IT

Question 9 and summarized responses:

There is a misalignment between business and IT and employees are unhappy with the situation.

Q10: What are the issues that influence the deployment of EA?

The question was posed to determine if there are issues and any hidden issues that influence the deployment of EA at PGWC (Table 13).

Table 4.13: Question 4 and summarized responses

Question 10	Summary of data collected from interviewees
What are the issues that influence the deployment of EA?	<ul style="list-style-type: none"> • Resistant to change in departments within PGWC • Positions given transversal are not clear • Lacking of management skills • Availability of employees, time and operational issues • Cost benefit associated • Require more education about EA • Poor communication at PGWC • People are not sharing the information and having attitude

	<ul style="list-style-type: none"> • Repository tool that has been used, it's case wise and people are not familiar with it • Training budget is not available
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Question 10 and summarized responses:

The main factors can be summarized as communication, understanding of EA and change management.

Q11: What have been done so far to address the issues?

Question 11 is a follow up question that gathers information on how the highlighted issues in PGWC have been addressed. Table 4.14 lists the steps that have been taken to address the issues influencing the EA implementation in PGWC.

Table 4.14: Question 11 and summarized responses

Question 11	Summary of data collected from interviewees
What have been done so far to address the following issues? <ul style="list-style-type: none"> • Resistant to change in departments within PGWC • Positions given transversal are not clear • Lack of management skills • Availability of employees, time and operational issues • Cost benefit associated • Require more education about EA • Poor communication at PGWC • People are not sharing the information and having attitude • Repository tool that has been used, it's case wise and people are not familiar with it • Training budget is not available 	<ul style="list-style-type: none"> • Concentrating on business architecture specifications • Review on strategic plan • Looking at business buy-in • Build trust and friendship relationship with employees • Participation in making decisions • Change infrastructure, procedures and time • Do the follow-ups • Need to understand information required from down to top management

Question 11 and summarized responses:

Understanding the information required from top to bottom and visa versa.

Q12: What is generally seen to be “best practice” or “good practice” in the deployment of EA?

Question 12 explores the views of “best practice” of the interviewees. Table 4.15 shows the data collected from the interviews.

Table 4.15: Question 12 and summarized responses

Question 12	Summary of data collected from interviewees
What is generally seen to be “best practice” or “good practice” in the deployment of EA?	<ul style="list-style-type: none"> • To align business processes with IT • Improve on governance and improve on how the organization take decisions • Planning of infrastructure and on how deploy application • Mechanism in change • Change management takes place • Able to change people and policies • Governance in standard • In governance, framework and everything should be documented

Question 12 and summarized responses:

Implement IT governance

Implement change management

Quality documentation

Quality decision making

Q13: What can PGWC consider to improve the deployment of EA?

Question 13 shows what PGWC need to consider improving the deployment of EA. Table 4.16 below brings up some ideas on what to consider in order to improve the EA implementation.

Table 4.16: Question 13 and summarized responses

Question 13	Summary of data collected from interviewee
<p>What can PGWC consider to improve the deployment of EA?</p>	<ul style="list-style-type: none"> • Sign off the documentation by management in the specified time • Top management engagement about EA and ensure everything is adhered to the principle on governance • Expand communication internally and beyond EA alignment at PGWC • To understand the structure of the business and IT by non-operational • To consider resources, skill levels and training • To allocate more funding for the trainings • Buy-in organization • To bind top management on business • Project Charter from the top

It was suggested by the interviewees that by working together as a team, the employees can improve the deployment of EA in PGWC effectively and efficiently.

Question 11 and summarized responses:

Improve teamwork.

Improve IT governance

Involve top management

The findings of the data collected are presented in Table 4.17. This was done by summarizing the interviewees' responses, then identifying themes. The findings' codes are plotted on figures 5.3, 5.5, 5.6, 5.7 and 5.8 shown in Chapter 5 for discussions.

Table 4.17: A summary of the interviewees' answers to the questions, themes developed and the findings of the data collected

Themes	Summary of responses
Alignment	There is a shortcoming between business and IT and employees are unhappy with the situation
Benefits of EA	The interviewees do not fully understand the principles of EA and the benefits to the organization.
	Only two interviewees were able to give a limited view on EA and the importance of it in the organization
Change	EA is seen by the stakeholders as a change agent to bring about more alignment between business and IT
Communication	Understanding the information required from top to bottom and versa visa
Expectations	The Zachman and FEA frameworks were adopted by PGWC but they did not meet the expectations of PGWC.
	Interviewees had dispersed expectations of EA benefits
Governance	Best practice within PGWC.
	That governance is lacking
Knowledge	At this point of time (2012) the FEA is the architecture of choice
	There are inconsistencies to the question and the interviewees do not know exactly what the status of the deployment of EA is within PGWC.
	The interviewees could not explain or demonstrate how the frameworks were selected.
Management	The main factors influencing implementation of EA in PGWC can be summarized as i. communication ii. understanding of EA and iii. change management.
	Team work is lacking.
	Top management is not involved in EA
Strategy	No deployment strategy or methodology were followed within PGWC
	EA projects not well defined
Governance	IT projects outstanding
	System requirements outstanding
Communication	Support community is lacking
Requirements	Business processes not clearly defined
	Information system not all clearly defined
Alignment	Business and IT strategies not clearly defined and aligned
Findings	
1	Business and IT is not aligned
2	There is only a limited understanding of the benefits of EA to PGWC
3	The Zachman framework and FEA methodologies did not fulfil the expectations of PGWC
4	Employees lacks knowledge of EA as a strategy, method and tool within PGWC
5	Employees and stakeholders see EA as a change agent for PGWC
6	IT governance is lacking at PGWC
7	There is very little communication between the stakeholders of EA within PGWC
8	An EA deployment strategy is lacking
9	Top management is not involved in the complex environment of the EA discipline
10	No benefits from current EA project.
11	IT projects outstanding
12	System requirements outstanding
13	Support community is lacking
14	Business processes not clearly defined
15	Information system not all clearly defined
16	Business and IT strategies not clearly defined and aligned

4.5 Summary

In this chapter how interview data was collected in PGWC was described. It showed how the main and sub-research questions were used to generate questions that were used in the interviews, and the feedback that the respondents gave. Some employees gave positive feedback and others gave negative feedback about what they are experiencing currently in the organisation. The respondents suggested that if business and IT were brought together, then positive changes would happen within the departments of PGWC.

After conducting interviews with ten employees at PGWC who are Application Development Managers, Technology Managers, Services Managers as well as EA experts, two of the interviewees admitted that they did not know much about Enterprise Architecture but they were willing to assist with the research.

CHAPTER 5: DISCUSSION AND RECOMMENDATIONS

5.1 Introduction

The findings of chapter 4 as well as the contribution of the research are discussed in this chapter. This chapter explains in detail the results of the interviews and questionnaire based on theories and ideas from the literature that were set out in Chapter 2. Finally this chapter presents the guidelines and framework that have been developed as a result of the findings. Diagram 5.1 presents the structure of Chapter 5.

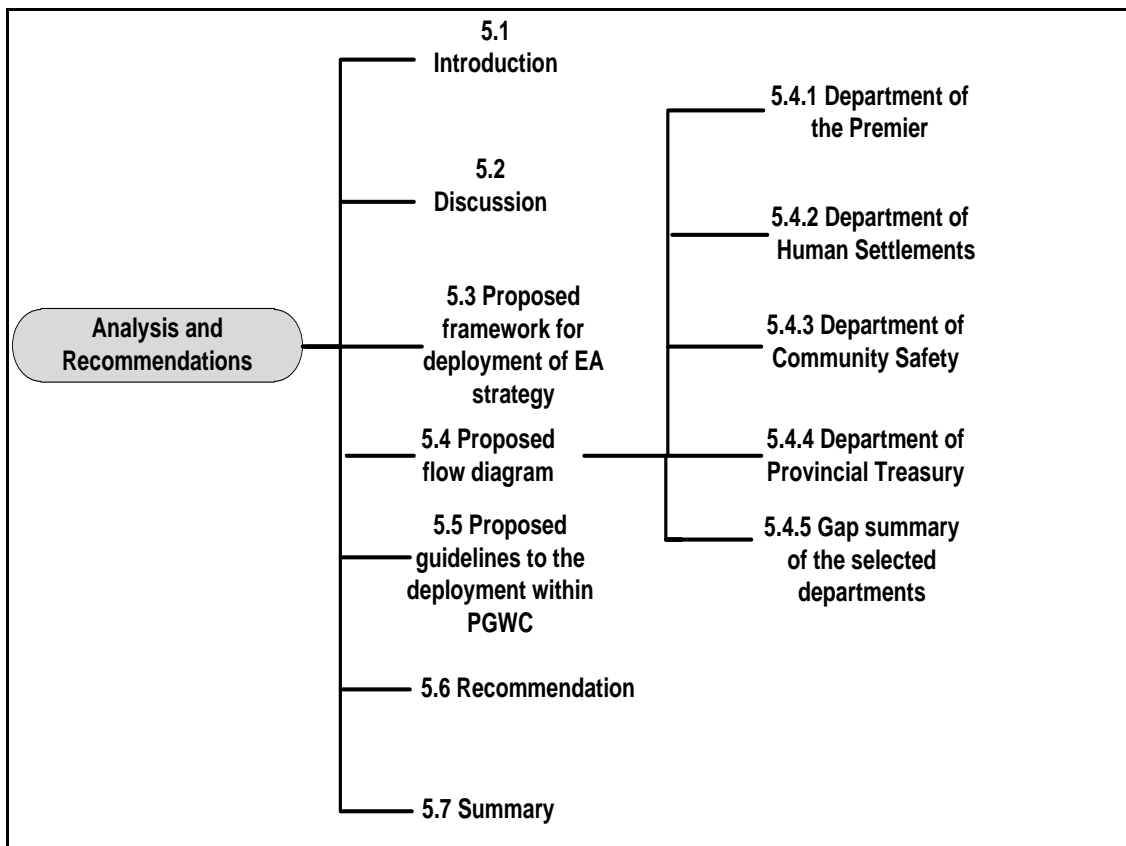


Diagram 5.1: Representation of Chapter 5

5.2 Discussion

This study is based on the problem statement that **the implementation of EA in PGWC has not delivered the benefits as expected by the business** with the main research question asking **how the enterprise architecture is deployed in PGWC in order to deliver the benefits**. The answers were provided by conducting interviews, conducting a literature review, using a single case study and studying internal policy documents, to determine how EA is being deployed in PGWC.

