Cape Peninsula
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THE ROLE OF EMOTIONAL INTELLIGENCE IN IMPLEMENTING INFORMATION TECHNOLOGY STRATEGIES

By

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DECLARATION

I, Willem Eben van Blerk, declare that the contents of this thesis represent my own unaided work, and that the thesis has not previously been submitted for academic examination towards any qualification. Furthermore, it represents my own opinions and not necessarily those of the Cape Peninsula University of Technology.

Signed **Date**

ABSTRACT

The alignment between business and information technology (IT) strategies has been a challenge for many years. Strategic alignment models and enterprise architecture methodologies and frameworks have been developed to assist business and IT managers with improving alignment between business and IT strategies.

The business analyst, systems analyst and project manager are key role players in delivering the information systems (IS) needs of business and therefore key in aligning business and IT strategies. Despite literature and research suggesting a positive influence of emotional intelligence on occupational performance in various industries, the development of emotional intelligence of the business analyst, systems analyst and project manager is neglected by software development organisations. Emotional intelligence is neglected in industry IS competency models as well as documented standards for the business analysis and project management profession (BABOK and PMBOK). Emotional intelligence is not addressed in strategic alignment models and enterprise architecture methodologies and frameworks. Emotional intelligence is equally neglected in IS literature. Systematic research investigating the impact of emotional intelligence on occupational performance of IT professionals remains sparse.

The purpose of this study was to determine which emotional intelligence competencies are needed to improve the occupational performance of business analysts, systems analysts and project managers in delivering business information system needs. The study took the form of a multiple interpretive case study. Qualitative data was collected using semi-structured interviews with stakeholders from 20 software development organisations utilising the roles of the business analyst, systems analyst and project manager. Quantitative data was collected using the Genos Emotional Intelligence Inventory with the aim of identifying the patterns of emotional intelligence visible in the sample of business analysts, systems analysts and project managers assessed.

The study suggests emotional intelligence has a role to play in alignment between business and IT strategies. It is proposed that industry IS competency models as well as the standards for the business analysis and project management profession as documented in BABOK and PMBOK include specific emotional intelligence competencies. The study also proposes that higher education institutions in IT/IS such as universities of technology, as well as training providers focusing on business analysis, systems analysis and project management, should focus not only on technical skills but emotional intelligence skills as well when developing the supply pipeline of business analysts, systems analysts and project managers.

Keywords:

Emotional intelligence, business – IT alignment, information technology, enterprise architecture, business analyst, systems analyst, project manager, competencies, non-technical skills

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ES van Aswegen
3 July 2013

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Appendix D: Recordings

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Appendix G: Example of manual coding of data

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Appendix I: List of final categories

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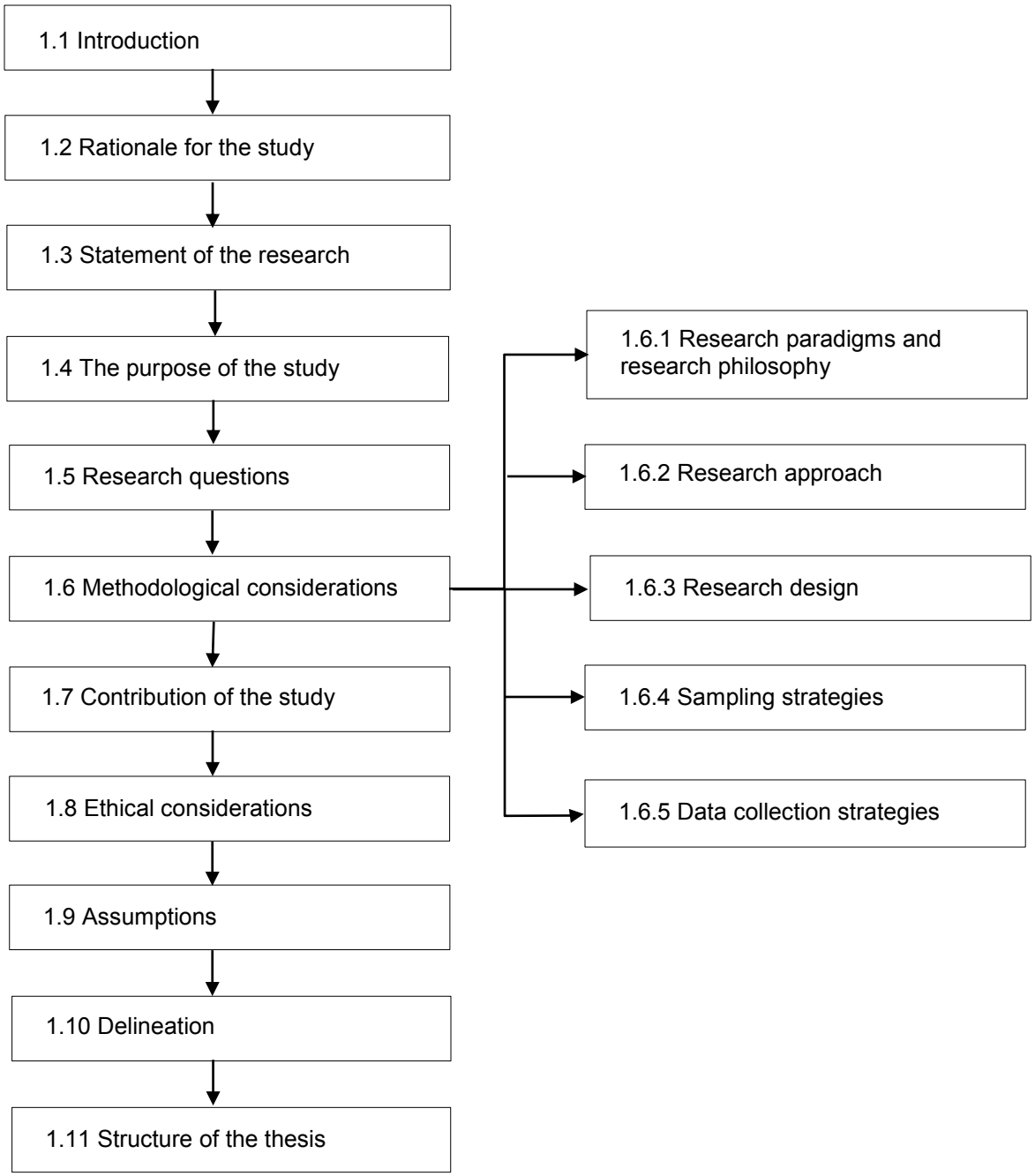
ORIENTATION



CHAPTER 1

INTRODUCTION

1.1 Introduction

Effective and efficient information technology (IT) systems to support business strategies and processes are acknowledged as key success factors for organisations (Silvius, 2007:1). Alignment between business strategies and IT strategies, defined as the degree to which the IT strategy supports or enables the achievement of business mission, objectives and plans as documented in the business strategy, has been recognised as positively impacting organisational performance (Reich & Benbasat, 2000:56; Hirschheim & Sabherwal, 2001; Kearns & Lederer, 2004; Chan et al., 2006; Kearns & Sabherwal, 2007).

This study explores the role of emotional intelligence (EI) in bridging the business – IT alignment gap. The study solicited the views of 20 software development organisations on the importance of EI of IT professionals in delivering the IT needs of the business. Successful functioning of IT professionals as defined by industry certification bodies is explored. The gap between the EI of IT professionals and what the literature and industry expect is explored and recommendations are made in terms of what might be included in the EI profiles and certification requirements of IT professionals.

The value of and need to align business and IT strategies have received substantial attention in the literature (Pyburn, 1993; Luftman & Brier, 1999; Reich & Benbasat, 2000; Sabherwal & Chan, 2001) and remain a top priority agenda item for business and IT executives (Tallon, 2008:228; Tallon & Pinsonneault, 2011:464). Despite considerable research over the years (Henderson & Venkatraman, 1989, 1990; Burn, 1996; Luftman & Brier, 1999; Sabherwal & Chan, 2001; Avison et al., 2004; Denford & Chan, 2007; Nagle, 2009; Tallon & Pinsonneault, 2011), achieving and sustaining effective IT and business alignment remain a challenge for executives.

Various strategic alignment models have been developed to assist business and IT executives in improving the alignment between business and IT strategies. The seminal strategic alignment model (SAM) developed by Henderson and Venkatraman (1990, 1993) describes business and

IT alignment along the dimensions of functional integration and strategic fit between the business strategy and the IT strategy. Maes et al. (2000) expanded the SAM model by integrating business expertise, the interpretation of information and communication, as well as technology, with strategy, structure and operations. Luftman (2000) developed a strategic alignment model based on communications, competence, governance, partnership, scope and architecture, as well as skills maturity.

Enterprise architecture (EA) is a discipline commonly used by IT professionals to address the need for business and IT alignment. Most definitions of EA include describing an organisation in terms of its information, applications and technology systems and linking these to the organisation's business strategy (Stenzel, 2007). EA is also viewed as a means of aligning business and IT strategies, to achieve cost reduction or to facilitate change (Lucke et al., 2010). Lapalme (2012) suggests that three main schools of thought on EA are found in the literature. These are Enterprise IT Architecting, Enterprise Integrating, and Enterprise Ecological Adaptation. Enterprise IT Architecting involves aligning the IT assets of an organisation through strategy, design and management activities. Enterprise Integrating as a school of thought on EA involves designing an organisation in such a way that it facilitates execution of its enterprise strategy by "maximising the overall coherency between all its facets" (Lapalme, 2012:3). IT is an example of one of these facets. The Enterprise Ecological Adaptation school of thought entails fostering organisational learning by designing all the facets of an organisation to include its relationship and adaption to the environment. Enterprise strategy creation and organisation design are also included in this school of thought.

Among the various EA methodologies that have been developed, the generally accepted alternatives include the Zachman Framework for Enterprise Architectures, the Open Group Architectural Framework (TOGAF), the Federal Enterprise Architecture, and the Gartner Methodology (Sessions, 2007). A variety of strategic alignment models and enterprise architecture methodologies are described in detail in Chapter 2; however the limited focus on human competencies needed in pursuing business – IT alignment is observed.

The growing body of literature during the past two decades illustrates the influence of emotions on group dynamics, occupational performance, and group effectiveness (Salovey & Mayer, 1990; Spencer & Spencer, 1993; Goleman, 1995; Mayer & Salovey, 1997; Goleman, 1998b; McClelland, 1998; Janovics & Christiansen, 2001; Bharwaney-Orme & Bar-On, 2002; Higgs,

2004; Sala, 2006; Dries & Pepermans, 2007; Maree et al., 2008; Bar-On & Maree, 2009; Cherniss et al., 2010).

Several of the abovementioned researchers report on competencies, which are critical for effective performance in the workplace. Emotional competency behaviours are linked to performance in a variety of occupations, organisations and cultures (Sala, 2006:136). The world of work is emotional. Emotions influence how individuals perceive and interpret information, and how they respond to others (Sala, 2006:137). Increasing evidence illustrates that learning to become more aware of emotions and becoming better at managing emotions can have a significant positive influence on work effectiveness (Bar-On et al., 2006; Sala, 2006:137). Emotional qualities such as self-confidence, flexibility, empathy and the ability to get along with others are linked to superior occupational performance (Sala, 2006).

Goleman (1998b:5) reports that almost 90 percent of the competencies necessary for success are social and emotional in nature, and claims that "IQ takes second position to EI in determining outstanding job performance". Sala (2006) argues that emotion provides a unique source of information on the work environment and that it unavoidably provides input to thoughts, decision-making and actions. Kramer and Hess (2002:75) caution that emotions in the workplace should be expressed in a professional manner.

1.2 Rationale for the study

Since the start of my career in information systems (IS) development in 1990, I have often observed that IT recruits with the highest IQ (Intelligence Quotient) are the ones that typically secure employment. In my experience the typical IS culture neglects the development of emotional competence and emotionally intelligent behaviour in the IS workplace. Above average analytical and mathematical ability are highly sought after qualities in the systems development life cycle (SDLC), since they are perceived to be ingredients for a promising and successful career in information systems development. This view is supported by Joseph et al., (2010) who argue that when companies hire IT professionals, their focus is often on the 'hard' skills needed to perform the work, for example, a certain number of years of Java programming experience.

Sternberg (1996) correlated IQ test scores with how well people perform in their careers, and found that the contribution of IQ ranged from as low as 4 percent to 10 percent. Goleman

(1998b) argues that IQ has the least power in predicting success among the resource pool of people smart enough to cope in the most cognitive and intellectually challenging fields.

Shifting attention to technical expertise and experience, Goleman (1998b) continues that practical intelligence (PI) determines how well people perform in the workplace on a daily basis. This practical intelligence, a combination of technical expertise and experience, counts at least the same as IQ does, in determining job success. As with intellectual abilities, technical expertise and experience are threshold competences required to get the job, and then to get it done (Goleman, 1998b). However, the IS development and IT industries are not yet embracing the value of EI. This is visible in the absence of, or limited focus on, EI in IT competence models, as well as in certification requirements of international governing bodies such as the International Institute of Business Analysis (IIBA) and the Project Management Institute (PMI).

The construct called EI, referring to the intelligent use of emotions as opposed to IQ, is the missing link to enhanced performance (Goleman et al., 2002:44, 324). In the 21st century, IT organisations are increasingly under pressure to reduce costs, increase agility, and reduce time-to-market of new technology solutions. In order to address these challenges while improving the alignment between business and IT, I believe that technical and intellectual abilities are becoming an entry level requirement in the IS industry. EI is increasingly reported as being an essential ingredient of star performers in various industries (Stein & Book, 2001; Bar-On et al., 2006), and this should not be different in the IS industry. Additional to technical and intellectual abilities, I am of the opinion that IS professionals need to be emotionally intelligent. Core components of EI include the ability to build mutually satisfying relationships and relate well to users, show empathy, adapt one's feelings and thinking to new situations (flexibility), the ability to effectively express one's emotions and oneself (assertiveness), and the ability to effectively and constructively control one's emotions (impulse control).

In this study I propose that technical competence and certification as IS professionals should not be the only requirements when recruiting or promoting IS professionals with the goal of eventually improving business – IT alignment during the systems development life cycle (SDLC). This study will hopefully contribute to sensitising Chief Executive Officers (CEOs) and Chief Information Officers (CIOs) to the value of EI strategies in bridging the alignment gap between business and IT. Such awareness in the IS development industry will potentially lead to the adaptation of strategic alignment models, EA methodologies, industry competency models, and certification requirements to include a degree of EI. The need to include EI traits applies to the

roles of the CIO and other IT managers, as well as SDLC actors, specifically business analysts, systems analysts and project managers.

1.3 Research problem

Scholars agree that EI has a significant impact on achievement in various areas of life (Bar-On & Parker, 2000; Ciarrochi et al., 2001; Forgas & Mayer, 2001; Geher, 2004; Druskat et al., 2006; and other studies mentioned above). It is possible to scientifically develop EI models within organisations that can used to accurately predict performance in various occupations and to recruit, hire and promote potentially effective employees. The factorial components of such models provide valuable content for training programmes tailored to the specific needs of individual organisations. When selection, training and succession planning are based on these EI models, organisational as well as individual effectiveness improves. During the past decade, EI models have been applied by an increasing number of organisations worldwide (Bar-On et al., 2006).

However, I have observed when organisations recruit IT professionals, they often focus on the required technical skills, such as object-oriented analysis for business analysts or systems analysts. They seldom focus on generically labelled ‘soft skills’ such as empathy, assertiveness and the ability to build and maintain interpersonal relationships – skills which are an integral part of EI. Furthermore, scholars report an increasing awareness that technical skills alone are insufficient for success in the field of IT (Longenecker et al., 1996; Stein & Book, 2001; Kaluzniacky, 2004; Joseph et al., 2010). Global trends such as outsourcing and offshoring require IT professionals to acquire a wider set of skills, in addition to their traditional technical skills (Joseph et al., 2010). This broader set of interpersonal skills is generically labelled ‘soft skills’ (Ang & Slaughter, 2000; Enns et al., 2006).

Very little systematic research conceptualising the non-technical skills required for successful IT professionals has been done to date (Joseph et al., 2010). The same is true of the role of non-technical and emotional skills in achieving business – IT alignment. Based on this gap in the literature and my practical experience in the IS industry, it is my opinion that uncertainty prevails regarding the role of EI in IS occupational performance and business – IT alignment. In my experience, the lack of consideration of EI in the recruitment and assignment of IT professionals

often leads to costly job and individual mismatches. This mismatch further negatively impacts cost, agility and time-to-market of information systems and subsequent business – IT alignment.

The **PROBLEM STATEMENT** for this study is:

"The role of emotional intelligence of information systems professionals in the non-achievement of business aims is unclear."