According to the research, the analysis of responses from the interviewees below could assist PGWC to deploy EA more effectively and by ensuring that all the descriptions are available when EA is implemented. Sub questions were used in order to assist the researcher to find an answer to the main question.

The following section is a discussion of the findings from answers given to the sub questions. Three sub questions were asked namely:

How did PGWC choose EA frameworks for their EA strategies?

How do PGWC deploy the chosen frameworks within the organisation?

What steps could be taken in order to deliver the benefits of EA at PGWC?

5.2.1 How did PGWC choose EA frameworks for their EA strategies?

Not all the employees at PGWC understand what EA is and the benefits and value it could offer the organisation. Some of the interviewee's definitions of EA show a lack of understanding of EA. This surprise finding places any attempt to implement an EA strategy at risk. An understanding of EA strategies is important in order to align business and technology, and to open the organisation to the benefits and value of EA.

EA enables the organisation to share information and infrastructure between the departments (Heald, 2006). EA could facilitate change in the organisation to bring the IT goals and objectives in line with the goals and objectives of the organisation as business and IT in PGWC are still working in silos (Lankhorst & Lars, 2005). By aligning IT with the organisation's business processes, business and IT will be forced to work closely together in order to achieve the goals and objective set out in the organisations strategic plan. For PGWC it is important to start with EA training of all employees so that they have a good understanding of what EA can and cannot do as well as the benefits and value that EA can bring to the organisation. Without such understanding the choice of which framework to use will be difficult, and could result in the wrong choice.

As first choice in 2006, PGWC chose the Zachman's framework as framework of choice. A year later 2007 they also introduced the Federal Enterprise Architecture framework, but the chosen frameworks did not work for them because, according to the interviewees, the frameworks did not fully take into account the needs of the organisation. PGWC then evaluated different frameworks such as Gartner, TOGAF and FEAF and decided that TOGAF provided a practical approach in doing EA. Furthermore, as PGWC needed to be aligned with the national government IT strategies the choice of TOGAF as a framework was a logical outcome of the process.

At PGWC, EA is still in the initiation phase. All the information has been gathered and the documentation has been done which includes the complex government policies. The Planning and Development section at PGWC is in the process of building each of the four components of the EA framework by, as a starting point, consolidating all the information required. Currently (in 2012) PGWC has deployed certain components of the TOGAF administrator such as business, information, application and technology. The organisation is also developing opportunities and solutions for specific requirements.

To conclude: from the interviews it seems that no specific methodology was followed when selecting a framework. There was no or little involvement of the organisation during the evaluation and /or decision making process. At this point in time (December 2012) although some attempt was made to involve more employees, central government decided to implement TOGAF as its national IT framework, leaving PGWC with little choice but to implement TOGAF as well.

5.2.2 How do PGWC deploy the chosen frameworks within the organisation?

Implementation was the responsibility of the IT department. Specific employees and consultants were tasked with the implementation. The organisation at large had little to do with the implementation and only small group was responsible for implementing the chosen frameworks. The absence of top and senior management in the implementation process was also problematic. These factors all lead to a culture of mistrust, disinformation, and unrealistic expectations. From the interviews it became clear that no best practices were followed in terms of EA deployment. There seemed to be no clear reason for this lack of diligence.

It is recommended that information and processes be documented and signed-off by all parties for future reference, and to ensure that the information conforms to governance standards. The top management should be involved and participate in decision making. The regulations and procedures in the organization need to be followed and practiced by all parties. By successfully deploying EA at PGWC best practice as a strategy should improve.

Taking into consideration the difficulties experienced while deploying an EA strategy within PGWC many aspects need to be considered. The complex environment of government also increases the risk of failure. In order to start the journey of EA deployment it is important that employees understand the structure of the business and IT and how IT aligns with business. Top management needs to work together with the middle and lower management in

whatever decision making that needs to take place in the organisation. Employees need to liaise with each other by sharing all the information and ideas which need to be transparent during the implementation process. The top management should also engage themselves in this process. Employees should know every process that takes place for EA alignment and ensure that everything adheres to the governance standards. In the case of PGWC the interviewees mentioned the lack of funding as an obstacle when deploying EA. More funding should be allocated in order to satisfy the employee's needs, and to consider their resources and skill levels. The communication should expand internally and beyond about EA alignment in PGWC. The organisation has been attempting to address the above issues by emphasizing an understanding of the information required throughout the organisation. An environment should be created to allow everybody to participate in decisions that need to be made and to share future plans.

It is recommended that regular follow up meetings be held with all role players and that the strategic plan be reviewed every quarter. Business processes need to be interrogated on an on-going basis in accordance to the continued improvement process philosophy (Ward & Peppard, 2002).

5.2.3 What steps could be taken in order to deliver the benefits of EA at PGWC?

With the introduction of EA as a strategy the stakeholders expected that business and IT would be aligned. They believed that by implementing EA at PGWC the resulting alignment of business and IT would increase the quality of service delivery, saving on costs and time. Unfortunately, as reported by the interviewees, this did not happen.

During the interviews, employees pointed out that by deploying EA in the organisation, a change in the way the business processes work should be evident, creating increased effectiveness in reaching the goals and objectives of PGWC. Some employees see one of the benefits of EA as a central point of truth, enabling everything to be transparent in all the departments. Although not all the interviewees understand the concepts of EA as a strategy, they all have expectations of what EA can offer them. In many cases it might be due to hearsay stories and misinformation spread by anti as well as pro advocates of the deployment of EA within PGWC.

There are many issues that influence the deployment of EA at PGWC. The main 7 issues are:

- the lack of change management,
- communication and coordination breakdowns in departments,
- lack of adequate budget,
- lack of skills,

- lack of policy coherence,
- lack of measurement of EA deployment, and
- lack of integration of information systems and complex business processes.

As mentioned earlier, some of the employees have negative attitudes towards the EA process because they do not understand EA and IT. Employees deploying the EA processes, highlighted that they cannot get support from other employees whilst attempting to implement EA in the organisation. Difficulty implementing EA at PGWC is enhanced by top management that does not give their full support to the middle management, or allow them to participate when decisions are made. This is a critical finding, as interviewee three and interviewee six stated.

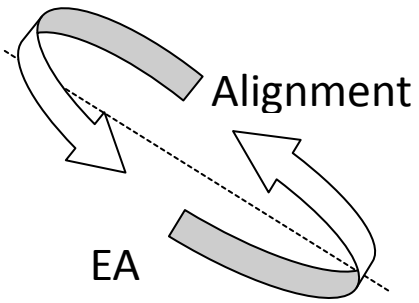
5.3 Proposed framework for the deployment of an EA strategy within PGWC

To answer the question of what steps need to be taken to successfully implement an EA deployment, an alignment framework was developed and proposed for PGWC. As a basis for the framework the IMBOK process of Bytheway (2011) was used. The IMBOK process as described in chapter 2 section 2.8 (diagrams 2.5, 2.6 & 2.7) follows a process from business strategies, business benefits, business processes, information needed, to technology to support the processes and *versa vice*. This iterative flow gives the organisation the opportunity to evaluate, and if need be, rectify specific issues due to challenges or opportunities. In a personal discussion with Bytheway (2012) author of the IMBOK process, the researcher voiced the opinion that the IMBOK framework needs to include the business vision and objectives as part of the process. He agreed that including the vision with its objectives as a sixth entity to the IMBOK framework would complete the circle as shown in diagram 5.2. Diagram 5.2 below shows the adapted framework with six entity domains, by showing the flow with the arrows while at the same time it is linked to the four pillars of EA namely, the formulation of the business strategy, planning and implementation, information system analysis and design, and operations and project management.

Diagram 5.3, presents the detailed adapted framework by showing the findings with the plotted codes across the domains and the pillars of EA. These diagrams were shown in Chapter 2 section 2.8. In diagram 5.3 it is showing the summarised findings with the codes plotted in this chapter. The codes are referred to in Table 4.18 in Chapter 4 section 4.4.4, which is called a summary of the interviewees' answers to the questions, themes developed and the findings of the data collected. From the proposed framework it is possible to see the gaps in the framework which identify issues with the deployment of EA in PGWC. The lack of alignment, not only with the business processes, but also with strategy and vision, is

apparent. PGWC needs to focus on these shortfalls in order to minimise the risks of failure when deploying an EA strategy.