1.4 The purpose of the study

The purpose of the study is to determine what EI competencies are required in the roles of business analyst, systems analyst and project manager as contributing factors in improving business needs delivery by IT during the systems development life cycle (SDLC). To accomplish this purpose, an in-depth multiple case study was conducted to explore the skills and competence requirements IS managers use as guidelines when recruiting people for these roles. It was also necessary to explore the accreditation requirements of IS industry bodies, for example, PMI and IIBA, as well as existing industry IS competency models. These were compared with the EI patterns found in business analysts, systems analysts and project managers employed in the local IS industry, as well as with the requirements of IS managers in recruiting IT professionals.

The aim of this research is therefore to explore what patterns emerge in terms of the EI of IS professionals, in order to identify which main clusters of EI competencies potentially are needed for improved functioning in these roles, as well as improving business and IT alignment as part of the SDLC.

1.5 Research questions

In seeking answers to the problem facing the IT industry at large, the following two main research questions were posed:

What is the EI profile of business analysts, systems analysts and project managers?

The objective of this question is to investigate EI patterns that may develop when measuring the EI of selected business analysts, systems analysts and project managers. These patterns may hold the answers to the understanding and use of EI strategies within an IT enterprise, division or team, as a method of improving alignment between business strategies and IT strategies.

Sub-research question	Objective	Method
What is the EI profile of business analysts, systems analysts and project managers (units of analysis)?	The objective of the question is to establish the profile of the targeted unit of analysis and to compile an EI profile of professionals in the current IS development landscape.	Psychometric instrument

How do EI competencies complement the functions of business analysts, systems analysts and project managers?

Sub-research question	Objective	Method
How do EI competencies complement the functions of business analysts, systems analysts and project managers?	The objective of the question is to explore the alignment between EI competencies and the roles of business analyst, systems analyst and project manager. Once the two factors are aligned, the influence of EI competencies can be determined in order to explore the advantages of such alignment.	Interviews
Why do EI competencies influence successful functioning in business analyst, systems analyst and project manager roles?	Exploring the reasons for the influence of EI competencies on the IT professional roles will lead to a better understanding of the relationships between IT roles and EI competencies. With this better understanding, managers may focus on competency development of their resources to improve IT output.	Interviews

How does the literature define successful functioning in business analyst, systems analyst and project manager roles?	The definition of successful functioning in business analyst, systems analyst and project manager roles from literature contributes to determining the gap between literature and industry expectations.	Literature review (BABOK, PMBOK, industry competency models)
What is the gap between the EI of business analysts, systems analysts and project managers and what the literature and industry expect?	Once the gap has been identified, possible EI profiles of the ideal business analyst, systems analyst and project manager may be proposed.	Interviews Psychometric instrument
What could be included in the EI profiles of and certification requirements for business analysts, systems analysts and project managers?	The objective is to compile a target EI profile per IT job role in order to develop EI training programmes that may be recommended to decrease the gap. Such profiles could assist IT professionals to become more effective and efficient. A further advantage of such proposed profiles may be to identify suitable IT professionals for development within a specific position in an enterprise or team. A further objective is to recommend specific EI competencies to potentially be included in the certification requirements for business analysts, systems analysts and project managers.	Literature Interviews

1.6 Methodological considerations

This study was initiated by my interest in the development of EI in SDLC actors in order to address the business – IT alignment problem facing the IS industry. The research design and methodology adopted to answer the research questions are discussed in depth in Chapter 3 of this thesis. A brief overview of the methodological considerations is provided in this section, including the following:

- Research paradigms and research philosophy
- Research approach
- Research design
- Sampling strategies
- Data collection strategies

1.6.1 Research paradigms and research philosophy

Colman (2006) describes a research paradigm as a defined set of conceptual frameworks which explains the theoretical approach to research. This set of conceptual frameworks includes characteristics of ontology, epistemology and methodology (Mouton & Marais, 1990; Kanellis & Papadopoulos, 2009; Saunders et al., 2009:120).

Saunders et al. (2009) posit that ontology and epistemology are ways of thinking about research philosophy. They further argue that research philosophy is a collective term relating to the nature of knowledge and how it is developed. Ontology concerns the nature and form of reality (what can be known) (Nieuwenhuis, 2010:53; Morgan & Sklar, 2012:70), while epistemology relates to how one gets to know reality, if it exists (Nieuwenhuis, 2010:55; Morgan & Sklar, 2012:70). Scholars argue that ontological and epistemological assumptions impact the research process. It is therefore recommended that a researcher clarifies his or her own ontological and epistemological beliefs beforehand and conducts the research according to those paradigm beliefs (Mouton, 2009; Ivankova et al., 2010:257).

I believe that reality and the researcher cannot be separated and that an objective reality does not exist. Ontologically, I believe there is not one reality but many, and reality can be understood through the meanings and words produced by the minds of the research participants in any study. From an epistemological perspective, I believe knowledge results from interpretation by the human mind. Reality is therefore subjective and dependent on the meanings created during interaction with the social world.

1.6.2 Research approach

Three recognised approaches for conducting research are found in the literature, namely quantitative, qualitative and mixed methods (Ivankova et al., 2010:257). The quantitative approach is defined as being formalised, systematic and objective. Numerical data and statistical analysis are utilised for generalisation from a particular sample to the relevant population (Maree & Pietersen, 2007). Scholars argue that the quantitative approach is grounded in philosophical traditions such as positivism, objectivism and rationalism (De Vos & Schulze, 2002; Ashworth, 2008; Nieuwenhuis, 2010). The qualitative approach is characterised by understanding phenomena and interpretation by the human mind, as opposed to the objective, deductive quantitative paradigm. Philosophical traditions of interpretivism and constructivism, amongst others, are associated with the qualitative approach. Interpretivist scholars argue for the existence of not one, but many realities. Reality is a socially constructed phenomenon and research should investigate the meaning that people apply to phenomena (Hergenhahn, 2005; Ashworth, 2008; Nieuwenhuis, 2010).

The mixed methods research approach involves combining quantitative and qualitative data to investigate a phenomenon more completely (Swanson & Holton, 1997; Hearn, 2010; Perry, 2012). A mixed methods research approach was used in this study to utilise the benefits of both the quantitative and qualitative approaches, as well as to explore the research phenomenon from multiple perspectives (Ivankova et al., 2010:263). Qualitative data was used to explore and understand the phenomenon; it was compared with quantitative data to confirm research conclusions (Perry, 2012). The philosophical tradition of pragmatism is associated with mixed methods research. In this study, the combination of qualitative and quantitative data provided a practical and pragmatic approach to answering the research questions.

With reference to quantitative, qualitative and mixed methods approaches, the literature refers to deduction and induction. Deduction involves the development of theory resulting from thorough testing, with most forms of deduction involving presenting and testing a hypothesis. On the contrary, induction is concerned with understanding phenomena and developing a theory. In order to understand how EI competencies influence the functioning of business analysts, systems analysts and project managers, an inductive generalisation approach was followed to identify multiple realities that may exist.

1.6.3 Research design

Explanatory, exploratory and triangulation are designs frequently used by researchers adopting the mixed methods approach (Ivankova et al., 2010:265). In explanatory research, quantitative and then qualitative data are collected and analysed. The qualitative findings assist in explaining the quantitative findings.

In exploratory research, qualitative data are collected and analysed first. In a second phase, quantitative data is collected to examine the initial qualitative results by means of quantitative techniques. Triangulation involves collecting and analysing qualitative and quantitative data concurrently to contribute to well-validated research conclusions (Ivankova et al., 2010:268). In this research study, triangulation was used to ensure a thorough understanding of the role of EI in the functioning of business analysts, systems analysts and project managers.

Qualitative data was collected during interviews with systems development organisations employing business analysts, systems analysts and project managers as part of a multiple case study design. Quantitative data was collected in parallel with the interviews, through the psychometric assessment of individuals employed in these organisations in the above capacities.

1.6.4 Sampling strategies

Research participants can be selected in a purposive or representative (probability) manner (Patton, 1990:169). For the purpose of this study, purposive sampling was utilised. The sample was based on the judgement of the researcher by selecting research participants with specific characteristics relevant to the study. Criterion sampling, as a purposive sampling method, was used to select IS professionals as interview candidates and/or candidates for psychometric assessment to determine their EI. The IS managers to be interviewed were selected based on their roles in recruitment, development and managing business analysts, systems analysts and project managers. Business analysts, systems analysts and project managers were nominated by their supervisors for voluntary psychometric assessment to determine their EI. The sample was selected from South African organisations involved in IS development and maintenance in the financial (insurance), health, retail, media and technology industries. Section 3.7 provides more details on the sampling strategies applied in this study.

1.6.5 Data collection strategies

Interviews were utilised as a technique to collect qualitative data. Semi-structured interviews lasting between one and two hours were conducted on site with IS managers, using a list of questions as a guideline. I recorded field notes during each interview to complement the data collected by means of the interview questions.

Quantitative data was collected by means of a questionnaire. Participating business analysts, systems analysts and project managers completed the *Genos EI Inventory* (Gignac, 2010a) online via the internet. The EI data collected was used for purposes of pattern recognition only. Owing to a limited budget, no individual EI feedback was given to any research participant.

1.7 Contribution of the study

The significance of research studies can be classified as ***theoretical*** or ***practical*** contributions (Hofstee, 2009:89; Jansen, 2012:10). There is a limited amount of empirical research investigating the non-technical skills required for IT professionals (Joseph et al., 2010:149). The literature survey for this study confirmed the same applies to the availability of empirical research investigating the value of EI of actors in the SDLC in improving business and IT alignment. This finding was confirmed by EI scholars at the EMONET VIII conference on 2 and 3 July 2012 in Helsinki, Finland (EMONET VIII, 2012).

This study identified EI patterns in the IS development landscape and investigated industry perspectives of which human (non-technical) competencies are essential for the effective performance of business analysts, systems analysts and project managers. From a theoretical perspective, this study contributes new knowledge with regard to the impact of EI on business – IT alignment as well as on the occupational performance of the abovementioned IS professionals. This knowledge extends and refines the existing body of knowledge with regard to the impact of EI on occupational performance.

From a practical perspective, this research proposes target EI profiles which can be used by organisations 'in the real world' (Hofstee, 2009:89) to better equip business analysts, systems analysts and project managers with underlying EI competence. This EI competence, together with technical competence, can be employed by organisations as a strategy to improve business

and IT alignment during the IS development life cycle. This research also suggests a refinement to existing enterprise architecture methodologies to include EI when linking information, applications and technology to the business strategy.

Jansen (2012:10) argues that a third category of significance, namely ***emotional*** significance, should be included in scholarship in the future. The findings of this research study resonate with IT managers, mobilising them to focus not only on technical competence during the recruitment, selection, promotion, and development of IS professionals, but also to include emotional competence. It is hoped that developing emotionally intelligent IT professionals will become part of the IT Management agenda in addressing the challenge of improving alignment between business and IT strategies.

1.8 Ethical considerations

Permission to conduct this research study was formally obtained from the Faculty of Informatics and Design Research Committee at the Cape Peninsula University of Technology as well as from the Faculty Ethics Committee. Consent was obtained from each of the organisations on whose premises research was conducted. As recommended by Saunders et al. (2009:191), written informed consent was obtained from each supervisor interviewed, and from each business analyst, systems analyst and project manager before psychometrically assessing their EI. Assurance of anonymity was provided to each research participant and it was explained that no individual feedback of psychometric results would be provided, since the EI assessment was done for pattern recognition only.

The Genos EI psychometric test used in this study was scored by an independent professional from the Department of Industrial Psychology at Stellenbosch University, accredited for the use of the instrument. As recommended by Maree (2012:224), the scoring was thus done by an individual 'blind' to the study.

1.9 Assumptions

Hofstee (2009:88) recommends that assumptions underlying a research project need to be clearly stated. This research study is based on the underlying assumption that EI contributes to bridging the business – IT alignment gap. This applies to organisations having formal business

analysis, system analysis and project management centres of expertise as well as those utilising business analysts, systems analysts and project managers in a more informal manner.

1.10 Delineation of the study

This research study is limited to investigating and identifying the EI competencies and EI patterns for the roles of business analysts, systems analysts and project managers; it does not include other roles which may be included in the SDLC. The selected roles are prominent business – IT roles and are key to interpreting business needs and translating them into IS specifications. Furthermore, the project manager is responsible for ensuring the implementation of IS specifications within agreed time and budget constraints, and is also prominent in managing the business – IT relationship.

The assessment of EI was done for the purposes of pattern recognition only; no statistical significance of EI was calculated. The objective of the study is restricted to establishing the EI profile of the targeted unit of analysis, namely business analysts, systems analysts and project managers.

1.11 The structure of the thesis

This thesis comprises five chapters. Chapter 1 provides an introduction and rationale for the study. The research problem and the purpose of this study are explained. The research questions are stated, followed by an overview of the methodological considerations in this study. The contribution of this research is described followed by ethical considerations. The assumptions underlying this study are provided. The chapter is concluded by a discussion of the delineation of this study.

Chapter 2 provides an in-depth analysis of business – IT alignment and enterprise architecture (EA), including schools of thought on EA, current practices, as well as EA and alignment models that can be adopted to improve business – IT alignment. The literature relevant to models of EI and the impact of EI on occupational performance in various industries are discussed, highlighting the limited extent of research relevant to the impact of EI in the SDLC. The limited focus on human characteristics and the absence of EI in available strategic alignment models and enterprise architecture models are illustrated. E-skills and e-competencies are examined as

part of current industry competency models for IS professionals, highlighting the limited references to EI competence of IS professionals.

Chapter 3 presents the research design and methodology applied in the study. It provides an overview of the research philosophy, delineating the ontological, epistemological and axiological assumptions. An overview of various research paradigms is provided and the research approach adopted in this study is discussed. Data collection and data analysis strategies are described, as well as the trustworthiness and ethical considerations of the study.

Chapter 4 presents the findings that emerged from the data collected using both data collection strategies, namely the assessment of the EI of business analysts, systems analysts and project managers, and the interviews with managers responsible for managing IS professionals. The research findings are analysed and discussed, taking into account the literature, conceptual framework and research questions. Answers to the research questions as stated in Section 1.5 are provided. Chapter 5 presents conclusions and recommendations resulting from this study. Limitations of the study and recommendations for future research are also provided.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

Business – IT alignment is the degree to which the IT strategy supports or fits the achievement of business mission, objectives and plans as documented in the business strategy (Reich & Benbasat, 1996:56; Hirschheim & Sabherwal, 2001; Kearns & Lederer, 2004). Business – IT alignment is widely recognised as positively impacting organisational performance (Chan et al., 2006; Kearns & Sabherwal, 2007). This value of and need for aligning business and IT strategies are receiving continuous focus in the literature (Pyburn, 1993; Reich & Benbasat, 1996; Chan et al., 1997; Luftman & Brier, 1999; Sabherwal & Chan, 2001; Silvius, 2007; Shamekh, 2008; Van Grembergen & De Haes, 2008; Bytheway, 2010; Jorfi et al., 2011) and remain a top priority agenda item for business and IT executives (Tallon, 2008:228; Tallon & Pinsonneault, 2011:464). Irrespective of considerable research over the years (Henderson & Venkatraman, 1990, 1993; Burn, 1996; Luftman & Brier, 1999; Sabherwal & Chan, 2001; Avison et al., 2004; Denford & Chan, 2007; Nagle & Golden, 2009; Tallon & Pinsonneault, 2011), achieving and sustaining IT and business alignment effectively remain a challenge for executives.

Various strategic alignment models have been presented to assist business facilitate alignment between business and IT strategies. Arguably the most well-known strategic alignment model (SAM) developed by Henderson and Venkatraman (1990, 1993) describes business and IT alignment along the dimensions of functional integration and strategic fit between the business strategy and the IT strategy. Their model has served as a foundation for the development of alignment models in pursuit of the seemingly elusive alignment goal. Maes et al. (2000) expanded the Henderson and Venkatraman (1990, 1993) model by integrating business, information/communication and technology with strategy, structure and operations. Luftman (2000) developed a strategic alignment model based on communications, competence, governance, partnership, scope and architecture as well as skills maturity.

Additional to alignment models, enterprise architecture (EA) is one of the popular disciplines used by IT to address business and IT alignment. Most definitions of EA include describing an organisation in terms of its information, applications and technology and linking these to the

organisation's business strategy (Stenzel, 2007). EA is also seen as a means to aligning business and IT, to achieve cost reduction or to facilitate change (Lucke et al., 2010). Lapalme (2012) argues that three main schools of thought on EA are found in the literature. These are Enterprise IT Architecting, Enterprise Integrating and Enterprise Ecological Adaptation. Enterprise IT Architecting involves aligning the IT assets of an organisation through strategy, design and management. Enterprise Integrating as a school of thought on EA involves designing all the facets of an organisation to facilitate execution of enterprise strategy by maximising the overall coherency between all its facets, including information technology. The Enterprise Ecological Adaptation school of thought entails fostering organisational learning by designing all the facets of an organisation, including relationship and adaption to the environment. Enterprise strategy creation and organisation design are also included in this school of thought.