Diagram 5.2 Proposed framework for the deployment of an EA strategy at PGWC:



IT
Requires IT infrastructure as well as methodologies and must be undertaken specifically with the business needs in mind, at the level of the business process

IS
The IS must support the BP and the management responsible for carrying out their mandate

BP
The BP that is most crucial to the success of the business.

BB
BS need to generate the BB that are sought

BS
Business strategy is formulated with specific regard to support the vision goals and objectives of the business

BV
Guides the business on a day to day as well as into the future basis

Formulation of business strategy
Business strategy is formulated with specific regard to the benefits that are sought, and the processes that are most crucial to the success of the business

Business strategy is formulated with specific regard to the vision, goals and objectives of the company. These strategies translate into a value chain that will lead to the benefits that are sought.

Planning Implementation
Implementation is concerned with who does what & how. In the matter of information systems, this requires IT acquisition, project planning and business change management

Implementation is concerned with who does what & how. In the matter of information systems, this requires IT acquisition, project planning and business change management

Information systems analysis and design
Systems analysis, design and implementation requires IT infrastructure and must be undertaken specifically with the business needs in mind, at the level of the business process

Systems analysis, design and implementation requires IT infrastructure and must be undertaken specifically with the business needs in mind, at the level of the business process

Operations research and Project Management
Project Management can extend over the whole spectrum, or it can be combined with project from other divisions or even outside projects such as outsourcing

Project Management can extend over the whole spectrum, or it can be combined with project from other divisions or even outside projects such as outsourcing

Diagram 5.2: Adaption of adaption framework from IMBOK framework

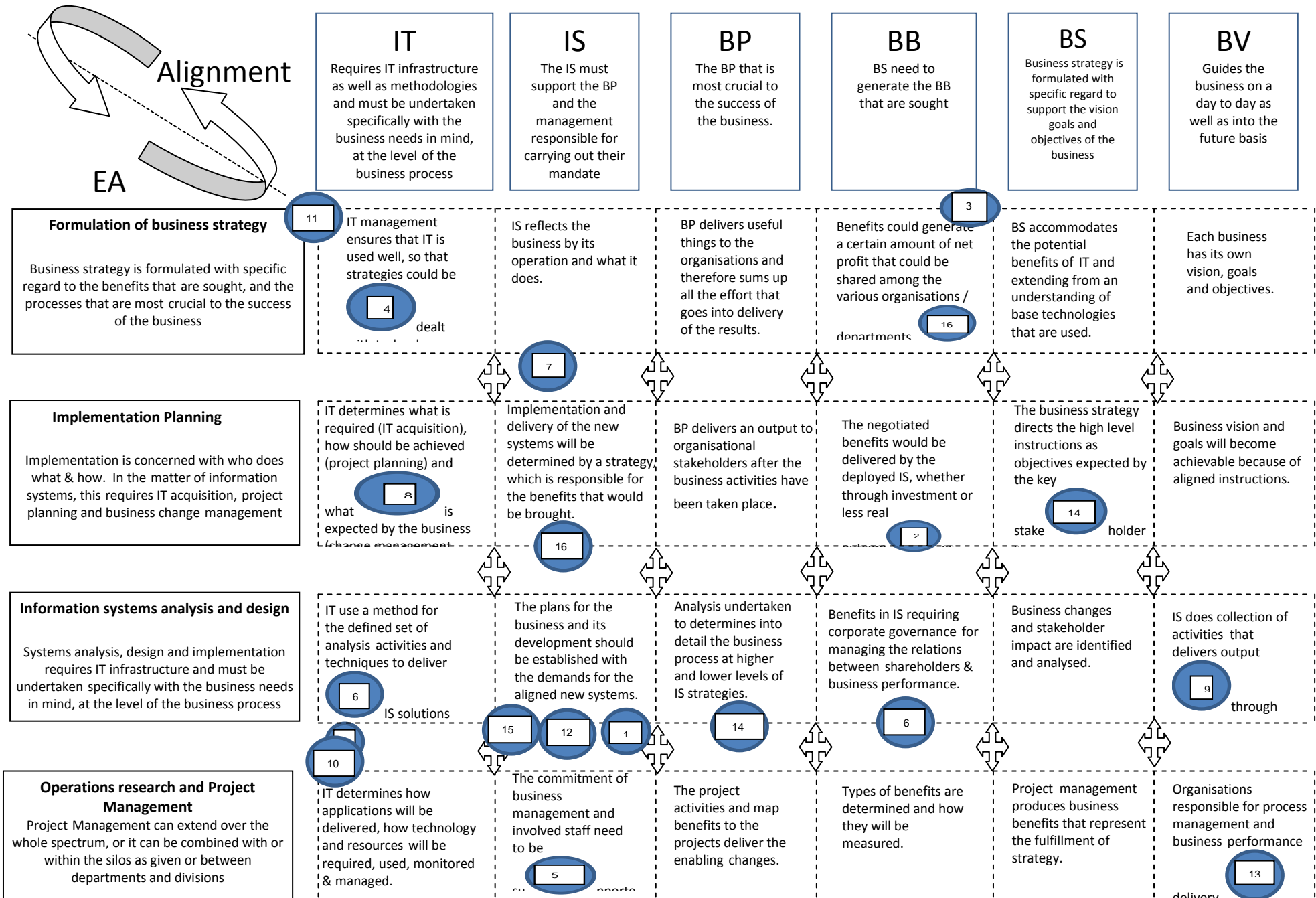


Diagram 5.3: Detailed adaption of adaption framework from IMBOK framework

5.4 Proposed flow diagram adapted from the proposed framework

The diagram 5.4 is repeated from Chapter 2. This shows the findings (□) of the research (Chapter 4 table 4.17) plotted onto the process diagram. In this diagram the data was applied to the 6 entities namely Business vision (BV), Business strategies (BS), Business benefit (BB), Business processes (BP), Information systems (IS) and Information Technology (IT). From the diagram it seems that the business processes as well as the BV and BS are in place. The main focus of the EA deployment is on technology with little regard to the business. The research shows that there are many shortcomings as far as IS and IT goes. It is important to note that the process is an iterative process that should be done on on-going bases.

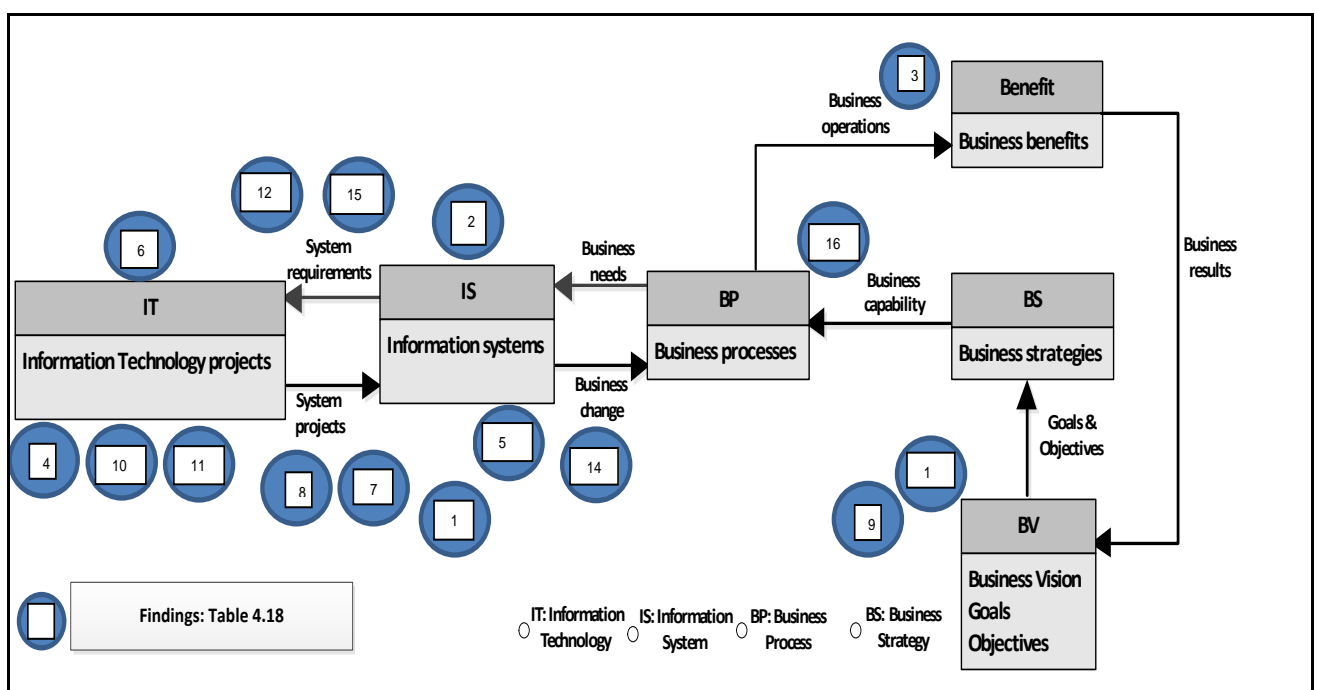


Diagram 5.4: Adapted framework from IMBOK framework (Bytheway. 2011)

The adapted framework in diagram 5.4 is used to show the different information sets for each department in all the six entity domains at PGWC, by displaying the projects, information systems, business processes, business benefits, business strategy and business visions. It indicates the summarised gaps and responses by displaying the codes to Diagrams 5.3, 5.5, 5.6, 5.7 & 5.8 and the break in the processes can easily be identified. The figures below showing the adapted IMBOK processes that are used in this study for PGWC. The selected departments listed in the figures below were interviewed. The findings are added to the proposed framework in an attempt to determine the gaps in the process of the

deployment of EA at PGWC. The departments that were selected are: Premier, Human Settlements, Community Safety and Provincial Treasury.

5.4.1 Department of the Premier

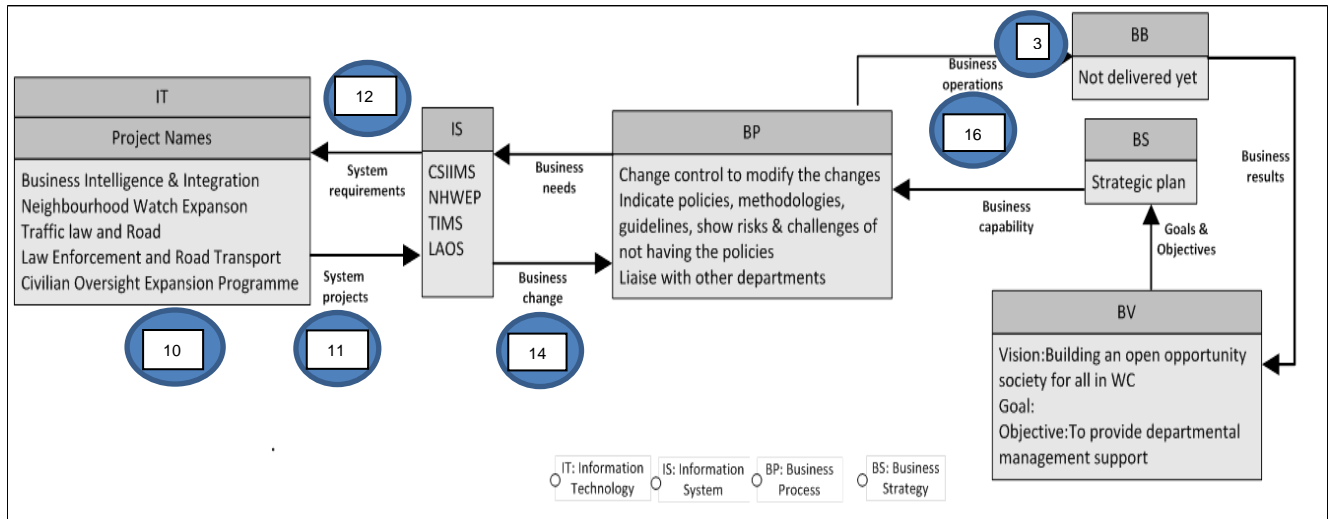


Diagram 5.5: Department of the Premier (DotP)

Diagram 5.5 shows that the benefits from FEA implementation are not yet delivered in the Department of the Premier and the strategic plan is not in place. Two of the ICT Services Managers that were interviewed in DotP highlighted that the business process that they followed has not fully been defined and is not in place. Both agreed that there is no business process in the department. IT produces the system projects that should be supported by technology. The IS creates the systems that are well supported by IT and the business. The link between IT and IS seems to be stable. However, there is a system called Expanded Partnership Programme (EPP) that should be generated under the project Civilian Oversight Expansion Programme that has not been developed, as the system requirements are not well defined. The Business Analyst will start by developing a Business Requirement Specification for the system and after that the developer will be doing the development. IT interacts with the business by communicating all the projects that should take place and that need to be approved by the Chief Information Officer (CIO) and Ce-I Top Management (CTM).

Summarised gaps and responses:

No benefits from current EA project.

Business processes lacking

IT projects outstanding

System requirements outstanding

The Zachman's framework and FEA methodologies did not fulfill the expectations of PGWC

Business and IT strategies are not clearly defined

5.4.2 Department of Human Settlements (Planning and Implementation Section)

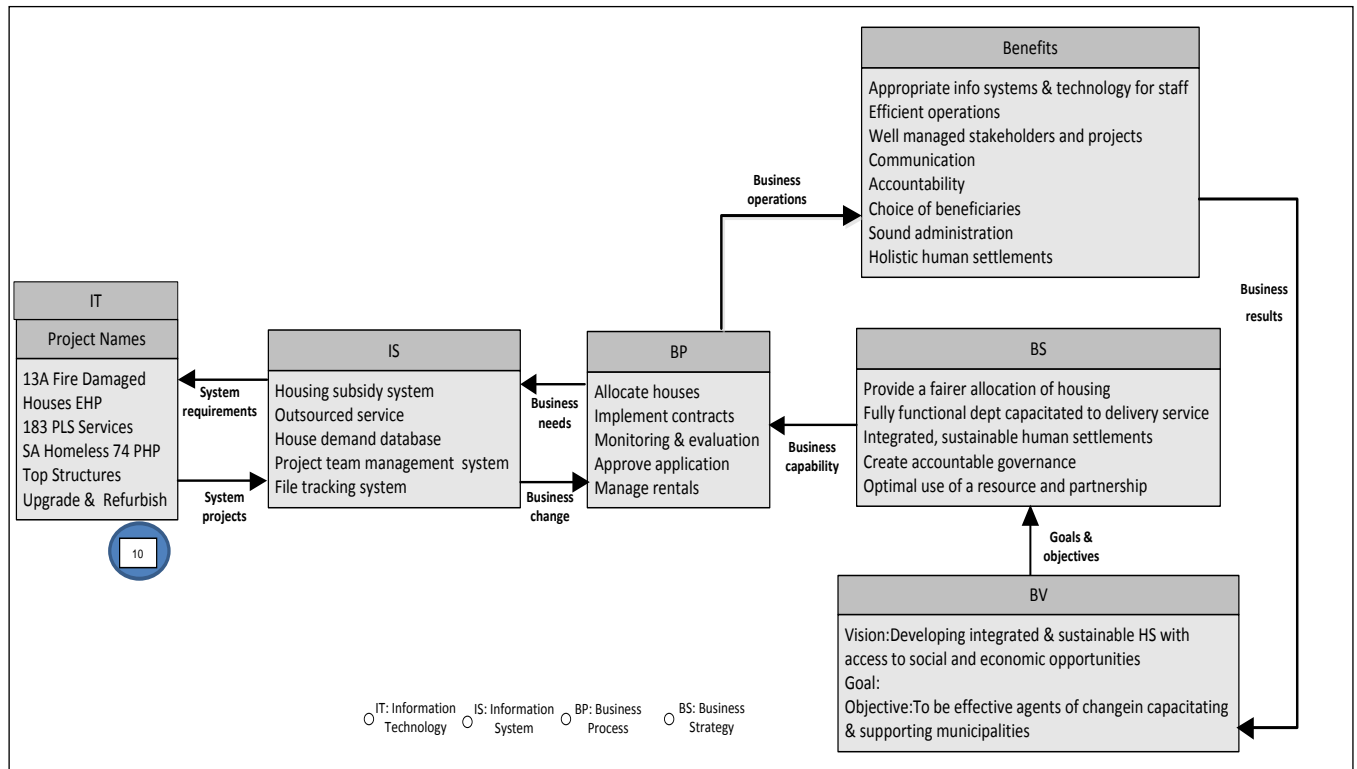


Diagram 5.6: Department of Human Settlements

In diagram 5.6 most the IMBOK processes seem to be in place. The project names are well defined and information systems are identified as well. The business processes and the other sections are well defined and adhered to although the benefits are still unrealised in this department. The interviewee explained that there are no benefits delivered yet from the EA implementation in their department although they have defined the goals and objectives. The interviewer proposed the benefits listed above in the diagram, that this department would require in the near future.

Summarised gaps and responses:

No benefits from current EA project.