A limited focus on human competencies in the IT industry, especially when studying the literature on IT with reference to business – IT alignment as well as EA, is observed. The result of ignoring this complex phenomenon is that after many decades of research on topics such as project management, software development, networking, telecommunications and more, the alignment issue between business and IT is as contentious as ever before. The following sections in this literature survey discuss business – IT alignment, EA as well as EI.

2.2 Business – IT alignment

An overview of influential strategic alignment models available to assist business and IT executives with improving alignment between business and IT strategies is provided in the next section. This will include defining business – IT alignment.

2.2.1 Henderson and Venkatraman strategic alignment model

Although the work of Henderson and Venkatraman (1990, 1993) recognises the role of the human in IS infrastructure and processes, it ignores the non-technical skills required by IT professionals. They argue alignment is the degree of fit between four domains, namely business strategy, IT strategy, business infrastructure and IT infrastructure. The concepts of strategic fit and functional integration form the two building blocks of their Strategic Alignment Model (SAM) and the domains are clustered within internal and external business and IT environments as illustrated in Figure 2.1 below.

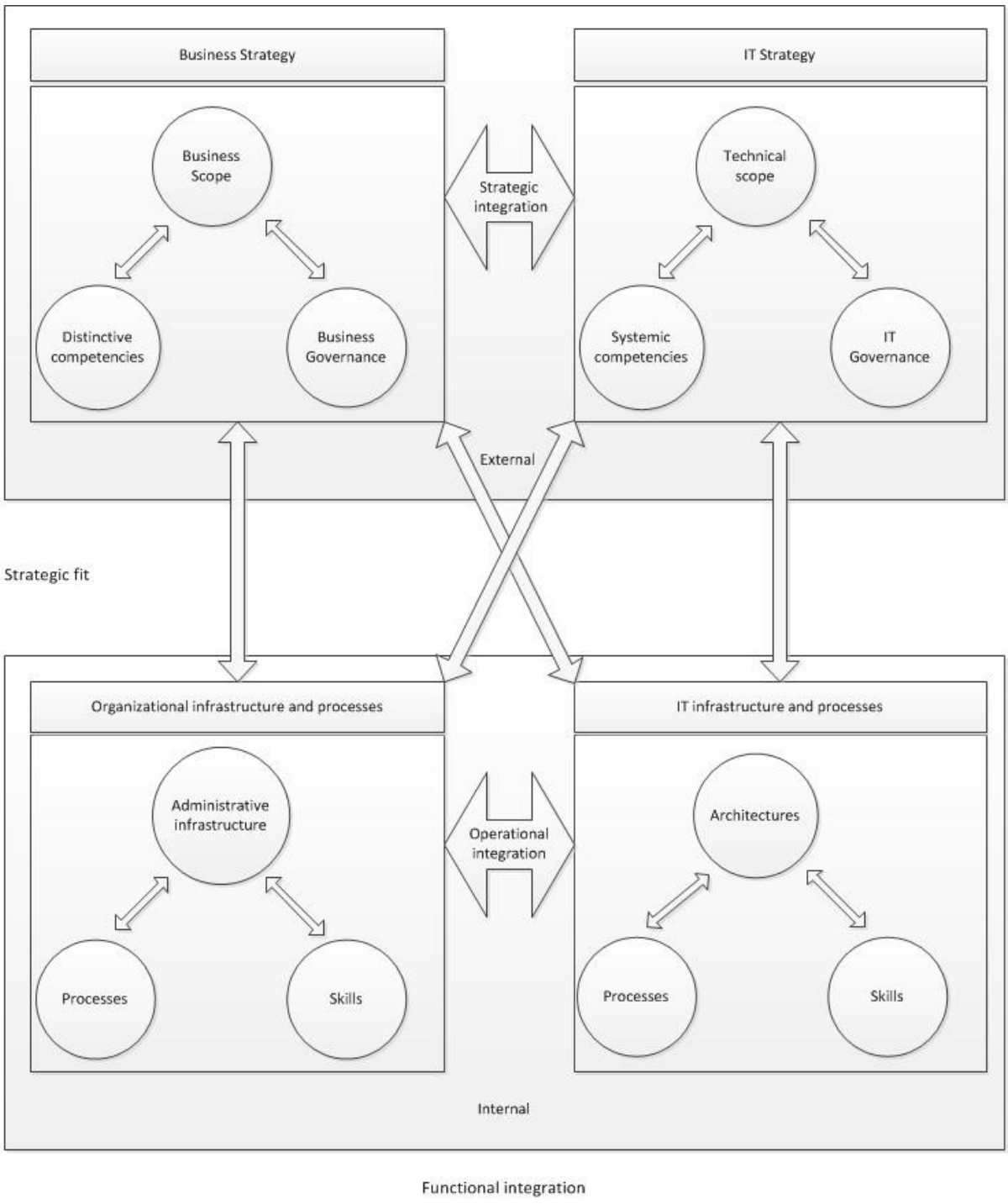


Figure 2.1: Strategic alignment model
(Adapted from Henderson & Venkatram, 1993:476)

Although the Henderson and Venkatraman (1993) SAM refers to skills in both the organisational infrastructure and processes as well as the IS infrastructure and processes domains, there is no

specific mention of the EI construct or any of the elements of any of the EI models. Details of which non-technical skills are required by IT professionals are absent from the model.

2.2.1.1 Business strategy

The business strategy domain of the SAM proposes choices with regard to scope and competencies, as well as governance when positioning the organisation in the external business environment. Business scope involves choices related to, amongst others, which products to produce in the market space. Distinctive competencies are related to aspects such as appropriate pricing and quality of products in order to achieve business strategies. Business governance involves, amongst others, choices on alliances and partnerships to contribute to achievement of business goals. The human is neglected in this early model in addressing business – IT alignment. No mention is made in this domain of the non-technical skills needed by IT professionals for effective decision-making in the external business environment.

2.2.1.2 IT strategy

Henderson and Venkatraman (1993) contend that positioning the organisation in the external IT marketplace involves choices to be made with regard to scope, competencies and governance. IT scope refers to selection of technology to support the business strategy. Systemic competencies relate to specific measurements of IT delivery such as system reliability in support of the business strategy. IT governance, in turn, refers to ways and mechanisms to achieve the IT strategy. Reference to the skills required by IT professionals to make effective decisions in terms of scope, competencies and governance, is absent in the IT strategy domain.

2.2.1.3 IS infrastructure and processes

The IS infrastructure and processes domain of the alignment model refers to decisions in terms of IS infrastructure, IS processes and IS skills. In terms of infrastructure, specific hardware, software as well the enterprise application portfolio, decisions have to be made. IS processes relate to processes such as how systems development is done and IS skills involve choices with regard to recruitment and development of knowledge and capabilities of IT resources. Henderson and Venkatraman (1993) state that the human is critical to the IS infrastructure and

processes domain. Reference is made to changes in the skills set of the IT workforce required during implementation of architectures or processes. No reference is, however, made to which non-technical skills are required.

2.2.1.4 Organisational infrastructure and processes

The organisational infrastructure and processes domain on the model addresses choices with regard to the administrative structure of the organisation such as roles and responsibilities, the rationale for and design of business processes, as well as the acquisition of skills required within the business domain to execute the business strategy. Henderson and Venkatraman (1993) do not refer to any non-technical skills required by IT professionals for the effective execution of business strategy.

2.2.1.5 Integration

In order to align business and IT in the organisation, Henderson and Venkatraman (1993) highlight strategic as well as operational integration in their model. Strategic integration deals with alignment between business and IT strategies in the external (marketplace) domain. Alignment in this external domain of SAM refers to IT functionality shaping, as well as supporting, the business strategy. Operational integration addresses alignment of business and IT in the internal (organisational) domain. In this domain, alignment considers IS architectures and capabilities, as well as skills needed to support the organisational infrastructure and processes domain (administrative structure, business processes, business skills) in executing the business strategy. Additional to alignment within the external and internal domains, Henderson and Venkatraman (1993) argue that there needs to be a fit between the external and internal domains themselves, that is, there needs to be a fit between the business strategy and the organisational infrastructure and processes as well as a fit between the IT strategy and the IS infrastructure and processes.

Although Henderson and Venkatraman (1993) stress the importance of the human in IS infrastructure and processes, specific non-technical skills are absent from this model.

2.2.2 Sauer & Yetton and Weil & Broadbent strategic alignment models

Sauer and Yetton (1997) as well as Weil and Broadbent (1998) built on the SAM theory. They, however, did not present any argument for specific emotional abilities or non-technical skills needed to assist human actors in the business – IT alignment challenge.

2.2.3 Luftman and Brier alignment model

Luftman and Brier (1999) used the Henderson and Venkatraman (1993) strategic alignment model (SAM) as a basis to determine industry's view of the inhibitors and enablers of strategic alignment. They wanted to identify what needs to be done to achieve successful business – IT alignment as well as how to use IT to enhance business performance. The inhibitors and enablers of strategic alignment identified during a five-year study are illustrated in Table 2.1 below.

Table 2.1: Inhibitors and enablers of strategic alignment

Enablers	Inhibitors
Senior executive support for IT	IT/business lack close relationships
IT involved in strategy development	IT does not prioritise well
IT understands the business	IT fails to meet its commitments
Business / IT partnership	IT does not understand business
Well-prioritised IT projects	Senior executives do not support IT
IT demonstrates leadership	IT management lacks leadership

Luftman and Brier (1999) view alignment as the relationship that exists between the twelve components of the Henderson and Venkatraman (1993) strategic alignment model, and taking into account the inhibitors and enablers of strategic alignment, propose a model to achieve alignment. The model consists of six steps:

- Set goals and establish a team
- Understand the business – IT linkage
- Analyse and prioritise the gaps

- Specify actions
- Choose and evaluate success criteria
- Sustain alignment.

Setting clear goals is required initially before any decisions are made with regard to technology. Clear understanding of the business goals is also needed before any technology decisions are made. The strategic development team needs to consist of cross-functional teams. Both IT and business executives need to be involved in the strategy process. Luftman and Brier (1999) are of the opinion that the participation of IT executives is critical.

In terms of their model, a clear understanding of the 'as-is' and 'to-be' business and IT environments is essential to improve relationships in the organisation. This includes analysing and prioritising the gaps between the current and future organisation as input to the business and IT strategies. Activities to fill the gaps towards alignment need to be orchestrated through proper project management principles. Furthermore, the alignment, once achieved, has to be sustained. Luftman and Brier (1999) advocate the development of alignment behaviour in order to sustain this business – IT alignment, once it has been achieved. These scholars note that characteristics associated with organisations that have been successful in achieving business – IT alignment are as follows:

- Weighing IT and business capabilities equally
- Developing skills necessary for success
- Empowering employees in a team environment
- Facilitating consensus on the outcomes required of business processes
- The presence of a sense of urgency in managing IT projects
- Cultivating open communication and effective relationships between IT and business line managers.

Although Luftman and Brier (1999) do not provide further detail to unpack the above characteristics, they do argue that people management skills are critical to ensure that relationships are built and maintained. They stress the fact that this is different from the traditional focus on technical skills when recruiting and developing IT professionals and argue that organisations are starting to include interpersonal skills such as active listening, negotiation and team building in the education of their IT professionals.

Luftman (2003) supports his earlier argument by stating that building the right relationships is a key element in achieving business – IT alignment. In order to assess alignment, a tool was developed encompassing communications, competency, governance, partnership, technology and skills as maturity criteria. As part of *communications*, focusing on technical skills when hiring IT professionals is viewed as low alignment (level 2) with complete alignment indicated by level 5. Luftman (2003), however, does not state which non-technical skills need to be focused on when hiring IT professionals in order to achieve a higher level of maturity. *Skills* as a maturity area refer to a cultural and social dimension, but these terms are not defined. Maturity also depends on whether the business and IT staff have the required skills to be effective and efficient in their particular roles. Luftman (2003) does not refer to any specific skills needed or any element of any of the EI models reviewed in this literature review. *Partnership* as criterion refers to the creation of a true partnership and collaboration between business and IT based on mutual trust as well as the management of the business – IT relationship. This implies specific skills and competencies are needed to foster collaboration, but this is not expanded on.

In summary, neither Luftman and Brier (1999) nor Luftman (2003) refer to the EI construct or any of the elements of any of the EI models reviewed in this literature survey as a suggested element potentially contributing to business – IT alignment.

2.2.4 Reich and Benbasat alignment model

Reich and Benbasat (2000) define alignment as the degree to which the IT mission, objectives and plans support and are supported by the business mission, objectives and plans. Their alignment model includes an intellectual as well as a social dimension. Intellectual alignment is the existence of interrelated business and IT plans. Social alignment is the level of understanding business and IT executives have of the business and IT mission, objectives and plans. It is also seen as the level of commitment to these strategies. Reich and Benbasat (2000) substantiate the introduction of the social alignment concept in their model by referring to Taylor-Cummings (1998),[1] who identified the gap in culture between business and IT professionals as a reason for systems development failures. They also refer to Berger and Luckmann (1967),[2] who suggested the beliefs and attitudes of business and IT stakeholders could influence alignment.

[1] Taylor-Cummings, A. 1998. Bridging the user - IS gap. *Journal of Information Technology*, 13(1):29-54
[2] Berger, P.L. & Luckmann, T. 1967. *The social construction of reality: a treatise in the sociology of knowledge*.
[2] Berger, P.L. & Luckmann, T. 1967. *The social construction of reality: a treatise in the sociology of knowledge*. London: Penguin.

Reich and Benbasat (2000) formulated a business – IT alignment model consisting of five constructs on three levels. The model is illustrated in Figure 2.2. The first top level of the model includes the constructs of *shared domain knowledge* and *successful IT history*. These two constructs influence two constructs on the next level, namely, *communication between business and IT executives* and *connections between business and IT planning*. These two constructs in turn influence the level of alignment on the third level of the model.

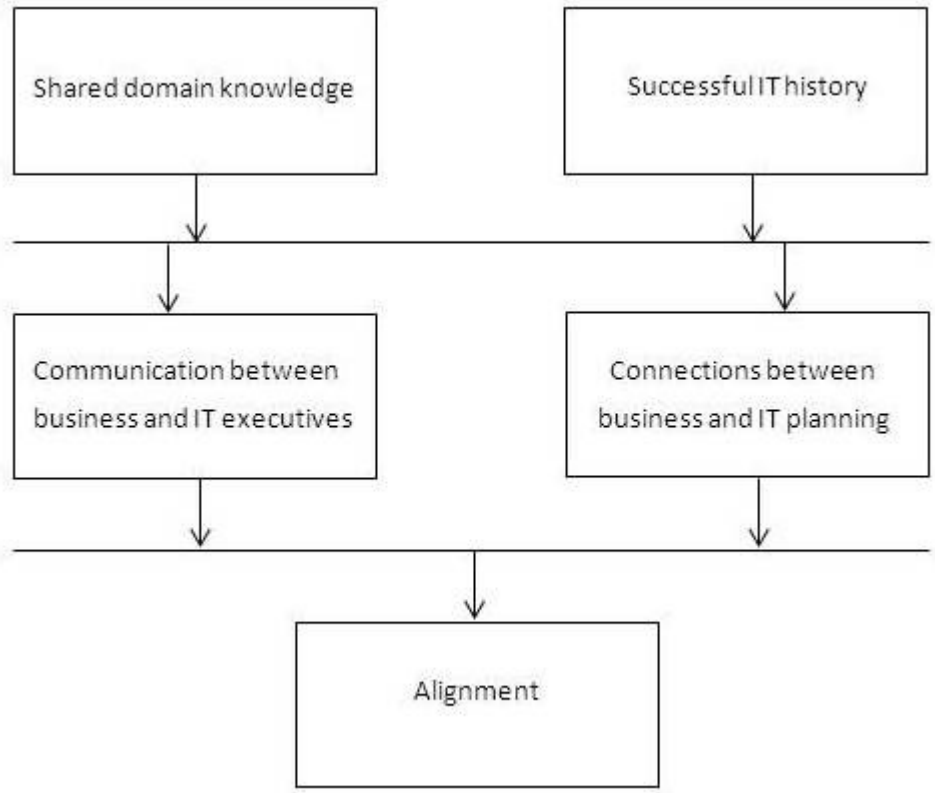


Figure 2.2: Reich and Benbasat strategic alignment model

(Adapted from Reich & Benbasat, 2000:85)

Reich and Benbasat (2000) refer to short-term and long-term alignment as aspects of social alignment. Short-term alignment happens when business and IT executives understand and are committed to each other's one- or two-year business plans and objectives. Long-term alignment happens when business and IT executives share a common vision of how IT will contribute to future business success.

Reich and Benbasat (2000) tested their model in the industry and found the model for short-term alignment was best represented by five elements, namely, shared domain knowledge, IT implementation success, communication, connections in planning and short-term business direction. No strong evidence could be found that shared domain knowledge or IT implementation success impacted planning practices. How often structured and unstructured communication between IT and line executives happened was the most prominent distinguishing factor between business units with high and low levels of short-term alignment. Short-term business direction was found to be a precondition for short-term alignment.