System requirements not done

Lack of communication

5.4.3 Department of Community Safety (Safety and Security)

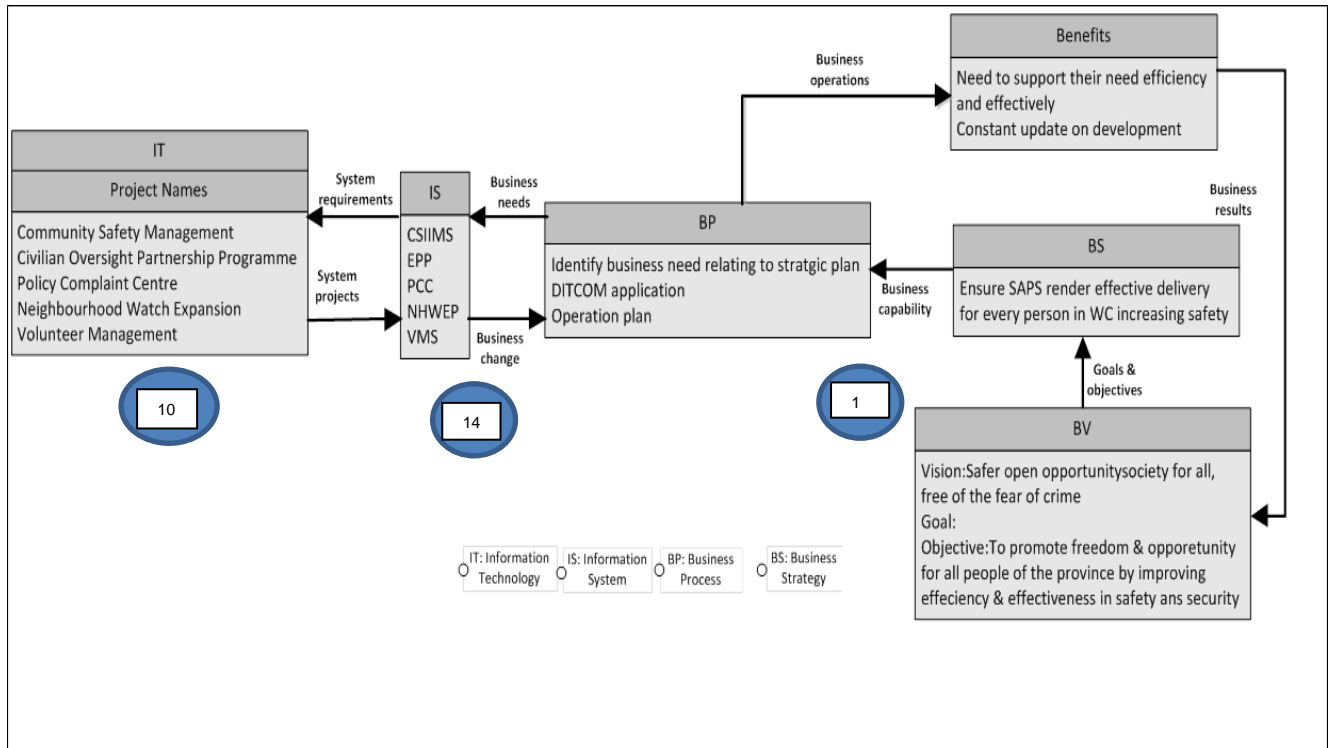


Diagram 5.7: Department of Community Safety

In diagram 5.7 the department defined all their projects in the Annual Performance Plan (APP) and identified the systems that need to be developed. The business processes are not well defined, they are still lacking since changes are taking place simultaneously on business process development and in safety and security. In addition there is no support for communications between the community and the organisation. The interviewee mentioned that the department would need the above listed benefits in the near future. In the department there is a perception that, as yet, no relevant benefits have been delivered, and that the business strategy is not well defined.

Summarised gaps and responses:

No benefits from current EA project

Business processes lacking

Support community is lacking

5.4.4 Department of the Provincial Treasury

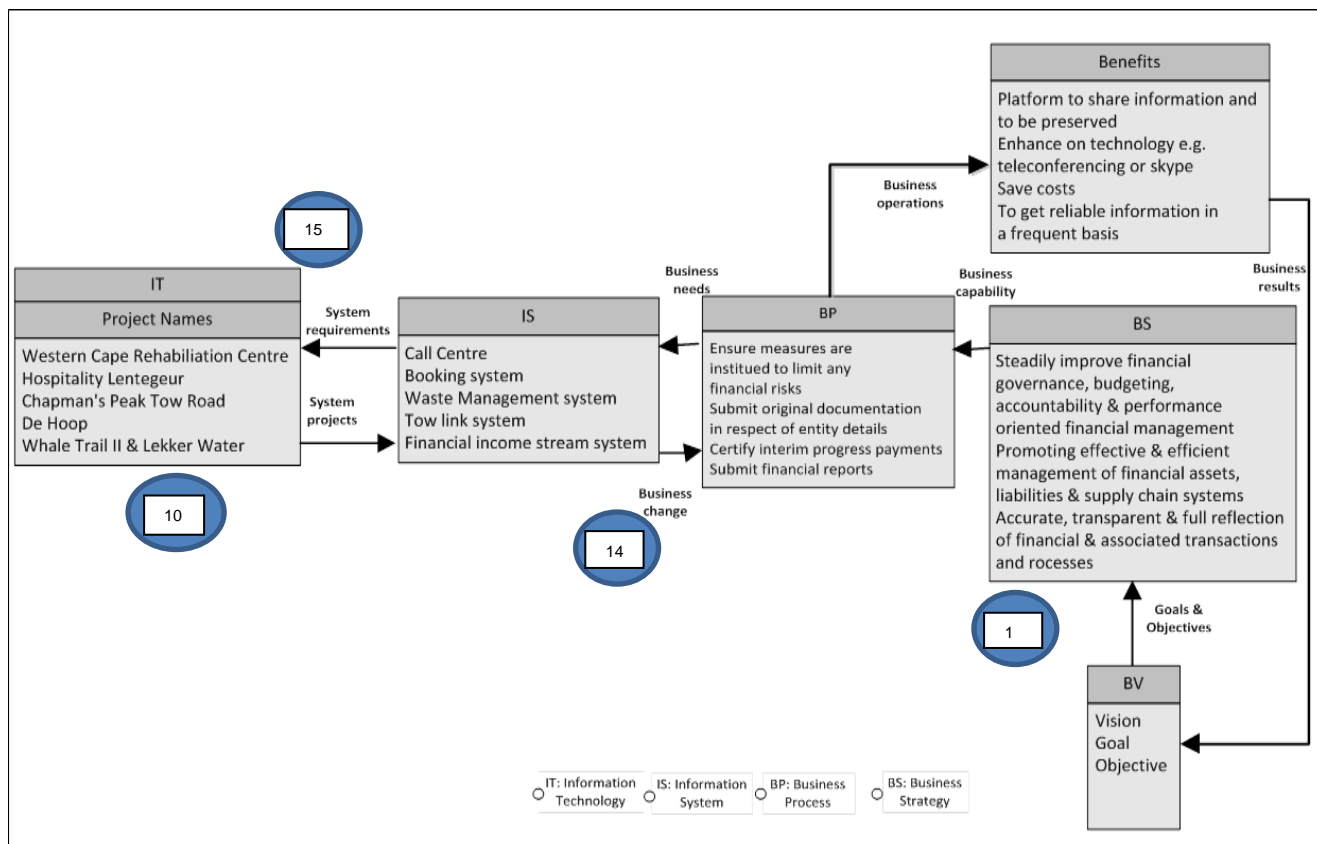


Diagram 5.8: Department of Provincial Treasury

Diagram 5.8 above shows how this department listed their project names and their information systems that need to be developed. The business processes are not clearly defined but an interviewee from the department was able to list some of the processes. One interviewee was not sure about the business processes for the department. The benefits of the EA deployment are not yet delivered because the information is not in place and not shared in a central repository where each employee is able to view it. The funds are not well spent because there is no improvement in the technology and their hardware, such as PCs, are not up to standard and need to be upgraded.

Summarised gaps and responses:

No benefits from current EA project.

Business processes not clearly defined

Information system not all clearly defined

Support community is lacking

5.4.5 Gap summary of the selected departments:

No benefits from current EA project.

IT projects outstanding

No or little communication

Business processes lacking

Information system not all clearly defined

No support community

5.5 Proposed guidelines for the deployment of EA within PGWC

The following proposed guidelines can be followed to assist in the deployment of EA at PGWC:

1. Get total buy-in from top management. Make sure they understand the complexities of the organisation, the benefits and value EA offers them
2. Set up a steering committee with target specific individuals on the board
3. Determine the business needs
4. Institute a change management program
5. Develop a clear communication strategy for the organisation in order to inform members of the organisation of the what, why, who, when and how the EA deployment will take place.
6. Align business and IT's vision, mission, goals and objectives
7. Train employees who will be responsible for the deployment on the business process, as well as what benefits and value EA will deliver for the organisation
8. Manage the deployment as a project with clear goals and objectives, start and end dates, and scheduled evaluations of the status of the project
9. Insist on weekly feedback to the organisation on the progress of the project
10. Build a quality budget and revise the budget on a monthly basis.

5.6 Recommendation

From the findings, and as discussed in chapter 5, it is clear why the deployment of EA in PGWC has not delivered the expected results. It is recommended that PGWC uses the proposed guidelines, framework and process flow as illustrated in chapter 5. By using these tools, the organization will be in a position to reap the benefits and value that EA offers. The organization needs to grow into a culture of change management and open communication. Without an environment that allows for change and open communication the deployment of an EA strategy will be complex and difficult.

Training is needed and also enough funding needs to be provided so that personnel can go to trainings designed for the projects in the organisation, to avoid the project failure. The concepts of EA and the alignment of business and IT, as well as the management of expectations by the organization must be managed. Creating high expectations, without understanding what is needed to be done, will result in failure.

The importance of top and senior management's involvement in the deployment process is non-negotiable. It is recommended that top as well as senior management be involved from the inception through the whole process and even after the deployment of the EA strategy.

5.7 Summary

The deployment of an EA strategy in PGWC did not result in the expected benefits and value that an EA strategy can offer. The findings show that many reasons for this situation exist. The lack of an understanding of the concepts of EA, the lack of an implementation strategy and methodology, no change management programme, a poor communication programme and the lack of top and senior management involvement, made the realisation of the creation of benefit and value very difficult.