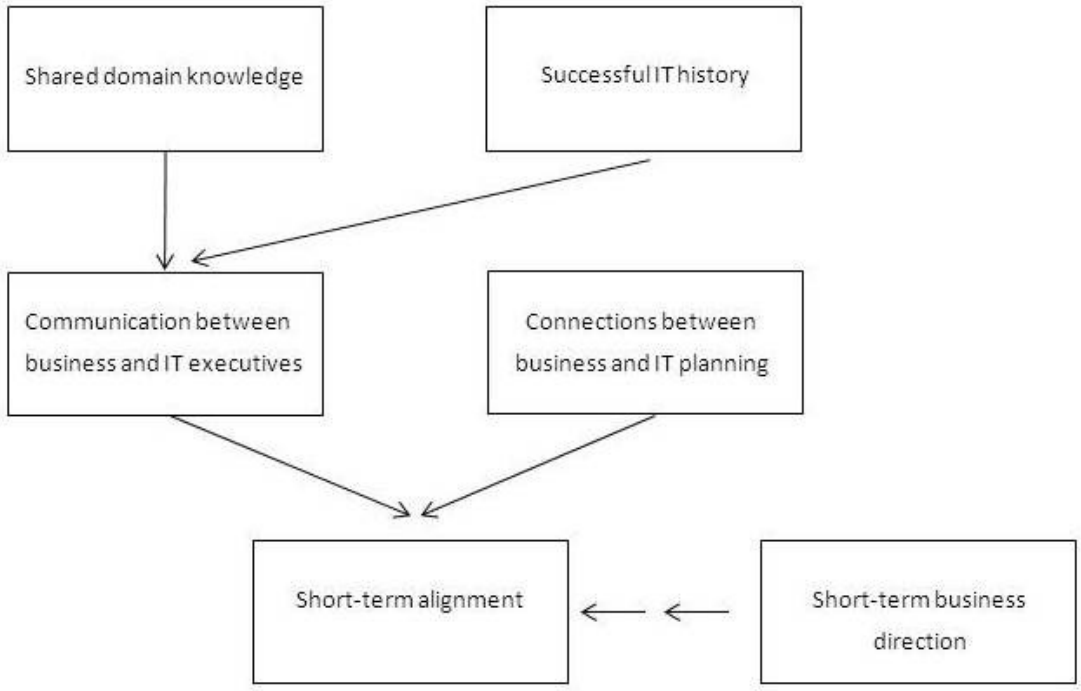


Figure 2.3: Reich and Benbasat strategic short-term alignment model

(Adapted from Reich & Benbasat, 2000:99)

Reich and Benbasat (2000) determined that the model for long-term alignment is best represented by only one element, namely, shared domain knowledge. A strong relationship exists between shared domain knowledge and long-term alignment as illustrated in Figure 2.4.

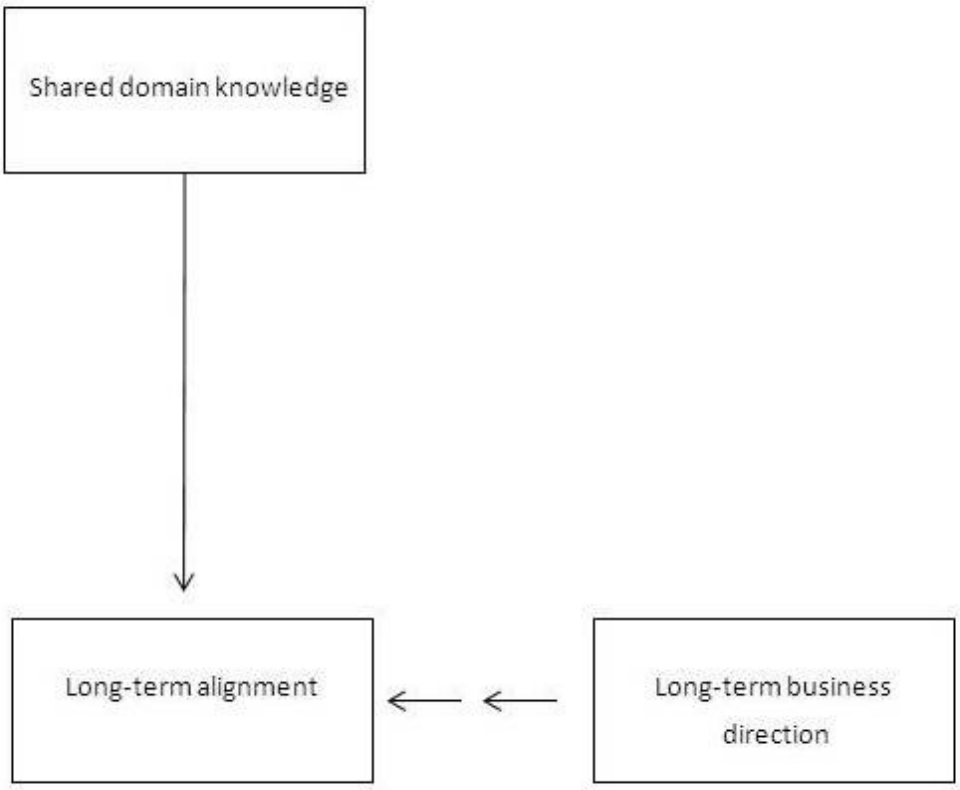


Figure 2.4: Reich and Benbasat strategic long-term alignment model

(Adapted from Reich & Benbasat, 2000:103)

An indirect relationship also exists between long-term business direction and long-term alignment. The level of communication between business and IT executives does not influence the level of long-term alignment. Neither does the level of connection between business and IT planning processes influence the level of alignment.

2.2.5 Smaczny alignment model

Opposed to dealing with the amount of constant communication needed between business and IT actors to align the individual domains of the strategic alignment model (SAM), Smaczny (2001) suggests a fusion between business and IT functions. The term 'fusion' refers to combining business and IT strategies and implies one single set of strategies and plans replacing the need to align the traditional separate strategies. As in the past, the two strategies

are therefore no longer developed separately. The IT strategy is now developed at the same time as the business strategy. Apart from combining strategies, Smaczny (2001) also alludes to the combining of organisational roles. The CIO can replace the CEO and fulfil the role of the lead strategist, or the CIO can be the lead strategic thinker. Irrespective of the roles, Smaczny (2001) argues the need for one strategy, resulting in constant alignment no longer being needed.

2.2.6 Silvius alignment model

Silvius (2007) defines business – IT alignment as "the degree to which IT applications, infrastructure and organization, the business strategy and processes enables and shapes, as well as the process to realize this" and argues that IT efficiently and effectively supporting the business strategies and processes is key to organisational success. Silvius (2007) is of the opinion that alignment can be viewed as either a state or a process. State refers to the level of alignment achieved while process refers to the activities required to contribute to a specific state of alignment. Specific pragmatic tasks are recommended to achieve alignment, opposed to the traditional model approach.

Subsequent to conducting focus groups with practising CIOs in the industry, Silvius (2007) proposes a list of alignment practices. The creation of an overview of the current enterprise application portfolio is recommended to raise awareness of the cost of IT. Centralisation of procurement contracts will assist in organising buying power. The formalisation of project governance will assist with project authorisation, prioritisation and scheduling as well as stakeholder management. The creation of standards, for example, software and hardware standards is recommended to achieve economies of scale and control. Rationalisation of the enterprise application portfolio is recommended to obtain cost savings in support of effectiveness and efficiency.

Silvius (2007) determined that CIOs view business – IT alignment as probably more dependent on a clear vision, and awareness of business executives of IT, as well as IT management skills, as on a methodology. Business – IT alignment is seen as a dialogue between business and IT. It is collaboration, more than business proscribing to IT. Business – IT alignment directly relates to the maturity of the relationship between business and IT. It involves business and IT in a healthy partnership with open-ended effective communication.

Achieving the above state of business – IT alignment requires business and IT professionals to be equipped with specific skills and competencies to be able to foster this relationship. This requirement is not referred to by Silvius (2007), and no mention is made of specific skills and competencies required.

2.2.7 Conclusion

The above examination of SAM theory and models introduces the human element in business – IT alignment. Luftman and Brier (1999) argue that people management skills are critical to ensure that relationships are built and maintained. They refer to the traditional focus on technical skills when recruiting and developing IT professionals and argue that organisations are starting to include interpersonal skills such as active listening, negotiation and team building in the education of their IT professionals. In summary, neither Luftman and Brier (1999) nor Luftman (2003) refer to the EI construct, or any of the elements of any of the EI models reviewed in this literature survey, as a suggested element potentially contributing to business – IT alignment.

Reich and Benbasat (2000) introduced the concept of social alignment and stressed the importance of communication between business representatives and IT executives. Smaczny (2001) supports the importance of communication by suggesting a fusion between business and IT functions. Silvius (2007) also supports the importance of communication and dialog between business and IT executives and also stresses the importance of a mature relationship between the two parties.

However a gap in the SAM literature exists with regard to the non-technical skills and competencies required of IT professionals in order to align business and IT. The human is neglected in the SAM literature, with very little guidance provided on which 'human' skills, characteristics or competencies are needed to advance business – IT alignment.

Various popular approaches to EA as a method to address, amongst others, business – IT alignment, will be explored in the next section. EA frameworks, as well as schools of thought on enterprise architecture, will be explored in terms of the human in enterprise architecture tools widely used by business and IT stakeholders.

2.3 Enterprise Architecture

The concept of EA was born in the late 1980s to address aspects such as developing an overall architectural vision for an organisation, system complexity, poor business – IT alignment, cost, agility and reducing time-to-market (Lucke et al., 2010). Various approaches to EA have been developed in an effort to address these challenges and specifically the business – IT alignment challenge. The Zachman Framework for Enterprise Architecture, The Open Group Architectural Framework (TOGAF), The Federal Enterprise Architecture and the Gartner Methodology are arguably the most well-known and popular alternatives generally in use (Sessions, 2007). These alternatives, however, do not address the skills and competencies required by the IT professionals who utilise these EA tools to achieve business and IT alignment. This gap in the literature could potentially lead to the ineffective utilisation of EA tools. This could result in inappropriate decisions, which could negatively impact business – IT alignment.

There is contention in the literature on whether some of these approaches should be named a framework, approach, methodology, or ontology – as well as other alternatives (Sessions, 2007). The next section will explore each of the above alternatives in more detail. Mention will be made of the appropriate terminology if relevant to the particular approach. For the purpose of exploring the alternatives, the term approach will be used. Before exploring approaches to enterprise architecture in more detail, it is appropriate to define the term ‘enterprise architecture’.

Most definitions of EA include describing an organisation in terms of its information, applications and technology, and linking those to the organisation’s business strategy (Stenzel, 2007). The Open Group (2012) views an enterprise as a collection of organisations that has a common set of goals. An enterprise can be a complete organisation or a division or department of an organisation. Sessions (2007:5) defines architecture as “the fundamental organization of a system embodied in its components, their relationship to each other, and to the environment, and the principles guiding its design and evolution”. Enterprise architecture is defined as an architecture where the relevant system is the complete organisation, including all the business processes, technologies and information systems (Sessions, 2007:5). The Open Group (2012) argues that enterprise architecture can include all of the information and technology services, processes, and infrastructure in an organisation.

The Zachman Framework for Enterprise Architecture, The Open Group Architectural Framework (TOGAF), The Federal Enterprise Architecture, and Gartner Methodology, as well as the

Information Management Body of Knowledge Framework (IMBOK), are discussed in the next section.

2.3.1 Zachman Framework for Enterprise Architecture

In order to address challenges such as complexity, agility and reducing time to market in a holistic manner, Zachman (1987) proposed six descriptive focus areas as well as six perspectives as illustrated in Figure 2.5.

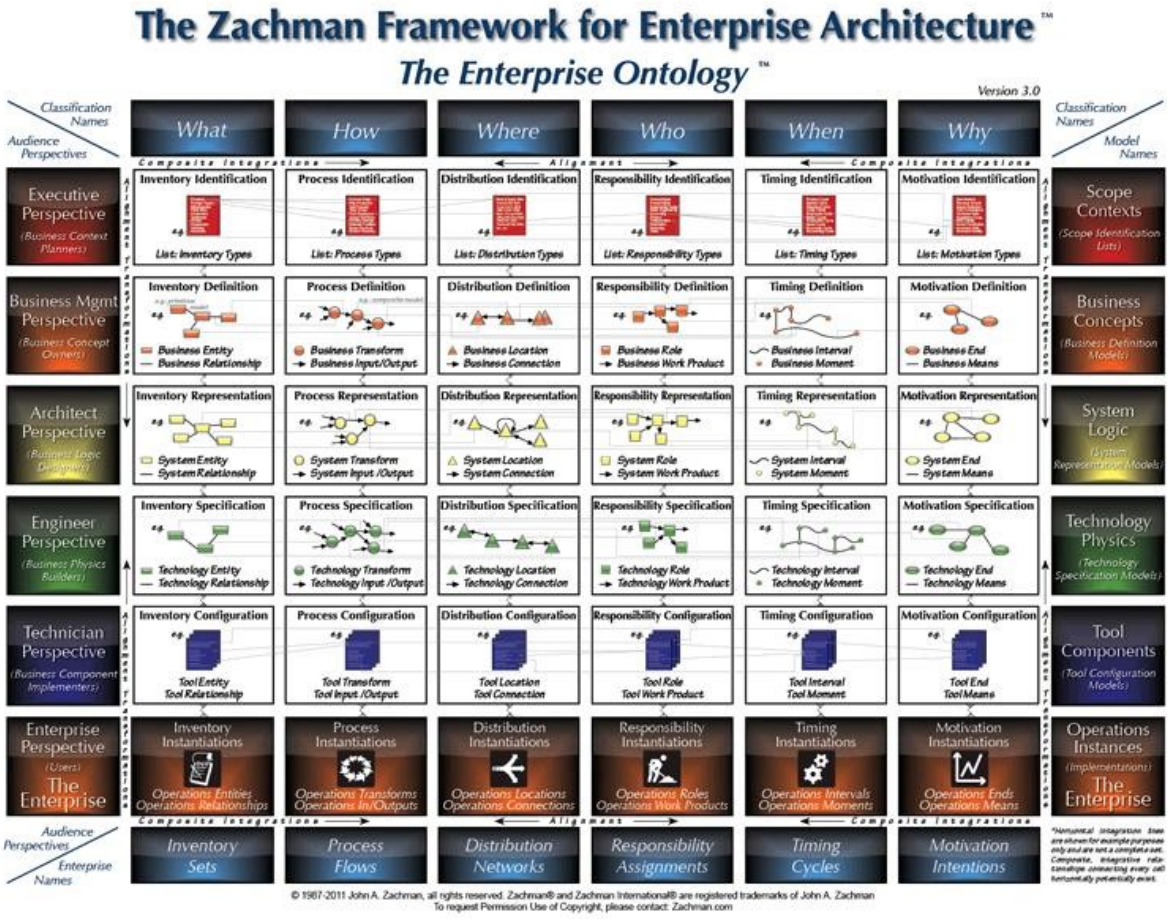


Figure 2.5: The Zachman Framework for Enterprise Architecture (Zachman, 2008)

Zachman (2008) refers to the focus areas as communication interrogatives and the perspectives as reification transformations. These two dimensions are presented in a grid consisting of 36 cells. Each of the cells is an intersection between a particular focus area and the viewpoint of a

particular stakeholder. Moving in one row from left to right presents different focus areas from the same stakeholder's perspective. Moving from row to row from top to bottom presents different perspectives on the same focus area. The columns are titled *what, how, where, who, when* and *why.* The rows are titled according to the individual perspectives of the executive (planner), business management (owner), architect (designer), engineer (builder), technician (implementer) and enterprise (users).

Sessions (2007) argues that the Zachman framework is actually a taxonomy that can be used to organise architectural artefacts in an organisation, and not a framework. The term 'taxonomy' is more appropriate since the intersections of the focus areas and perspectives provide a classification of an artefact. Zachman (1996) also argues that the framework is simply a structure for classifying and organising representations of an organisation. The framework can therefore be used to classify organisational artefacts with each architectural artefact belonging in one specific cell on the grid. Once each cell is populated with the appropriate artefact, enough detail will be available to describe the system from the perspective of each stakeholder. For architecture to be complete, each cell on the grid needs to have sufficient and appropriate artefacts to comprehensively and completely describe the system from the perspective of each stakeholder and each focus area, that is, from each of the 36 perspectives.

Continuing the debate about terminology, Zachman (2008) contends that the Zachman Framework is an ontology and not a methodology. Ontology refers to the existence of a set of components of the organisation. Zachman (2008) argues that the framework is the ontology for describing the organisation. The framework is seen as the structure and not as a process. A methodology, however, is a process. The framework, according to Zachman (1996), is a logical structure that can be utilised to classify and organise the artefacts used to manage an organisation, as well as employed during the development of its systems.

Based on the 36 perspectives and the typical artefacts per cell on the Zachman grid, the Zachman Framework is not a recipe for creating, operating or changing an organisation. It is, however, an ontology for classification of the subsets of the organisation and ensuring appropriate focus on each of the subsets. Sessions (2007) provides a similar view and contends that the Zachman Framework does not provide a process for creating a new organisational architecture; neither does it provide assistance in identifying a requirement for a new future architecture.

The Zachman Framework does provide for a range of stakeholders representative of all views in the organisation. As stated above, it provides for the perspectives of the planner, owner, designer, builder, implementer and users in the organisation. It does, however, not refer to EI or any skills or competencies required by these stakeholders to potentially use the framework more effectively in pursuit of improved business – IT alignment. It could be argued that the Zachman Framework was not designed for this low level of granularity. The use of the framework as a tool (Zachman, 1996) does require intense collaboration between the various stakeholders encapsulated in the model, which is not possible without specific non-technical skills and competencies.

2.3.2 The Open Group Architecture Framework

The Open Group Architecture Framework (TOGAF), opposed to the Zachman Framework, is a recipe, that is, a process for creating an organisational architecture (The Open Group, 2012). As an architecture framework, TOGAF provides methods and tools which can be used create, maintain and use enterprise architecture. The foundation of TOGAF is an iterative process model. It is accompanied by a set of best practices and re-usable architecture assets. TOGAF provides for four architecture domains, namely, the business, data, application and technology architectures (The Open Group, 2012).

The TOGAF Architecture Development Method (ADM) provides the process for the creation of enterprise architecture. The ADM can be used for the creation of an architecture framework, developing of architecture content, transitioning to new architecture as well as governing the implementation of an enterprise architecture. This is done repeatedly using the ADM to define and implement architecture. The architecture repository is used with the ADM. The architecture repository contains examples of architectures, models, and patterns that can be used as templates when creating architecture. As architecture is developed over time, the architecture repository will grow, since newly developed artefacts are constantly added.

The ADM process is illustrated in Figure 2.6 below.

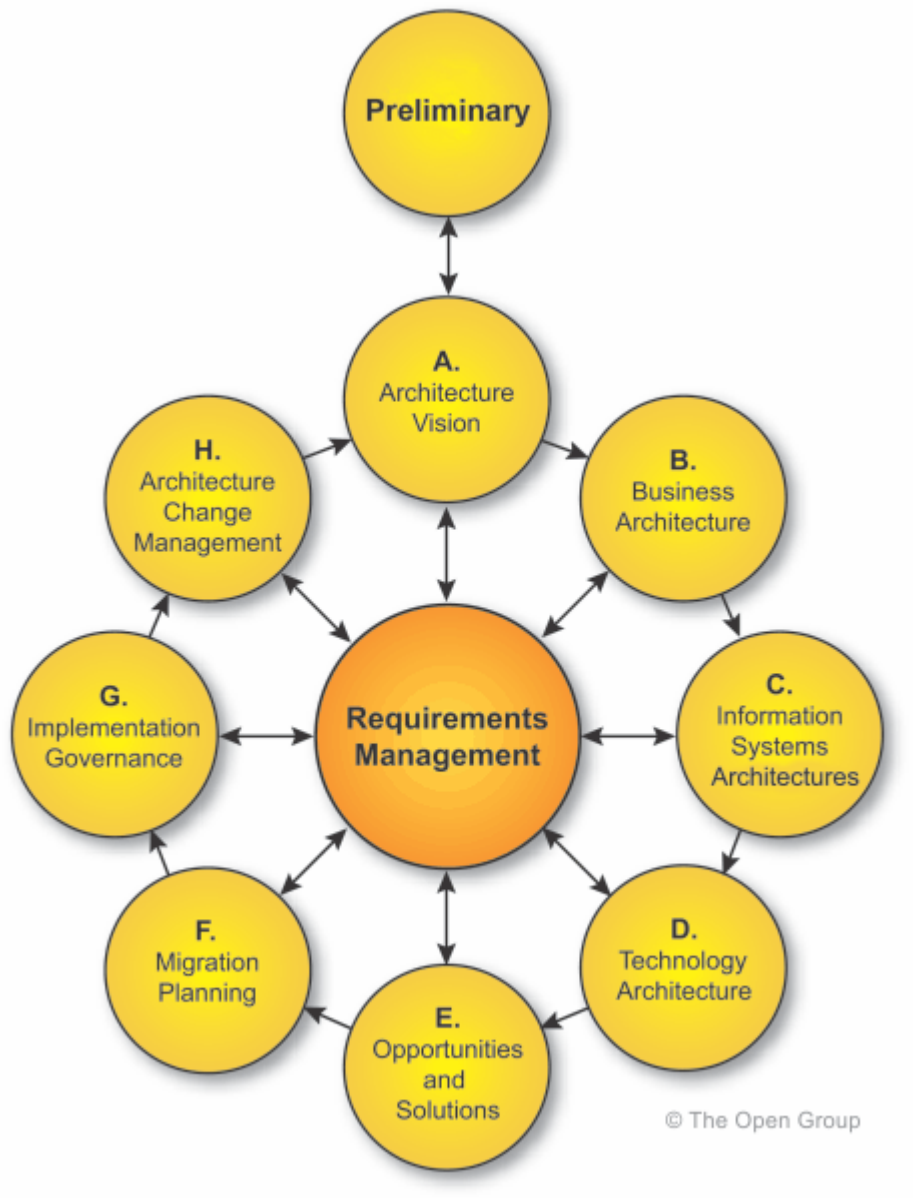


Figure 2.6: The ADM process (The Open Group, 2012)

The ADM consists of nine cyclical phases:

- Preliminary
- A. Architecture vision
- B. Business architectures
- C. Information systems architectures
- D. Technology architectures
- E. Opportunities and solutions

- F. Migration planning
- G. Implementation governance
- H. Architecture change management

The objectives of each phase are illustrated in Table 2.2 below.

Table 2.2 Objectives per phase of the ADM

Phase	Objective
Preliminary	• Determine where the organisation wants to be in terms of architecture capability • Establish the required architecture capability
A. Architecture vision	• Develop a vision of capabilities and value to be created by means of the new architecture • Acquire approval for statement of architecture work
B. Business architectures	• Develop the target business architecture • Develop proposed architecture roadmap
C. Information systems architectures	• Develop the target application architecture • Develop proposed architecture roadmap
D. Technology architectures	• Develop the target technology architecture • Develop proposed architecture roadmap
E. Opportunities and solutions	• Produce initial complete version of the architecture roadmap • Develop transition architectures if needed
F. Migration planning	• Finalise the architecture roadmap and the supporting Implementation and migration plan • Align implementation and migration plans with organisational change management strategies

	• Facilitate understanding of business value and cost-of-work packages and transition architectures
G. Implementation governance	• Govern the implementation to ensure alignment with target architectures • Govern changes to target architectures if needed
H. Architecture change management	• Maintain the architecture life-cycle • Execute the architecture governance framework • Ensure the EA capability meets requirements

To illustrate the involvement of the human component in implementing EA by means of TOGAF, the following section will elaborate on what the enterprise architect needs to do practically to achieve the objectives per phase as presented above.

In the preliminary phase, the enterprise architect needs to collaborate with the business executives as well as the CIO to introduce TOGAF and agree on any changes needed to suit the organisational culture. In collaboration with business executives, the enterprise architect needs to understand the business philosophy and business models, as well as strategic goals and drivers. Additionally, among the business executives, the CIO, as well as the enterprise architect, they have to agree on the architectural principles relevant to the organisation. This process involves close collaboration, communication and trusting relationships to share information between business and IT role players and achieve common understanding and consensus.

In phase A, the CIO needs to work closely with the business executive and supporting business team members to define the scope of the architecture project, identify constraints, as well as document the high-level baseline architecture and future target architectures. This includes the business, technology, data and application architectures.

Phase B involves the compilation of a detailed baseline and future target architectures using the deliverables from phase A. Following this is a detailed gap analysis between baseline and target architectures.

As part of phase A and phase B, IT role players such as the enterprise architect, CIO, and the project manager, as well as business analysts, need to facilitate approval and buy-in from business representatives for the future target architectures. Close collaboration and sharing of knowledge will be needed between business representatives, the project manager, and business analysts in order to compile and agree on the detailed baseline and future target architectures.

Phase C involves formulating the target information and application architectures. The participants in this phase are primarily IT role players. It involves a collaborative team effort involving, amongst others, the enterprise architect, CIO, business analysts, system analysts, application portfolio managers and data analysts.

The activities of phase D involve documenting the existing technology architecture as a baseline. It also requires the development of the technology architecture needed to support the proposed future architecture. Once this has been done, a gap analysis has to be done between the current and proposed technology architecture. The role players in this phase are primarily the technical architects as part of the CIO's team. Close collaboration is needed between the role players to achieve buy-in and consensus on the proposed future architecture. The project manager plays a key role in this phase to facilitate the team working together towards delivering the future target technology architecture.

Phase E focuses on evaluating the various implementation alternatives in terms of implementing the target architecture. Members of the CIO's team, as well as representatives from the business side, are involved in determining the most suitable way to implement the proposed target architecture. Business and strategic plans need to be reviewed to determine potential constraints, and gaps identified in steps B, C and D need to be reviewed and consolidated. Implementation dependencies need to be defined and potential risks involved in transforming to the target architecture should be assessed, documented and mitigation strategies formulated. An overall implementation and migration strategy is the next step as part of phase E. This needs to be facilitated by the project manager, after which the next focus is the identification of work packages needed to implement the target architectures. The next step is the creation of an architectural road map and detailed implementation and migration plans. The project managers and supporting staff from the project office are key role players in these activities. Business representatives, including project owners and project sponsors, are key players as part of this collaborative effort, together with IT role players such as the CIO and the enterprise architecture team.

Phase F encompasses the compilation of detailed implementation and migration plans. Business role players responsible for business planning and staffing of implementation efforts, the CIO and the enterprise architecture team, business and IT project and portfolio management teams as well as operations management are involved in this planning phase. The business value for each work package needs to be determined and business and IT cost and resource estimates need to be compiled for each work package. This is followed by the prioritisation of each project, and succeeded by the compilation of detailed implementation plans for business and IT activities.

Phase G focuses on governing the implementation projects. Scope and priorities are confirmed between the project manager and the development team as well as business representatives on each project. Resources and skills required on both the IT and business sides are identified. This phase also includes conducting post-implementation reviews and the compilation of service-level agreements between business and IT.

Phase H involves establishing and managing relevant change management processes as well as change governance structures. This is a collaborative effort between business and IT management requiring discipline and close collaboration between business owners and IT professionals in the SDLC.

Figure 2.7 illustrates a sample of typical stakeholders involved during the ADM cycle (The Open Group, 2012). In this example, provided by The Open Group, there are 22 different stakeholder types during a typical EA implementation. Depending on the size of the organisation and industry involved, the number of stakeholders can be greater or smaller. The illustration is, however, comparable to stakeholder complements I have observed as part of my corporate IT experience. Successful implementation of EA projects is highly dependent on close collaboration and teamwork between the above mentioned typical stakeholders.

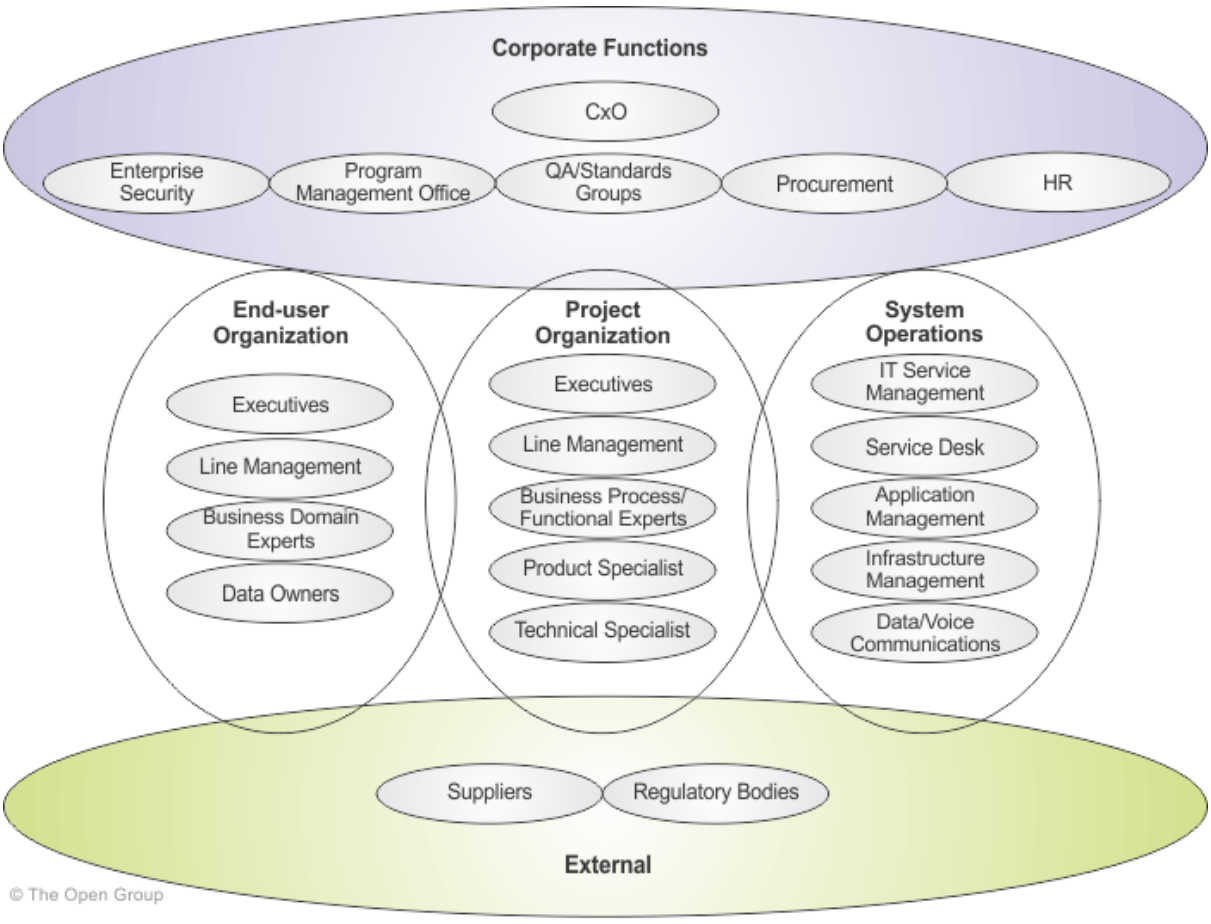


Figure 2.7: Stakeholder analyses (The Open Group, 2012)

As in the case of the Zachman Framework, TOGAF does not refer to EI or any skills or competencies required by the different stakeholder types involved in a typical EA implementation. As stated above, the ADM provides the process for the creation of enterprise architecture. TOGAF requires intense collaboration between the different stakeholder types during execution of each phase of the ADM. The human is, however, absent from the guidelines per phase. The absence of skills and competency guidelines for IT professionals utilising the ADM, especially the EI of EA professionals, could lead to unsuitable decisions, negatively impacting business – IT alignment and organisational success.

2.3.3 Federal Enterprise Architecture

In previous sections, the Zachman framework has been classified as a taxonomy, whereas TOGAF has been classified as a methodology for the creation of EA. The Federal Enterprise

Architecture (FEA) is classified as a both a taxonomy and methodology for the creation of EA. The FEA is used by the US Government. At the time of writing this literature review, the FEA was relatively new. Although most of the FEA components have only been available since 2006, Sessions (2007) argues it is the most complete, compared with the Zachman taxonomy and TOGAF. FEA consists of a comprehensive toolset to implement EA. It includes a perspective on EA, reference models, as well as a process which can be used to implement EA. It also includes a migration process, a taxonomy which can be used to classify EA assets, as well as a suggested method of measuring EA implementation success (Sessions, 2007).

The main goals of the FEA are to achieve service delivery, functional Integration, resource optimisation as well as to exist as an authoritative reference for the complete organisational EA. In terms of service delivery, the goal is for the FEA to assist in achieving IT agility in contributing to the achievement of business objectives. In terms of functional integration, the vision for FEA is to provide standards which can aid the interoperability between the organisation's systems, programmes and services. Resource optimisation is a strong focus of the FEA, specifically to aid the implementation of technologies focused on resource optimisation such as cloud computing and social media (Sessions, 2007). As an authoritative reference for the complete organisational EA, the FEA provides a common view of strategic goals, mission, organisational support services, and data, as well as enabling technologies. It also provides for a reference repository of system design documentation as well as security.