In an endeavour to assist PGWC in successfully deploying an EA strategy, a framework, guidelines and a process flow were proposed. The findings of the study were then used as an example to show the short comings of the current deployment at PGWC. These shortcomings were then addresses in the proposed recommendations.

CHAPTER 6: CONCLUSION

6.1 Introduction

The purpose of this study was to explain and describe the factors influencing the deployment of EA in PGWC. The study started by defining the research problem that was experienced at PGWC: **“The implementation of EA in PGWC has not delivered the benefits as expected by the business”**.

In Chapter 1 the research questions, aims and objectives were establish. The study then conducted a literature review in order to propose the theoretical framework to be used to align business strategies and IT in Chapter 2. The research methods that were used in this study were defined in Chapter 3. The findings were based on the interviews that were conducted, the case study, the literature review and the internal policy documents at PGWC, and presented in Chapter 4.

The output and discussion of this research has shown that by addressing the alignment between IT and business in PGWC, the organization could benefit. In addition the proposed EA framework could enable changes to be made at PGWC. Diagram 6 is the representation chapter 6.

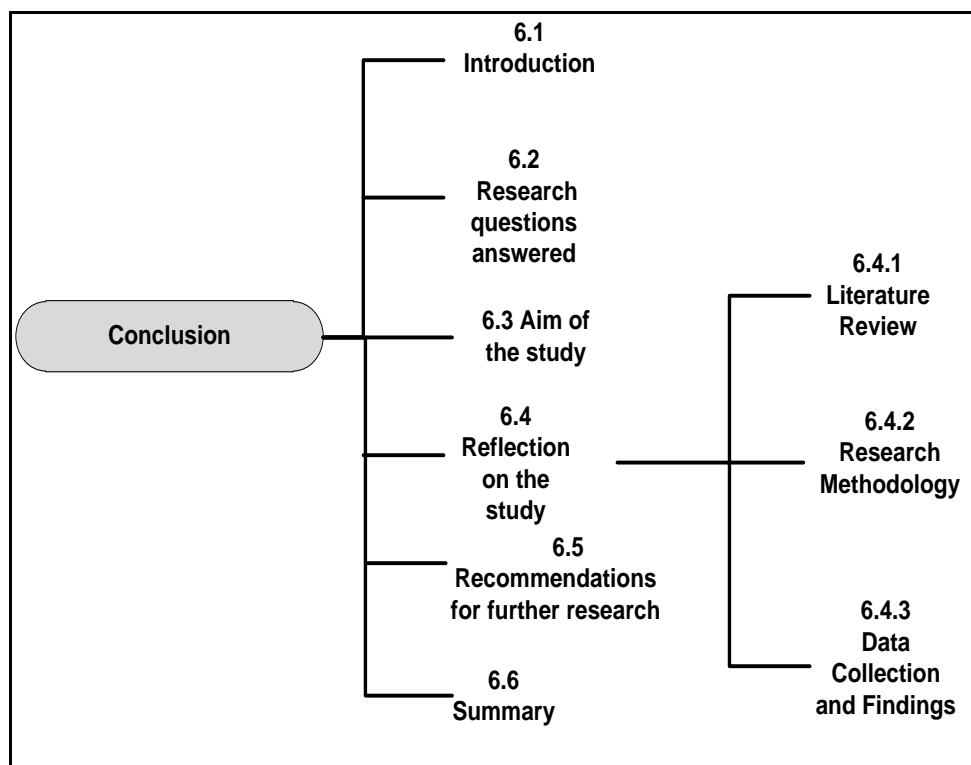


Diagram 6: Representation of Chapter 6

6.2 Research Questions Answered

The research focused on “**How enterprise architecture can be deployed in PGWC in order to deliver the desired benefits?**” The sub-questions assisted in finding valuable answers about EA in PGWC.

6.2.1 How did PGWC choose EA frameworks for their EA strategies?

No clear methodology was followed when choosing a specific framework. Although some attempt was made in 2012 at choosing a framework according to the business needs. However since the greater central government’s choice of framework, TOGAF, was then compulsory there was no reason to make a considered choice.

6.2.2 How do PGWC deploy the chosen frameworks within the organisation?

The chosen frameworks up to the TOGAF framework were deployed by an IT team on an ad hoc basis. There was little or no top or senior management or employee involvement. No real change management or communication was done during the deployment attempt.

6.2.3 What steps could be taken in order to deliver the benefits of EA at PGWC?

From the interviews at PGWC, it was clear that the staff do not understand what EA entails and what EA could mean to PGWC from an IT and business perspective. This could be problematic and could lead to [further] implementation challenges as [already] experienced by PGWC. Bernard (2010); The Open Group (2002) and Polgreen (2010) state that without the understanding and commitment of employees to the EA strategy, the success rate for the implementation of an EA strategy to deliver benefits and value, is very low.

6.3 Aim of the study

The aim of the study is to understand and explain the challenges of implementing EA in PGWC. The objective is to assist PGWC to be able deliver benefits and value from the implementation of an EA strategy. This was done by proposing guidelines, an EA framework and process flow for the organization.

In Chapter 4, communication breakdown was identified as a challenge and it is recommended that a clear communication strategy be developed and implemented. The guidelines are found in Chapter 2, the findings in Chapter 4, and they are discussed in Chapter 5, after defining the challenges at PGWC. The top management needs to engage themselves in the activities that take place at the middle management level and they need to equip the employees suitably by sending them to trainings. Information should be circulated

to all committees involved by setting up a steering committee. As Bytheway (2004) states: information management involves all personnel that deal with the information in business. Information management assists management areas to communicate and to organise the information efficiently and effectively.

The alignment between business and IT was addressed in Chapter 2 section 2.4.4. Hart and Martin (2007:16) highlight that EA enables the alignment between business and IT strategies. EA can be used to transform a business by means of aligning business and IT, and that it connects units of diverse businesses (Bernard, 2010). The deployment of EA at PGWC should be well managed. The starting point is to align business and IT, then define the goals and objectives of PGWC with those of the other departments.

6.4 Reflection on the study

This section reflects on the gathering of data from the previous chapters and also on the research methods that were used to get the results for this study. Then it summarizes how the data has been gathered and analysed.

6.4.1 Literature Review

The literature review was used as a source to get the articles that are related to this research problem and deliver answers to the research questions. The purpose of the literature was to look for guidelines for this research, to give it direction by getting relevant articles with similar research problems from the current research literature, that could be used in the industry. The literature review began finding definitions of EA from different kinds of experts. It goes deep into the key aspects of the research such as EA strategy, alignment between IT and business, as well as listing the different kinds of EA frameworks in a table showing their advantages and disadvantages. The adaption framework combines the attributes of the adapted IMBOK framework with the EA pillars.

6.4.2 Research Methodology

The research methodology is a significant part of any research, because it provides information on which research process methods to follow in the study, by selecting an appropriate framework. The methodology assists in providing the answers to the research problem and questions. As mentioned in Chapter 3 this research study follows a qualitative inductive method, which also contributes to knowledge by interpreting the data. The chapter began by giving an overview of research methodologies followed by an introduction to the sections covered. The research philosophy section followed which describes qualitative, interpretive and critical research. It covers the strategy of research which delves into case

studies and research process. The case study method was described. It is a common qualitative method used. In this research the case study method has been used to analyse the internal policy documents found at PGWC, particularly those that relate to how PGWC describes the rules in business.

6.4.3 Data Collection

This section indicates how data is gathered through interviews, a questionnaire, a case study of internal policy documents. The data is then analysed which compares PGWC experiences with best practice. The ethical considerations that must be taken to protect any personal information contained in the data are pointed out. The chapter finishes with a summary.

6.5 Recommendations for further research

As mentioned in Chapter 3, the data was collected by conducting interviews, questionnaire and case study methods. The study explained the role of EA and how it is in use in public sectors. This study proposed an EA framework that could be implemented at PGWC to enable the organization to realise the EA benefits. The researcher has experience in the organization and considers that the working environment will benefit if there is an improvement in communication. The suggestion is that every important piece of information should be circulated to everyone in order to allow the government employees to participate in whatever decisions are made. The top management should allow and approve of the inputs coming from lower-level managers and employees. In this way everyone would have more engagement with clients and would know what is required in all the departments.

It is recommended that the proposed IMBOK framework be implemented for EA in the organisation in order to deliver the benefits expected by the business. It is also recommended that trainings should be compulsory, in order to empower PGWC employees with more skills and to extend their body of knowledge, even if the field is not applicable to the job title that the employee currently has.

Considering further research: a strategic partnership is suggested between PGWC and some academics, for example, to find case studies of successful implementations of EA from other countries, which will cover the key issues of skills level, knowledge of jobs and also tackle problem areas like lack of communication in the organisations.

6.6 Summary

In conclusion, the study has highlighted the proposed IMBOK framework to be implemented in PGWC and also how to align the IMBOK framework with EA. It covered also the results that were derived from the interviews conducted with PGWC staff across different departments, from internal policy documents, from a questionnaire and based on the input from the literature review and the case study. It indicated some gaps that currently exist within the PGWC organization. The logic model found in appendix D also defined some gaps that exist in the organisation.

The areas highlighted in this chapter at section 6.5 giving recommendations for further research, have the possibility of expanding the findings of this study and delivering more information on alignment between IT and the business.