The FEA provides for certain basic elements which are needed to contribute to the success of any EA programme. These are governance, principles, method, tools, standards, use, reporting and audit. Method as an element includes a Collaborative Planning Methodology (CPM) to facilitate collaboration between stakeholders such as business representatives, IT representatives, planners and implementers during the EA process. The CPM is a detailed methodology, including role clarity and outcomes per step of the methodology.

The FEA provides for documentation with regard to six specific sub-architecture domains as follows:

- Strategy
- Business
- Data
- Applications

- Infrastructure
- Security

For each one of the above domains, a complete set of EA artefacts is included in FEA, with one specific artefact per domain prescribed as minimum requirement. For applications, an application interface diagram is prescribed for example. Additional to the domains, the FEA approach to EA provides for six reference models namely:

- Performance reference model (PRM)
- Business reference model (BRM)
- Data reference model (DRM)
- Application reference model (ARM)
- Infrastructure reference model (IRM)
- Security reference model (SRM)

Each of these reference models is accompanied by its unique taxonomy and methodology. The PRM provides for a taxonomy and methodology which can be used to measure the organisational performance during the implementation of EA. The PRM aims to provide information which can contribute to improving decision-making and alignment as well as assist in identifying opportunities to improve performance. The BRM assists in mapping lines of business and business activities to services within an organisation. The DRM provides standards for the categorisation of data, while the ARM provides a taxonomy for the categorisation of application system-related technologies. The IRM provides a taxonomy for the categorisation of network- and cloud-related technologies with the SRM in presenting a roadmap for the implementation of relevant security in the EA.

The FEA also provides for a roadmap for the complete EA implementation, referred to as the Enterprise Roadmap. Accompanying this roadmap, are specific views of the current and future situation. The roadmap provides a mapping of strategic goals to business services. The Roadmap presents the organisation's overall EA. It facilitates the identification of performance gaps and resource requirements for EA implementation. It also presents planned solutions and transition plans to the future EA. Included also are the EA governance process, the implementation methodology, as well as the EA documentation framework. Roles and responsibilities of stakeholders typically involved in implementing EA are illustrated in the roadmap. The FEA enterprise refers to 19 typical stakeholders. In the case of TOGAF there was

reference to 22 stakeholders. The collaboration required between these stakeholders requires specific human skills and competencies, none of which are referred to at all in the FEA. This oversight, especially the absence of EI, could lead to unwise decisions by business and IT stakeholders, negatively influencing business – IT alignment and resultant organisational success.

2.3.4 Gartner Enterprise Architecture Framework

In terms of naming standards, Sessions (2007) refers to the Gartner Enterprise Architecture Framework (GEAF) as a practice as opposed to taxonomy, process or methodology. Gartner, however, refers to the term 'methodology' or 'framework'. The GEAF as illustrated in Figure 2.8 below is a proprietary framework resulting in very little guidance available in the literature on how the methodology should be used. The success of the GEAF lies in the intersection of the business owners, information specialists and the implementers of technology in an organisation (Sessions, 2007). The GEAF is represented by the intersection of four layers, namely, business relationships, business processes, patterns, and bricks, with various domains as part of technical and information architecture (Keltikangas, 2006). Bricks are the lowest level and represent components used to implement architectural patterns. The architectural patterns consist of technological components which assist in fulfilling the business processes on the next highest level. The information architecture encompasses the data, application, integration and point of access domains. The technical architecture includes the infrastructure, systems and security domains.

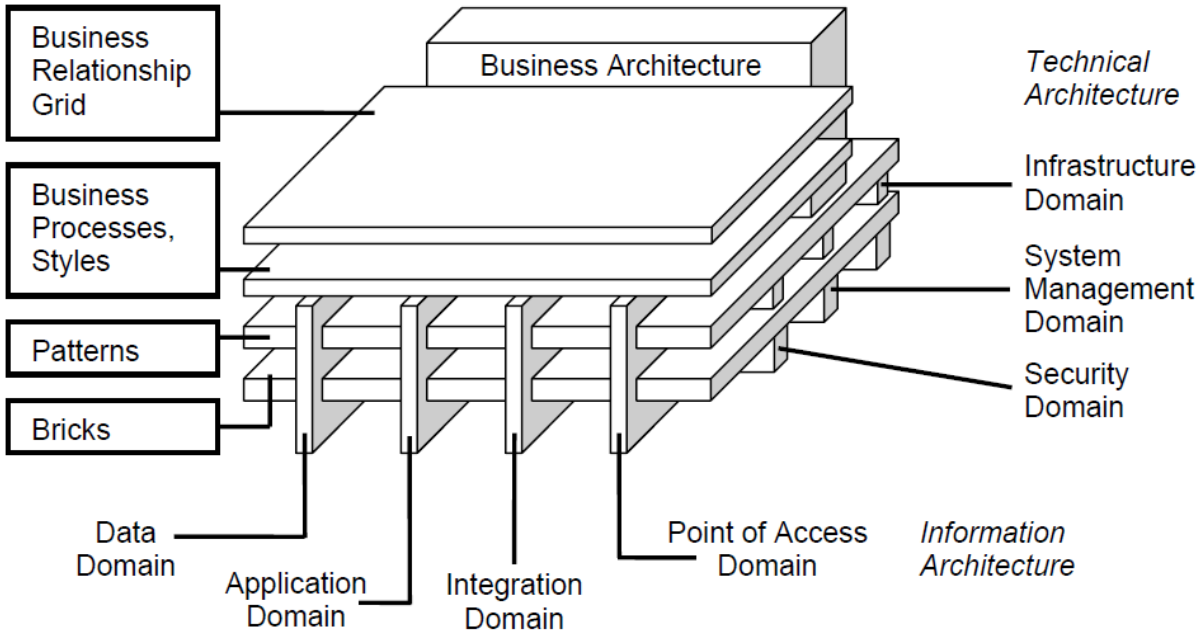


Figure 2.8: The Gartner Enterprise Architecture Framework (Keltikangas, 2006)

Based on stakeholder analysis presented in the case of TOGAF and FEA, the GEAF will require collaboration between business and IT role players such as executives and architects on the same scale and level. This collaboration is not possible without support of specific collaboration and the team-work skills and competencies of the actors involved in implementing EA in the organisation. Examining the available literature on GEAF, no evidence could be found of any recommended skills and competencies which could potentially contribute to a more successful outcome using GEAF.

The above discussion on The Zachman Framework for Enterprise Architecture, TOGAF, FEA and GEAF as well-known and popular alternative approaches to EA, illustrates the absence of non-technical skills and specifically EI in these EA tools. The alternatives provide for relationships between various stakeholders driving business – IT alignment. This gap in the EA literature illustrates the limited value placed on non-technical skills by the IT community. The main schools of thought on EA, according to Lapalme (2012), are discussed in the following section.

2.3.5 Schools of thought on Enterprise Architecture

Lapalme (2012) contends that three main schools of thought on EA are found in the literature. These are Enterprise IT Architecting, Enterprise Integrating and Enterprise Ecological Adaptation. Enterprise IT Architecting involves aligning the IT assets of an organisation through strategy, design and management. In this school of thought Lapalme (2012) sees EA as the glue that holds business and IT together. Enterprise Integrating as a school of thought on EA involves designing all the facets of an organisation to facilitate execution of enterprise strategy by maximising the overall coherency between all its facets, including information technology. In this case, Lapalme (2012) views EA as linking strategy and execution. The Enterprise Ecological Adaptation school of thought entails fostering organisational learning by designing all the facets of an organisation, including relationship with and adaption to the environment. Enterprise strategy creation and organisation design are also included in this school of thought. In this third category, Lapalme (2012) views EA as a means to achieve innovation and sustainability. Lapalme (2012) does provide some indication of skills needed by the enterprise architect in each of these schools of thought.

In the Enterprise IT Architecting school, the enterprise architect is seen as a planner and designer with primary challenges being communication and getting buy-in from stakeholders for his plans of the future organisation. Focus is placed on technical competence and engineering knowledge as EA skills. Lapalme (2012) does not provide any indication of which non-technical skills are required from the enterprise architect to successfully communicate and acquire buy-in from stakeholders for his future plans. No reference is made to EI either.

In the Enterprise Integrating School, the enterprise architect is seen as a facilitator. The enterprise architect needs to be able to facilitate small groups, collaborate with business and IT, and apply systems thinking. Lapalme (2012) argues the enterprise architect needs facilitation skills, systems thinking, and illustration and collaboration skills. This is progression from absence of non-technical skills to some level of non-technical skills. Lapalme (2012), however, does not refer to EI required in the role of enterprise architect.

In the Enterprise Ecological Adaptation School, the enterprise architect is seen as a nurturer. Lapalme (2012) contends the enterprise architect needs to be able to build dialogue between business and IT stakeholders, assist the audience with making sense of proposed architecture,

and facilitate large groups. No reference is made to which non-technical skills or EI are required from the enterprise architect.

2.3.6 Conclusion

The above examination of enterprise architecture frameworks, as well as schools of thought on enterprise architecture, illustrates the absence of the human in enterprise architecture tools widely used by business and IT stakeholders to address, amongst others, business – IT alignment. Various taxonomies, frameworks, methodologies and practices are available to assist business and IT role players with aligning business and IT strategies. However, a gap in the literature exists with regard to the non-technical skills and competencies required of the IT professionals who need to use these EA tools in order to align business and IT. The human is neglected in the EA literature, with very little guidance provided on which 'human' skills, characteristics or competencies IT professionals such as the CIO, enterprise architects, business analysts, systems analysts and project managers require to foster dialogue and collaborative relationships among business and IT. These 'human' skills and competencies, amongst other constructs, will be explored in the next section.

2.4 Introduction to emotional intelligence

Shifting the focus to the human side of IT, it is appropriate to define emotional intelligence (EI). A reference to EI implies a generic competence in perceiving emotions in oneself as well as in others. Additionally, this competence assists individuals with the regulation of emotions and in effectively coping with emotive situations (Zeidner et al., 2004). The terms 'EI' and 'Emotional Quotient' (EQ) are often used interchangeably. EI denotes EQ when it relates to a psychometric instrument that measures EI or to the numerical score obtained from an EQ instrument (similar to an IQ test that renders an IQ score). The use of EI in all other instances is more acceptable in the academic environment. EQ (to denote EI), however, is a layman's term and more commercial in nature.

In order to understand the construct of emotional intelligence, it is prudent to explore the characteristics of emotion, feeling and the historical development of the concept of intelligence.

2.5 Characteristics of emotion and feeling

Few are those who see with their own eyes and feel with their own hearts

Albert Einstein (1879 – 1955)

The term 'emotions' and 'feelings' are often used in the literature and have historically been a point of contention in the sense that scholars have debated whether these terms were in essence the same thing or whether they could be separated. Although scholars argue there is a clear distinction between emotions and feelings, both are governed by the same neural circuitry.

2.5.1 Emotions

Salovey and Mayer (1990) see emotions crossing the boundaries of psychological subsystems, specifically physiological, cognitive, motivational and experiential. Furthermore, they argue that emotions typically arise in response to an internal or external event that has a positive or negative connotation for the individual. It is known that emotions do impact the reasoning processes (Oaksford et al., 1996), as well as the quality of judgement and decision-making (Shafir & LeBoeuf, 2002).

Bechara et al. (2007:275) distinguish between emotions and feelings, and view emotions as various physiological changes in body and brain conditions grouped together. These physiological changes in body and brain states are triggered in reaction to our perception of an occurrence in our immediate environment. These physiological changes such as a change in heart rate can be visible to an external observer. Some of these changes are at times not visible to the external observer for example a change in heart rate. These changes are physical signs of the human body's reacting to a stimulus.

The initiation of an emotion is when we become aware of an emotional stimulus. Bechara et al. (2007:274) refer to this as the object of the emotion. Processing systems in the brain relays the presence of this object to the amygdala and prefrontal cortex of the brain. Bechara et al. (2003) refer to a term 'primary inducers' as either positive or negative objects of emotion in our immediate environment which instantaneously trigger an emotion. The term 'secondary inducers' as objects of emotion refers to memory recollection of the above positive or negative objects of emotion (primary inducers).

Therefore, thinking about a positive or negative object of emotion subsequently triggers an emotional response. The above-mentioned scholars further posit that the amygdala is primarily responsible for triggering the emotion in the case where the object of the emotion is in our immediate environment. The prefrontal cortex of the brain, on the other hand, is primarily responsible for triggering the physiological changes in the body (emotion) when recalling the object of the emotion from memory.

2.5.2 Feelings

Feelings are formed in the visceral sensory structures situated in the brainstem tegmentum. These feelings are formed once signals of the physiological changes (emotions) in the body are received. Feelings can be viewed as a neural representation of the various physiological changes in body and brain conditions. Feelings are therefore what the individual senses or subjectively experiences as a result of emotions, that is, the changes in body and brain conditions (Bechara et al., 2007:277).

Emotions and feelings are inherently part of each IT professional who utilises strategic alignment models and EA frameworks, approaches, methodologies or ontologies to contribute to improve business – IT alignment. These human aspects are ignored in enterprise architecture tools utilised by business and IT stakeholders to improve business – IT alignment.

2.6 Historical development of the concept of intelligence

> *There are painters who transform the sun to a yellow spot, but there are others who with the help of their art and their intelligence transform a yellow spot into the sun.*
>
> *Pablo Picasso (1881 – 1973)*

Many scholars have examined the concept of intelligence. Various types of intelligence have emerged as part of the intelligence field (Mayer & Salovey, 1997). Table 2.3 below shows a summary of the intellectual development of the concept of intelligence.

Table 2.3: Intellectual development of concept of intelligence

Scholar	Date	View of intelligence
Galton	1883	Intelligence is a function of psychophysical abilities
Stern	1912	Intelligent quotient (IQ): Mental age (MA) divided by chronological age (CA) and multiplied by 100
Binet & Simon	1916	Intelligence is a function of the ability to learn
Terman	1916	Stanford-Binet Intelligence Scales
Spearman	1927	Intelligence originates from one factor 'g'
Thurstone	1938	Intelligence originates from seven primarily mental ability factors
Guilford	1950	Intelligence originates from up to 150 mental ability factors
Wechsler	1958	To act purposefully, to think rationally and to deal effectively with the environment
Vernon	1971	Hierarchical model of intelligence with factors fewer than those of Guilford
Gardner	1983	Multiple intelligences

In the following section, a brief overview of the twentieth-century thought development of the intelligence construct as summarised in Table 2.3 is provided.

Historically, views on intelligence reflect two traditions. One tradition is focused on psychophysical abilities, for example, sensory acuity and physical strength. The other is focused on judgemental abilities.

Galton (1883) argues that intelligence is a function of psychophysical abilities and measured aspects such as weight discrimination, pitch sensitivity and physical strength. Stern (1912) argues that intelligence is more appropriately measured by means of an intelligent quotient (IQ). In his view, IQ is measured as a ratio of mental age (MA), divided by the individual's chronological age (CA), and multiplied by 100. Binet and Simon (1916) measure intelligence as a function of the ability to learn. These scholars argue intelligence is a function of judgement and not of psychophysical abilities, and are of the opinion that intelligence comprises three elements, namely direction, adaption and criticism. Binet and Simon (1916) measure intelligence by means of comparing chronological age. They aimed to determine the average intelligence for an individual of a given age, therefore the mental age.

Terman (1916) supports the approach of Binet and Simon (1916) and developed the start of what became the Stanford-Binet Intelligence Scales (Terman & Merrill, 1937, 1973). Wechsler (1958) supports the view of Binet and Simon (1916). He is of the opinion that intelligence should not be limited to a test score but that it be used during effective work performance as well as relating to people as part of daily life.

Spearman (1927), Thurstone (1938), Guilford (1950), and Vernon (1971) use factor analysis to determine the factors underlying intelligence. Spearman (1927) argues that intelligence can be understood in terms of a single factor 'g'. This factor, according to Spearman, contributes to mental energy. Thurstone (1938), however, argues that intelligence does not originate from one factor only, but from seven primarily mental ability factors. In contrast to Spearman's one single factor, Guilford (1950) presents a model including up to 150 mental factors. Wechsler (1958) defines intelligence as "the aggregate or global capacity of the individual to act purposefully, to think rationally and to deal effectively with his environment". Vernon (1971), amongst other scholars, produced a hierarchical model of intelligence containing considerably fewer factors than that of Guilford (1950).

Gardner (1983) introduced the concept of multiple intelligences. In contrast to the opinion of Thurstone (1938), who views intelligence as a collection of various abilities, Gardner argues that there are eight forms of intelligence which are independent of one another. Each of these components is an intelligence on its own. Table 2.4 below illustrates Gardner's eight multiple intelligences.

Table 2.4: Gardner's multiple intelligences (Gardner, 1983)

Type of intelligence	Activities reflecting this component
Linguistic intelligence	Reading a book, writing an article or understanding speech
Logical-mathematical intelligence	Logical reasoning and solving problems e.g. mathematical
Spatial intelligence	Reading a map, getting from one place to another
Musical intelligence	Playing an instrument, singing a song
Bodily-kinaesthetic intelligence	Participating in sport
Intrapersonal intelligence	Understanding ourselves
Interpersonal intelligence	Relating to others
Naturalist intelligence	Understanding patterns visible in nature

In contrast to the factorial theory of intelligence, Gardner uses various sources of data to gather evidence of intelligence. Gardner (1983) used eight indicators in identifying the presence of intelligence:

- Potential isolation due to brain damage. Damage to a part of the brain may annihilate or preserve a particular kind of intelligence
- The existence of masterminds demonstrating exceptional ability
- A detectable core operation or set of operations.
- Visible history of development of the individual from novice to master.
- Visible evolutionary history where an increase in intelligence can be contributed to adaption to the environment
- Supporting signs from cognitive experimental research
- Supporting evidence from psychometric tests
- Susceptibility to encode in a symbol system such as language and musical notation or in a cultural area such as dance

Gardner emphasises the individual components of intelligence. Sternberg (1985, 1988, 1996), in contrast, emphasises the collaboration between the components in his triarchic theory of human intelligence. According to the triarchic theory, intelligence consists of three aspects, namely the relationship of intelligence to the internal world of a person, to the experience of a person, as well as to the external world.

The next section will review the origins of emotional intelligence within the above context of emotion and intelligence.

2.7 Origins of Emotional Intelligence

Brackett et al. (2011) are of the opinion that emotional intelligence (EI) stems from two areas of psychological research that emerged over 40 years ago, namely *cognition* and *effect* (emotional processes collaborate to raise the degree of thinking), and the *evolution* in models of intelligence.

Being mindful of the above, a systematic review of the literature indicates the origin of EI can be traced to the nineteenth century. The first known publication in the expanded area of emotional –

social intelligence was produced by Charles Darwin in 1872. Darwin (1872) highlights the expression of the emotions in man and animal. Subsequent to Darwin, Thorndike (1920:228) first defined the general concept of EI in 1920. Thorndike defined an aspect of EI, namely social intelligence, as “the ability to understand and manage men and women, boys and girls – to act wisely in human relations”.

Scholars such as Moss and Hunt (1927), Doll (1935) and Chapin (1942) followed with studies investigating socially competent behaviour and the first publication of instruments to measure socially competent behaviour. Important to note is that Wechsler’s test of cognitive intelligence, published in 1939, includes subscales that aim at measuring features of social intelligence. Wechsler (1940, 1943) further argues the presence of non-intellective factors on intelligent behaviour, which in essence is another reference to the construct of social intelligence.

The attempts of Thorndike to measure social intelligence were revisited by Thorndike and Stern in 1937. These scholars conclude that Thorndike’s attempts to measure the ability to deal with people have failed and express the hope that further research will clarify the ability to manage and understand people (Thorndike & Stern, 1937). Following the approach of these first pioneers, Wechsler proposed in 1943 that non-intellective abilities are essential for predicting success (Wechsler, 1943). Wechsler (1943:103) states:

> The main question is whether non-intellective, that is affective and cognitive abilities, are admissible as factors of general intelligence. [My contention] has been that such factors are not only admissible but necessary. I have tried to show that in addition to intellective there are also definite non-intellective factors that determine intelligent behavior. If the foregoing observations are correct, it follows that we cannot expect to measure total intelligence until our tests also include some measures of the non-intellective factors.

The work of the abovementioned scholars was highlighted decades later when Gardner proposed that ‘intrapersonal’ and ‘interpersonal’ intelligences, as varieties of personal intelligence, are as important as the intelligence typically measured by IQ tests (Gardner, 1983). Following the efforts to define and measure social intelligence, alexithymia started to receive research focus post-1945 (MacLean, 1949; Ruesch, 1948). Alexithymia is an emotional disorder characterised by difficulty in distinguishing between feelings and emotional arousal. Typical to alexithymia is difficulty in identifying and describing feelings and a limited ability in spontaneous dreaming, emotional imaging and fantasy (Taylor & Bagby, 2000). Bar-On (2005:2) argues that

alexithymia is the essence of emotional-social intelligence in that it “focuses on the ability (or rather inability) to recognize, understand and describe emotions”.

Reference to EI has been found in early novels. In Jane Austin’s novel *Pride and Prejudice*, the author refers to characters that possess the quality of EI (Van Ghent, 1953). Barbara Leuner, a German psychoanalyst, argued that the hallucinogenic drug LSD might help women with low EI. Leuner (1966) contended that early separation from their mothers led women to have more emotional problems. Payne (1986) used the term EI in an unpublished thesis. His contention is that it is vital to develop emotional awareness in children.

Gardner (1983) contends that personal intelligence is based on intrapersonal (emotional) intelligence and interpersonal (social) intelligence. Saarni (1990), following the argument of Gardner (1983), argues eight interrelated emotional and social skills are incorporated in EI. Moreover, Bar-On (1988, 1997b, 2000) illustrates that emotional – social intelligence is composed of a number of intrapersonal and interpersonal competencies, skills and facilitators that collectively determine effective human behaviour. Bar-on argues it is more appropriate to refer to “emotional-social intelligence” rather than “emotional intelligence” or “social intelligence” (Bar-On, 2005).

In conclusion, Salovey and Mayer (1990) view EI as an element of social intelligence and proposed a framework, definition, as well as suggestions for the measurement of this construct. In the same vein, Goleman (1995, 1998b) includes social intelligence in his model of EI. Bar-On (2005) argues that it is reasonable to deduct that EI and social intelligence are related and may indeed both include interrelated elements of the same construct. Goleman (2006) subsequently argues that it may be prudent to revisit his original inclusion of social intelligence (Goleman, 2006). Table 2.5 below shows a summary of the origin of EI.

Table 2.5: Summary of the origin of emotional intelligence

Scholar	Date	Thought development
Darwin	1872	Expression of the emotions in man and animal
EL Thorndike	1920	Social intelligence as an aspect of EI
Moss & Hunt	1927	Socially competent behaviour and instruments to measure socially competent behaviour
Doll	1935	Socially competent behaviour and instruments to measure socially competent behaviour
RL Thorndike	1937	Revisited EL Thorndike's measure of social intelligence
Stern	1937	Revisited EL Thorndike's measure of social intelligence
Chapin	1942	Socially competent behaviour and instruments to measure socially competent behaviour
Weschler	1938, 1939, 1940, 1943	• Cognitive intelligence test includes subscales to measure features of social intelligence • Presence of non-intellective factors in intelligent behaviour • Non-intellective abilities essential for predicting success
Reusch	1948	Alexithymia
Maclean	1949	Alexithymia
Cronbach	1960	Social intelligence unlikely to be defined
Leuner	1966	Reference to drug to combat low EI
Gardner	1983	Personal intelligence is based on intrapersonal (emotional) intelligence and interpersonal (social) intelligence
Payne	1986	Uses the term emotional intelligence in an unpublished thesis
Bar-On	1988, 1997, 2000, 2005	• Emotional-social intelligence is composed of a number of intrapersonal and interpersonal competencies, skills and facilitators • Suitable to refer to emotional-social intelligence opposed to emotional intelligence • EI and social intelligence are related and elements of the same construct
Saarni	1990	Eight interrelated emotional and social skills incorporated in emotional competence

Salovey & Mayer	1990	EI as an element of social intelligence
Goleman	1995, 1998	EI model includes social intelligence

In the following section an overview of various approaches to EI that are available in literature is presented.

2.8 Approaches to emotional intelligence

EI has become a popular topic of discussion since the publication of two articles in academic journals in 1990 (Mayer et al., 1990; Salovey & Mayer, 1990), as well as Goleman's bestseller by the same name (Goleman, 1995). Following Goleman's success, the concept of EI was highlighted on the cover of *Time* and *USA Today* magazines (Gibbs, 1995). EI and EQ were also selected as the most useful new words or phrases of 1995 by the American Dialect Society (1999). Subsequently, a multitude of EI models, some competing with, and others complementing one another, have emerged.

The term 'emotional intelligence' is used in various ways. Mayer et al. (2000a) argue that the term firstly, in the broadest sense, means a *zeitgeist* or cultural trend. Secondly, the term is popularly used to designate a collection of personality traits that are believed to be important to success in life, for example, persistence and social skills. Thirdly, they argue the term designates a set of abilities related to processing emotional information.

Seal and Andrews-Brown (2010:2) contend that the multitude of EI models can be divided into three main research areas, or alternatively viewed as three competing emotional intelligence paradigms. These scholars define the paradigms as follows:

- Emotional quotient [EQ] (Bar-on, 1988) – The emotional quotient paradigm addresses psychological wellbeing and is measured by the EQ-i (Bar-On, 1997a).
- Emotional ability (Salovey & Mayer, 1990) – The emotional ability paradigm is performance based and focused on reasoning about emotions to facilitate thought; it is measured by the Mayer-Salovey-Caruso Emotional Intelligence Test (MSCEIT) (Mayer et al., 2000b).

- Emotional competence (Goleman, 1995, 1998b) – Emotional competence as an emotional intelligence paradigm focuses on behaviours that impact performance and is measured by the Emotional Competence Inventory (ECI) (Boyatzis & Goleman, 2002).

An overview of the literature on EI illustrates three basic views of the construct. Mayer et al., (2008) contend that there are psychologists who view emotional intelligence as a related set of cognitive *abilities* as shown by Mayer and Salovey in 1997. The *integrative*-model view of EI combines various specific abilities such as perception and understanding to achieve a comprehensive sense of EI (Mayer et al., 2008). However, emotional intelligence is also seen as a combination of cognitive abilities and personal attributes such as understanding oneself, relating to people and coping with immediate surroundings (Bar-On & Maree, 2009). In this *mixed* view, emotional intelligence is seen as a set of diverse competencies and general dispositions for adaptive personal functioning and coping with daily demands and challenges (Zeidner et al., 2004).

Salovey and Mayer initially proposed their theory of EI in 1990 and built on their theory until 1997. Their theory encompassed EI in a model of intelligence. Goleman (1995, 1998b) formulates EI as a theory of performance and Bar-On (2000) formulates EI in the context of personality. In terms of each of the above models, the core concept of EI includes the ability to recognise and manage emotions in ourselves, as well as in others (Goleman, 2001b:14). In line with this view of Goleman, Bar-On (2006) is of the opinion that most definitions of EI include at least one of the following emotional and social competencies:

- being able to understand one's emotions and express one's feelings
- being able to understand how others feel and to relate to them
- being able to manage and control one's emotions
- being able to solve personal and interpersonal problems
- being able to be in a positive mood and be self-motivated.

The following sections will provide an overview of the ability, the integrative, the mixed and the trait approach to EI.

2.8.1 The ability-model approach to emotional intelligence

The ability-model approach to EI focuses on skill or specific skills considered to be part of the underlying foundation of EI. Among these skills are emotional perception and the identification of emotions, utilising emotional information in thinking, reasoning about emotions and managing emotions. The ability-model approach approaches EI as an ability resembling other standard intelligences and views EI as a standard intelligence. Furthermore, according to the ability model, the EI construct meets traditional criteria for intelligence (Mayer & Salovey, 1997; Mayer Roberts & Barsade, 2008; Mayer, Salovey & Caruso, 2008).

Mayer, Roberts and Barsade (2008) argue that the interest in the accuracy of emotional perception originated from the body of research on non-verbal perception of emotions. Emotional perception encompasses making sense of social information such as intimate relationships, as well as identifying and recognising the expression of emotion.

The use of emotions to facilitate thinking is also used in ability models of EI. This includes knowing and understanding how to include or exclude emotions from thought processes. Reasoning about emotions, on the other hand, includes understanding emotions, labelling emotions, as well as being cognisant of the language of emotions – including the ability to describe one's own and the feelings of others. Emotional management is the ability to manage one's own emotions.

The followings section provides an overview of the Four-Branch Ability Model of EI (Salovey & Mayer, 1990; Mayer & Salovey 1997; Salovey et al., 2002) as one of the acknowledged two scientific approaches to EI (Brackett, 2011).

2.8.1.1 The Mayer and Salovey Four-Branch Model of emotional intelligence

Salovey and Mayer (1990) initially defined their ability model of EI containing the following three key mental processes:

- Appraisal and expression of emotion in self and others
- Regulation emotion in self and others
- Using emotions

Their view is that EI is a subset of Gardner's social intelligence (personal intelligence) that involves the "ability to monitor one's own and others' feelings and emotions, to discriminate among them and to use this information to guide one's thinking and actions" (Salovey & Mayer, 1990:5). These scholars stress the belief that EI involves recognising and using individuals' as well as others' emotional states to solve problems as well as to regulate behaviour.

Mayer and Salovey (1997) revised their 1990 definition and define EI as "the ability to perceive accurately, appraise and express emotion, the ability to assess and/or generate feeling when facilitate thought, the ability to understand emotion and emotional knowledge and the ability to regulate emotions to promote emotional and intellectual growth". The Mayer and Salovey (1997) model views overall EI as joining abilities from four areas as follows:

- accurately perceiving emotion
- using emotions to facilitate thought
- understanding emotion
- regulating / managing emotion

The authors argue that this revised definition encompasses the suggestion that emotion makes thinking more intelligent and that an individual thinks more intelligently about emotions. The above four major ability areas are referred to as four branches; therefore the model is also known as the Four-Branch Model of EI. Each of the above four abilities are arranged in the model in a hierarchical fashion. The psychological process of perceiving emotion is seen as a basic process and is at the base of the model with the highest level the managing of emotion.

Table 2.6 illustrates each of the abilities associated with the four branches of the model. Abilities that develop earlier in life are listed first in each branch followed by abilities developed later in life. The first branch is regulating and managing emotion and encompasses recognising and managing emotions in the behaviour of self and others. The second branch, understanding emotion, involves recognising and interpreting emotions. The third branch, using emotions to facilitate thinking, involves using emotions to assist the thinking process. Finally, accurately perceiving emotion encompasses the ability to identify and express emotion.

Table 2.6: Abilities associated with the Mayer and Salovey model of EI (Mayer & Salovey, 1997)

Branch	Abilities
Regulating / managing emotion	Being able to stay open to pleasant and unpleasant feelings
	Being able to engage or detach from an emotion
	Being able to monitor emotions in oneself and others
	Being able to manage emotions in oneself and others by softening negative emotions and amplifying positive emotions
Understanding emotion	Being able to label emotions and recognise the relationships between words and emotions
	Being able to interpret the meaning that emotions convey regarding relationships
	Being able to understand complex and simultaneous feelings
	Being able to recognise the transition between emotions, for example, from sadness to happiness
Using emotions to facilitate thinking	Emotions prioritise thinking by focusing attention on important information
	Generate emotions as aids to judgement and memory related to feelings
	Emotional mood swings change perspective from optimistic to pessimistic, promoting different points of view
	Emotional states such as happiness influence the approach to problem solving
Accurately perceiving emotion	Identify emotion in physical states, feelings and thoughts
	Identify emotions in other people, art, language, sound, appearance, behaviour
	Express emotions accurately and express needs that are related to those feelings
	Distinguish between accurate or inaccurate expression of feeling

2.8.1.2 Mayer-Salovey-Caruso Emotional Intelligence Test

The Mayer-Salovey-Caruso Intelligence Test (MSCEIT) is a performance-based instrument designed to measure the four branches of the ability EI model, namely regulating and managing emotion, understanding and analysing emotional information, emotional facilitation of thinking and the perception, appraisal and expression of emotion.

The MSCEIT V2.0 consists of 141 items. Each of the items is objective and impersonal and expects the individual being assessed to involve each one of the four EI branches. The MSCEIT produces an overall EI score, one score for each of two EI areas, namely experiential EI and strategic EI, one score for each of the four branches of EI, as well as one score for each of eight specific EI tasks. The tasks are faces and pictures (perceiving), sensations and facilitation (facilitating), blends and changes (understanding) as well as emotional management and emotional relations (managing). Collectively, the MSCEIT therefore produces 15 separate EI scores. Experiential EI includes the branches of perceiving emotions and facilitation of thought. The two remaining branches, namely understanding and managing emotions, are grouped under the area of strategic EI. The MSCEIT measures the ability of the individual being assessed, for example, identifying emotions from photographs being viewed. The instrument also produces a scatter score to assist in identifying possible discrepancies in task results. A bias score is also produced to identify a trend in positive or negative emotions identified from the photographs provided.

The score is based on a mean of 100 and a standard deviation of 15. An overall EI score of 100 suggests competence and average EI in reasoning with emotion and using emotion to enhance thinking. Scores in the range 50 to 99 suggest development of EI is needed, whereas scores in the range 101 to 150 suggest high EI performance.