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8. APPENDICES

Appendix A: Interview questions

1. In your opinion what do you think about EA?
2. What do you understand about EA be in the context of PGWC?
3. What is the current status of EA in PGWC?
4. What steps could be taken in order to deliver the benefits of EA at PGWC?
 - 4.1 What could the benefits of EA for PGWC be?
 - 4.2 What are the stakeholders' expectations from EA?
 - 4.3 What is generally seen to be the "best practice" or "good practice" in the deployment of EA?
5. What framework(s) did PGWC choose for their strategies?
 - 5.1 How did PGWC go about choosing the different framework(s)?
 - 6.2 How do PGWC deploy the chosen frameworks within the organisation?
6. What is the attitude about the alignment between IT and business?
7. What are the issues that influence the deployment of EA?
 - 7.1 What have been done so far to address those issues?
8. What should PGWC consider to improve the deployment of EA?

Appendix B: Letter of permit from PGWC

	DEPARTMENT of the PREMIER Provincial Government of the Western Cape	
BRANCH: CENTRE FOR E-INNOVATION		
n/f/e/l/es: +27 21 483 6634 fax: +27 21483 4329 12th Floor, 4 Dorp Street, Cape Town, 8001 www.capegateway.gov.za		
REFERENCE:		
ENQUIRIES: E de Bruyn		
 THE BRANCH HEAD, DEPARTMENT of the PREMIER		
 SUBJECT HEADING, REQUEST FOR PERMISSION TO OBTAIN RESEARCH DATA IN PROVINCIAL GOVERNMENT OF THE WESTERN CAPE		
1. PURPOSE		
Approval is hereby sought for the Directorate Economic Governance and Administration		
2. BACKGROUND AND MOTIVATION		
<p>My name is Bongive Olivia Mtongana. I am currently employed within EGA at No. 4 Dorp Street, as an ICT Project Manager. I am currently conducting comparative research towards obtaining a Masters Degree in Information Technology at Cape Peninsula University of Technology. As my research topic is Factors influencing the deployment of Enterprise Architecture in the Provincial Government of the Western Cape. Enterprise Architecture (EA) was one of the areas identified by the institution, I felt it is important for me to research the topic as one of our Directorate in Ce-I is currently implementing EA.</p> <p>I am therefore requesting permission from the Ce-I management to engage closely with other government departments as I will need to obtain the research data about EA. The research will contribute towards the body of EA knowledge and the output will be used to further guide implementation of the EA (Enterprise Architecture).</p>		
3. PERSONNEL IMPLICATIONS		
NONE		
4. RECOMMENDATION		
We therefore request that the following is approved.		
Page 1 of 2		



DIRECTOR: EGA
Emelda de Bruyn
DATE: 20/01/2014

Recommend/ not recommended.



CHIEF DIRECTOR: GITO MANAGEMENT SERVICES
AUGI DE FREITAS
DATE: 20/01/14

Recommend/ not recommended.



DEPUTY DIRECTOR-GENERAL: CENTRE FOR E-INNOVATION
LANCE WILLIAMS
DATE: 23/05/2011

Supported / not supported / noted / comments
Funding confirmed / not confirmed in terms of MTEF

ACTING CHIEF FINANCIAL OFFICER
Mr. PATRICK O'BRIEN
DATE:

Approved / not approved. Comment:

ACTING DIRECTOR-GENERAL:
ADV B GERBER
DATE:

Appendix C: Letter of research from CPUT



Professor Andy Bytheway
Faculty of Business

Email: bythewaya@cput.ac.za
Switchboard: +27 21 469 1000

12 March 2010

To Whom It May Concern:

Research at CPUT into IT and business alignment strategies

Do you sometimes wonder why organisations find information systems and services so difficult to manage? More than forty year's experience indicates that there are many lessons yet to be learnt, and experts continue to bring forth ideas that they insist will help us.

One such idea (not actually a new one) is *Enterprise Architecture* – sometimes offered as the answer to all our organisational problems not just the “systems” ones, but clearly Enterprise Architecture does not always succeed. Organisations in the business and public sectors have found that it is possible to expend much effort and funding into Enterprise Architecture projects, without any significant useful benefit except the pain of learning.

For this reason, at CPUT we are looking at specific questions concerning the way that business and technologies can be aligned – one of the principal claimed benefits of Enterprise Architecture. *Thantaswa Misabe* and *Bongiwe Mtongana* are driving this research forwards, and we hope that you will assist them in their work by allowing them time to investigate and examine attitudes and experiences within this general area.

The Cape Peninsula University of Technology, formed by the merger of Cape Technikon and Peninsula Technikon, is committed to undertaking research that is relevant, practical and useful. As we strive to demonstrate our new University status we are investing heavily in research capability, and I hope you will enjoy helping us as we take up this challenge. Our project staff will of course treat all that you tell them as confidential, and there will be an opportunity to share the results of the work when it is complete.

If you have any questions at all about his work, or if you would like to hear more about our rapidly developing portfolio of research work, do feel free to contact me directly.

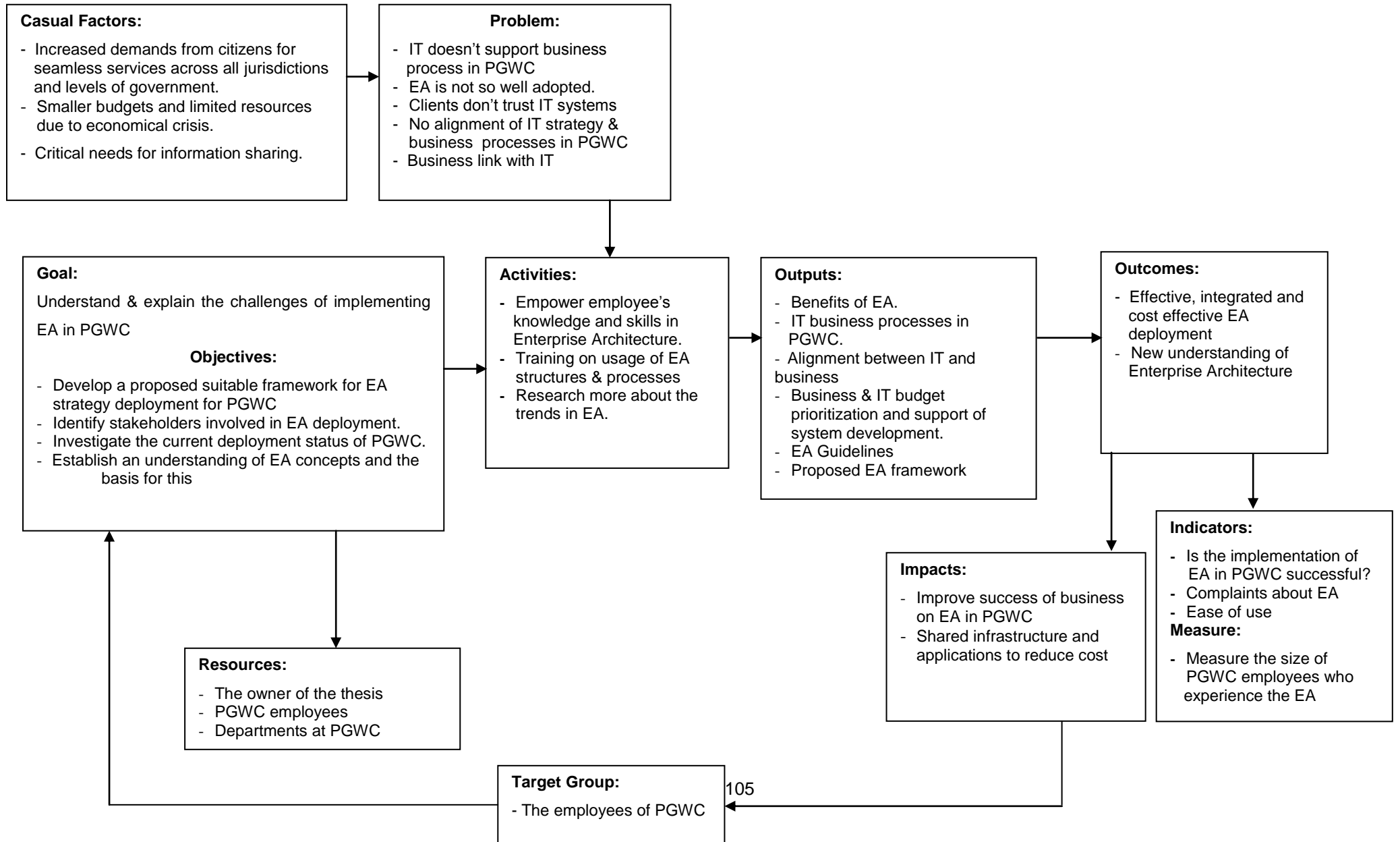
Thank you for your consideration of this request. There is a great future for organisations that take the right decisions and make the right moves; we look forward to sharing our new understanding of these things with you as the work progresses.

Thank you,

A handwritten signature in black ink, reading "Andy Bytheway".

Adjunct Professor of Information Management

Appendix D: Logic Model



Appendix E: Summary results

Themes	Summary of responses
Alignment	There is a shortcoming between business and IT and employees are unhappy with the situation
Benefits of EA	The interviewees do not fully understand the principles of EA and the benefits to the organization. Only two interviewees were able to give a limited view on EA and the importance of it in the organization
Change	EA is seen by the stakeholders as a change agent to bring about more alignment between business and IT
Communication	Understanding the information required from top to bottom and versa visa
Expectations	The Zachman and FEA frameworks were adopted by PGWC but they did not meet the expectations of PGWC. Interviewees had dispersed expectations of EA benefits
Governance	Best practice within PGWC. That governance is lacking
Knowledge	At this point of time (2012) the FEA is the architecture of choice There are inconsistencies to the question and the interviewees do not know exactly what the status of the deployment of EA is within PGWC. The interviewees could not explain or demonstrate how the frameworks were selected.
Management	The main factors influencing implementation of EA in PGWC can be summarized as i. communication ii. understanding of EA and iii. change management. Team work is lacking. Top management is not involved in EA
Strategy	No deployment strategy or methodology were followed within PGWC EA projects not well defined
Governance	IT projects outstanding System requirements outstanding
Communication	Support community is lacking
Requirements	Business processes not clearly defined Information system not all clearly defined
Alignment	Business and IT strategies not clearly defined and aligned

Appendix F: List of Interviewees' responses

No.	Summary results	Interviewee
Q1	How do you view Enterprise Architecture (EA)?	
	<ul style="list-style-type: none"> - It is a health plan when deploying infrastructure, agile and how it affects the organization. - It helps for a planning and gives guidelines on business processes. 	Interviewee one
	<ul style="list-style-type: none"> - It consolidates the organisation's information and assists when doing decision making - It quickly generates report. 	Interviewee two
	<ul style="list-style-type: none"> - It provides information. - It assists on doing work with the departments' transversal and also provides transverse solution. 	Interviewee three
	<ul style="list-style-type: none"> - Enterprise is the entire organization and Architecture is everything that will make the organization work. - IT infrastructure of the organization functions over successfully. 	Interviewee five
	<ul style="list-style-type: none"> - EA is a practice that adding value and putting business and IT together. - Use IT for all the business strategy. 	Interviewee four
	<ul style="list-style-type: none"> - Not heard much about EA, just attended a presentation about EA within PGWC. 	Interviewee seven
	<ul style="list-style-type: none"> - EA brings business closer into technology. - Business should have EA and it is a critical development to strategy and to guide environment. - IT involves with business processes and infrastructure. 	Interviewee six
	<ul style="list-style-type: none"> - The ICT setup of the corporate for the infrastructure. 	Interviewee eight
Q2	In your opinion what do you think about EA or what do you understand about EA be in the context of PGWC?	
	<ul style="list-style-type: none"> - EA has a view of all the businesses and ICT of the organization. - Any changes to business or infrastructure at least there will be an understanding what is the impact in the organization. 	Interviewee one
	<ul style="list-style-type: none"> - It's all about consolidating information for the organization. 	Interviewee two
	<ul style="list-style-type: none"> - It helps on how deploying infrastructure, application and how the organization is structured. - There is no plan currently. - It makes difficult to agile and to recover. 	Interviewee three

	<ul style="list-style-type: none"> - It makes it easier to operate. - Communicate easily. - Share of data and infrastructure. - It's hardware, software and all different factors. - EA works very silo with business processes. 	Interviewee five
	<ul style="list-style-type: none"> - Compliance issue for national perspective to develop EA. - Business and IT alignment. - Optimizing IT infrastructure. - Decrease cost and save time. - Within PGWC, there should be processes to go through. 	Interviewee four
	<ul style="list-style-type: none"> - Most departments or sections are operating independently, it's difficult to see PGWC as one organization/enterprise. - It will make the organization much easier to do the change and to standardize. 	Interviewee seven
	<ul style="list-style-type: none"> - Draw up all the information updated and need to be documented. 	Interviewee six
	<ul style="list-style-type: none"> - PGWC employees don't understand EA. - Deliver into key area. - EA can be part of economy and scale. - Strategic alignment between IT and business. 	Interviewee eight
Q3	What is the status of EA at the moment?	
	<ul style="list-style-type: none"> - Gather information on business strategy. - Province ICT Plan. 	Interviewee one
	<ul style="list-style-type: none"> - PGWC is still on baseline information. - Application, information, data and infrastructure, they don't have the entire baseline. 	Interviewee two
	<ul style="list-style-type: none"> - It's still in the planning phase with 4 to 5 years, and trying to figure out of how things should be about the practice. - Usage of EA is not in place. 	Interviewee three
	<ul style="list-style-type: none"> - It's still on the initial stage. - Services manager is required, everyone in Ce-I need to understand the same outlook. 	Interviewee five
	<ul style="list-style-type: none"> - In the process of development. Foundation has been laid and documentation has been done. 	Interviewee four
	<ul style="list-style-type: none"> - Still on consolidation process. - Shared services to be standardize. 	Interviewee seven
	<ul style="list-style-type: none"> - Gathering the information. 	Interviewee six
	<ul style="list-style-type: none"> - In the development stage, information gathering and aspect of the framework 65%. 	Interviewee eight
Q4	Do you think EA can deliver benefits in PGWC? If so, what could be the benefits?	
	<ul style="list-style-type: none"> - Yes, it'll be able to align with business processes, economies and scale. - There will be an understanding of what business is, as well as application. - Each department has developing its own system, so it will reduce cost implication. 	Interviewee one
	<ul style="list-style-type: none"> - Yes, because it'll help the organization to make decisions quicker. - To save on budget. - To eliminate the duplication. 	Interviewee two
	<ul style="list-style-type: none"> - Yes it can, the infrastructure plan and 	Interviewee three

	<ul style="list-style-type: none"> standardization of IT. - It benefits to all the applications and on IT foundation. - EA could help to plan the foundation and agile to change. Change in technology. 	
	<ul style="list-style-type: none"> - Yes, to reduce cost. - Improve on time response. - Communication. 	Interviewee five
	<ul style="list-style-type: none"> - Yes, making visible what is available in the organization. - Correspondence to each other. - Accuracy in information. - Consolidating information. 	Interviewee four
	<ul style="list-style-type: none"> - Yes, there will be library of processes and one common framework for the entire organization. 	Interviewee seven
	<ul style="list-style-type: none"> - Yes, it will add more standards employee and infrastructure in the organization. - To reduce cost. 	Interviewee six
	<ul style="list-style-type: none"> - Yes, most value in EA. - Centralized services and decentralized services. - Link business strategy with objectives. - Identify some business processes to be used. 	Interviewee eight
Q5	What is your expectation on EA?	
	<ul style="list-style-type: none"> - To be able to align with business processes, economies and scale. - There will be an understanding of what business is, as well as application. 	Interviewee one
	<ul style="list-style-type: none"> - Integrate on EA, policies will be changed. - Assist on service delivery for IT organization. 	Interviewee two
	<ul style="list-style-type: none"> - Top management need to speak to staff down to get an understanding about EA. 	Interviewee three
	<ul style="list-style-type: none"> - Improve on reducing cost. - Should benefit the organization to be on more standard. - By putting better infrastructure. - Deliver model of business services. 	Interviewee five
Q6	What is the attitude about the alignment between IT and business?	
	<ul style="list-style-type: none"> - People don't know about EA, and some are not happy with the alignment between business and IT. 	Interviewee one
	<ul style="list-style-type: none"> - It'll be the central point of truth. 	Interviewee two
	<ul style="list-style-type: none"> - IT is a helper in terms of governance. - It is never seen as a component of business. - Never seen as integrated business and IT. 	Interviewee three
	<ul style="list-style-type: none"> - People don't like change. - People don't understand IT. 	Interviewee five
	<ul style="list-style-type: none"> - EA not really known outside yet. - Building resistance in business. - Optimizing business process. 	Interviewee four
	<ul style="list-style-type: none"> - Fear of affecting job positions. - Recognition of shortcoming between business and IT. 	Interviewee seven

Q7	If you think EA can assist you with the practices, what is the best practice?	
	- To align business processes with IT.	Interviewee one
	- Improve on governance. - Improve in change management. - Improve in communication - Develop a suitable EA framework	Interviewee four
Q8	Have you come across with any EA framework?	
	- Yes, TOGAF, Zachman's, Gartner and Federal frameworks. 2. They are using TOGAF because it is aligned with governance framework.	Interviewee one
	- Yes TOGAF, it is the best practice that has been used and is on standard with national level. - TOGAF framework is on standard with national and it is acceptable on governance and business processes.	Interviewee two
Q9	What should PGWC consider to improve the deployment of EA?	
	- To consider resources, skill levels, training. - Communication. - Improve on budgeting	Interviewee five
	- To bind top management on business. - Buy-in organization. - Project Charter from the top.	Interviewee four
Q10	What are the challenges facing the implementation of EA at PGWC?	
	- Resistant to change. - Departments are very service oriented, need to see the benefit on how to see other departments. - Positions given transversal are not clear.	Interviewee one
	- Cost benefit associated. - Lack of skills. - Communication	Interviewee two
	- Structure of IT organization is problematic and it's divided into strategic unit and operational unit. - Infrastructure plan not clear.	Interviewee three
Q11	What have been done so far to address those challenges?	
	- Participation in making decisions. - Change infrastructure, procedures and time. - Do the follow-ups. - Understand information required from down to top management.	Interviewee four
	- Looking at business buy-in. - Concentrating on business architecture specifications. - Review on Strategic Plan.	Interviewee seven