2.8.2 The integrative-model approach to emotional intelligence

The integrative-model approach to emotional intelligence, according to Mayer, Roberts and Barsade (2008), combines each of the above three competing emotional intelligence paradigms, namely, emotional quotient, emotional ability and emotional competence. Izard's Emotional Knowledge Approach is one of the integrative approaches to emotional intelligence and addresses emotional understanding and perception specifically (Izard, 2001). Mayer, Roberts and Barsade (2008) further argue that the Four-Branch Model of EI (Salovey & Mayer 1990; Mayer & Salovey 1997; Salovey, Mayer & Caruso, 2002) is another integrative approach. Various scholars however, including Salovey, refer to the Four-Branch Model of EI as an ability model (Brackett et al., 2011). For this reason, I will refer to the Four-Branch Model of EI as an ability model.

2.8.3 The mixed-model approach to emotional intelligence

The mixed model approach to EI is different from the ability approach since it combines traits with social behaviours and competencies. The mixed approach uses broad definitions of EI that include "non-cognitive capability, competency or skill" (Bar-On, 1997a). Mixed models include emotion-related qualities such as emotional self-awareness as well as other qualities such as optimism, achievement drive, commitment and initiative (Goleman, 1998b). Reference is also made to behavioural dispositions and self-perceptions, including aspects such as empathy, impulsivity and assertiveness (Petrides & Furnham, 2003). The mixed model approach therefore includes abilities as well as personality aspects.

The following section will provide an overview of the Goleman and Bar-On models of EI, the two most popular examples of mixed models.

2.8.3.1 The Goleman model of emotional intelligence

In contrast to the ability model of EI as defined by Mayer and Salovey (1997), Goleman (1995; 1998b) defines a *mixed model* of emotional intelligence consisting of both ability and non-ability traits. "The abilities called *here* emotional intelligence, which include self-control, zeal and persistence and the ability to motivate oneself" (Goleman, 1995:285). The concept of trait refers to a consistent behaviour an individual tends to habitually demonstrate, while ability refers to EI as a standard intelligence.

The five broad areas of traits in the Goleman (1995) model of EI are knowing emotions, managing emotions, motivating oneself, recognising emotions in others, and handling relationships. Examples of skills per area are illustrated in Table 2.7.

Table 2.7: The Goleman model of emotional intelligence (Goleman, 1995)

Major areas of skills	Examples
Knowing one's emotions	Recognising a feeling as it happens
	Monitoring feelings from moment to moment
Managing emotions	Handling feelings so they are appropriate
	Ability to soothe oneself
	Ability to shake off rampant anxiety, gloom or irritability
Motivating oneself	Marshalling emotions in the service of a goal
	Delaying gratification and stifling impulsiveness
	Being able to get into the flow state
Recognising emotions in others	Empathetic awareness
	Attunement to what others need or want
Handling relationships	Skill in managing emotions in others
	Interacting smoothly with others

Goleman (1998b:23) posits that there is a clear distinction between competencies of the mind and of the heart, that is, between cognition and emotion. Emotional competencies combine thought and feeling while others such as technical expertise are purely cognitive. Additionally, all emotional competencies, in contrast to cognitive competencies, involve some level of skill in feeling.

Goleman (1998b:24) argues an emotional *competence* (social and emotional competence) is a learned capability based on EI that results in outstanding performance at work. EI however, determines potential for learning the skills based on the elements of the Goleman (1998b:26) emotional intelligence model, namely:

- Self-awareness
- Motivation
- Self-regulation
- Empathy
- Social skills

An individual's current level of emotional competence therefore illustrates how much of the emotional intelligence potential, has been realised thus far. Goleman (1998b) further argues that a high level of emotional intelligence does not guarantee that the emotional competence required for work has been mastered. It does mean that the individual has the potential to learn

these 25 competencies supporting the above five dimensions of Goleman's 1998 model. Practically, having a degree of awareness of the feelings, needs and concerns of others (empathy), does not mean that the individual has mastered the additional learning required to read the power relationships in a group. Goleman's revised 1998 model of EI is illustrated in Table 2.8 below.

Table 2.8: The Goleman model of EI (Goleman, 1998b:26)

Personal Competence	
Emotional competency	Skills, competencies and facilitators
Self-awareness	Knowing one's internal states, preferences, resources and intuitions
Emotional awareness	Recognising emotions and the effects thereof
Self-assessment	Knowing strengths and limitations
Self-confidence	Strong sense of self-worth and capabilities
Self-regulation	Managing one's internal states, impulses and resources
Self-control	Controlling disruptive emotions and impulses
Trustworthiness	Maintaining standards of honesty and integrity
Conscientiousness	Taking responsibility for personal performance
Adaptability	Being flexible in handling change
Innovation	Being comfortable with novel ideas, approaches and new information
Motivation	Emotional tendencies that guide or facilitate reaching goals
Achievement drive	Striving to meet or improve a standard of excellence
Commitment	Aligning with the goals of an organization or group
Initiative	Readiness to act on opportunities
Optimism	Persistence in pursuing goals despite obstacles and setback
Social Competence	
Empathy	Being aware of the feelings, needs and concerns of others
Understanding others	Sensing the feelings of others and taking an interest in their concerns
Developing others	Sensing the development needs of others and enhancing their abilities
Service orientation	Anticipating, recognising and meeting the needs of customers
Leveraging diversity	Creating opportunities through people of various backgrounds
Political awareness	Sensing the emotional currents and power relationships of a group
Social skills	Being adept at initiating desirable responses in others
Influence	Skilfully applying persuasion tactics
Communication	Listening openly and sending convincing messages
Conflict management	Being able to negotiate and resolve disagreements

Leadership	Being able to inspire and guide individuals and groups
Change catalyst	Initiating and managing change
Building bonds	Nurturing instrumental relationships
Collaboration and cooperation	Working with others towards shared goals
Team capabilities	Creating group synergy in pursuing collective goals

Goleman (2001a:27) further argues that emotional competencies are skills that can and must be learned. However, underlying emotional intelligence is needed, despite the fact that it will not necessarily lead to competence in any one of the emotional intelligence domains. Our emotional intelligence, therefore, determines the potential for learning underlying skills in each of the domains, while emotional competence illustrates how much of that potential has been realised by means of learning, acquiring and mastering skills.

Goleman (2001a) revised the 1998 version of the emotional intelligence model by collapsing the five emotional intelligence domains into four as well as collapsing the 25 emotional intelligence competencies into 20. The revised domains as illustrated in Table 2.9 are as follows:

- Self-awareness
- Self-management
- Relationship management
- Social awareness

In terms of emotional competencies, innovation is collapsed into initiative, optimism into achievement, organisational commitment into visionary leadership; leveraging diversity and understanding others are combined to become empathy. Furthermore, collaboration and team capabilities are combined into one competency, namely teamwork and collaboration, awareness becomes organisational awareness and emotional awareness becomes emotional self-awareness (Goleman, 2001a).

Table 2.9: The Goleman model of EI (Goleman, 2001a)

	Self	Other
Recognition	Self-awareness	Social awareness
	Emotional self-awareness Accurate self-assessment Self-confidence	Empathy Service orientation Organisational awareness
Regulation	Self-management	Relationship management
	Emotional self-control Trustworthiness Conscientiousness Adaptability Achievement drive Initiative	Developing others Influence Communication Conflict management Visionary leadership Catalysing change Building bonds Teamwork and collaboration

The Emotional Competence Inventory is used to operationalise the Goleman model of EI. In order to increase the validity of the instrument, as well as address the reliability, the Goleman model was further consolidated and rationalised. The revised ECI, namely the ECI 2.0, now measures 18 competencies, opposed to the original 20. These competencies are illustrated in Table 2.10 below.

Table 2.10: The revised Goleman model of EI (Wolff, 2005)

Emotional competency	Skills, competencies and facilitators
Self-awareness	Knowing one's internal states, preferences, resources and intuitions
Emotional awareness	Recognising emotions and the effects thereof
Accurate self-assessment	Knowing strengths and limitations
Self-confidence	Strong sense of self-worth and capabilities
Self-management	Managing one's internal states, impulses and resources
Emotional self-control	Controlling disruptive emotions and impulses
Transparency	Maintaining standards of honesty and integrity
Adaptability	Being flexible in handling change

Achievement	Striving to improve standards of excellence
Initiative	Being ready to act on opportunities
Optimism	Persistence in pursuing goals irrespective of obstacles or setbacks
Social awareness	Handling relationships and awareness of feelings of others
Empathy	Sensing the feelings and perspectives of others
Organisational awareness	Being able to read emotions and power relationships
Service orientation	Being able to anticipate, recognise and meet the needs of customers
Relationship management	Inducing desirable responses in others
Developing others	Being able to sense the development needs of others
Inspirational leadership	Inspiring and giving guidance to others
Change catalyst	Being able to initiate and manage change
Influence	Having the ability to persuade others
Conflict management	Being able to manage and resolve disagreements
Teamwork and collaboration	Being able to work with others towards achieving shared goals

In terms of the revised model, conscientiousness and communication are excluded, while building bonds are incorporated into teamwork and optimism included.

2.8.3.2 The Bar-On model of emotional intelligence

Bar-On (1988), in all probability, formulated the first attempt to measure EI in terms of wellbeing. In the research, the term emotional quotient (EQ) was utilised before scholars such as Salovey and Mayer (1990) published the first version of their EI model. Bar-On initially characterised EI as “an array of non-cognitive capabilities, competencies and skills that influence one’s ability to succeed in coping with environmental demands and pressures” (Bar-On, 1997a:16).

In 2006 Bar-On argued that from Darwin to the present, most definitions of emotional intelligence have included one or more of the following components: (a) the ability to recognise, understand and express emotions and feelings; (b) the ability to understand how others feel and being able to relate to them; (c) the ability to manage and control emotions; (d) the ability to manage change, adapt and solve problems of a personal and interpersonal nature; and (e) the ability to generate positive affect and be self-motivated (Bar-On et al., 2006:4).

Revising the 1997 definition, Bar-On builds on the non-cognitive (mixed) perspective on emotional intelligence by defining it as a cross-section of interrelated emotional and social

competencies, skills and facilitators that determine how effectively we understand and express ourselves, understand others and relate to them, and cope with daily demands (Bar-On, 2005; Bar-On et al., 2006).

Bar-On (2005) asserts that the above is based, first and foremost, on one's intrapersonal ability to be aware of oneself, to understand one's strengths and weaknesses, and to express one's feelings and thoughts non-destructively. On an interpersonal level, emotional intelligence includes the ability to be aware of the emotions of others, to be aware of our own feelings and needs, and to establish and maintain cooperative, constructive and mutually satisfying relationships. Bar-On (2005) further argues that being emotionally intelligent means to effectively manage personal, social and environmental change by realistically and flexibly coping with the immediate situation, solving problems and making decisions. In order to master this, individuals need to manage their emotions so that emotions work for them and not against them. Also, individuals need to be sufficiently optimistic, positive and self-motivated (Bar-On, 2005).

The five main broad areas of skills in the Bar-On model of emotional intelligence, as described above, are intrapersonal, interpersonal, stress management, adaptability and general mood. Each of these competencies includes several closely related skills, competencies and facilitators as illustrated in Table 2.11.

Table 2.11: The Bar-On model of EI (Bar-On, 2003:15)

Major areas of skills	Skills, competencies and facilitators
Intrapersonal	Self-awareness and self-expression
Self-regard	To accurately perceive, understand and accept oneself
Emotional self-awareness	To be aware of and understand one's emotions
Assertiveness	To effectively and constructively express one's emotions and oneself
Independence	To be self-reliant and free of emotional dependency on others
Self-actualisation	To strive to achieve personal goals and actualise one's potential
Interpersonal	Social awareness and interpersonal relationships
Empathy	To be aware of and understand how others feel
Social responsibility	To identify with one's social group and cooperate with others
Interpersonal relationships	To establish mutually satisfying relationships and relate well to others
Stress management	Emotional management and regulation
Stress tolerance	To effectively and constructively manage emotions
Impulse control	To effectively and constructively control emotions

Adaptability	Change management
Reality-testing	To objectively validate one's feelings and thinking with external reality
Flexibility	To adapt and adjust one's feelings and thinking to new situations
Problem-solving	To effectively solve problems of a personal and interpersonal nature
General mood	Self-motivation
Optimism	To be positive and look at the brighter side of life
Happiness	To feel content with oneself, others and life in general

The Bar-On emotional Quotient Inventory (EQ-i) is a self-report measure of emotionally intelligent behaviour and operationalises the Bar-On model. The EQ-i provides an estimate of one's underlying emotional and social intelligence and was the first measure of emotional intelligence to be published by a psychological test publisher (Bar-On *et al*., 2006:5). It was also the first measure of emotional intelligence to be reviewed in the *Buros Mental Measurement Yearbook* (Plake & Impara, 1999; Bar-On, 2000). Since the publication of the EQ-I in 1997, more than one million assessments have been administered worldwide up to 2002. This makes the EQ-i the most widely used measure of EI at that stage. Additionally, the EQ-i has been translated into 22 languages and normative data has been collected in more than 15 countries. It was designed to measure the EI construct only. It is not designed to measure personality traits or cognitive capacity (Dawda & Hart, 2000).

The EQ-i consists of 133 questions using a five-point Likert scale. The scale ranges from "very seldom or not true of me" to "very often true of me or true of me". Based on the age breakdown of the normative sample, the instrument is suitable for the age group 17 years and older. Completion time of the EQ-i is approximately 40 minutes (Bar-On, 2000). The EQ-i produces a total emotional intelligence score as well as a score for each of the fifteen subscales. The score is based on a mean of 100 and standard deviation of 15. Average to above average EQ-i scores suggest that the respondent is effective in emotional and social functioning. The higher the EQ-i scores, the prediction for successfully coping with daily demands and challenges increases. Low EQ-i scores suggest an inability of the individual to be effective and the possible presence of emotional, social and/or behavioural problems (Bar-On, 2005). The EQ-i scores are generated electronically. The results are presented in numeric, graphical and narrative format.

Borg and Gall (1979:157) recommend reliability, validity and norms to be considered when evaluating a quantitative measurement for use in research. In terms of reliability, research

results over the past 20 years have shown good consistency within the factorial components of the Bar-On model of emotional and social intelligence as well as stability over time (Bar-On, 2005). Based on a North American normative sample, the overall internal consistency coefficient of the instrument is 0.97. Re-examination revealed nearly identical results, showing a slight mean increase of 0.025. Retests to examine the reliability over a six-month period produced a coefficient of 0.72 for males (n=73) and 0.80 for females (n=279) (Bar-On, 2004).

In terms of validity, research findings illustrate that the EQ-i has the least amount of overlap with cognitive tests, shows greater degree of overlap with personality tests and greatest degree of overlap with other measures of emotional and social intelligence (Bar-On, 2005). The research results suggest that the EQ-i demonstrates good construct validity, that is, the instrument measures what it is designed to measure. In terms of validity, the EQ-i includes an omission rate, inconsistency index, positive impression and negative impression. A built-in correlation factor automatically adjusts the scores based on the positive and negative impression, reducing the bias with resulting increase in accuracy.

In terms of norms, the EQ-i was developed over a period of 17 years and normed on 3831 adults in North America in 1996, including individuals from nearly all the states in the United States of America and every province in Canada (Bar-On, 2005). It has been translated into more than 30 languages. More than one million assessments have been completed since publication of the EQ-i in 1997, proving it to be the most widely used measure of emotional and social intelligence (Bar-On, 2003).

The EQ-i 2.0 was published in 2012 and is a revision of the Bar-On EQ-I 1.0. The original instrument was named “The Bar-On Emotional Quotient Inventory (EQ-i)”; the revised instrument is now known as “EQ-I 2.0”. The measurement consists of 133 items and includes five validity indices rendering a total EI score, five composite scale scores and fifteen subscale scores.

Table 2.12: The revised EQ-i 2.0 model of EI

Major areas of skill	Skills, competencies and facilitators
Self-perception	Self-regard
	Self-actualisation
	Emotional self-awareness
Self-expression	Emotional expression

	Assertiveness
	Independence
Interpersonal	Interpersonal relationships
	Empathy
	Social responsibility
Decision-making	Problem-solving
	Reality testing
	Impulse control
Stress management	Flexibility
	Stress tolerance
	Optimism
Well-being indicator	Happiness

2.8.4 The trait model approach to emotional intelligence

In contrast to the *mental ability* model of EI as defined by Mayer and Salovey (1997), as well as the *mixed* models of Goleman (1995) and Bar-On (1997a), Petrides (2010, 2011) defines a *trait model* of emotional intelligence. Trait EI is seen as a "constellation of self-perceptions located at the lower levels of personality hierarchies" and he views the construct as compounded of personality components and facets. In laymen's terms, trait EI is people's perception of their own emotional abilities. Petrides (2010, 2011) argues that trait EI recognises the subjectivity of the emotional experience and is distinctly separate from EI as a cognitive ability as defined by Salovey and Mayer (1990) and revised by Mayer and Salovey (1997).

Petrides (2011) accentuates the original contention of Petrides, Furnham and Mavroveli (2007) by arguing that trait EI concerns consistent behaviour and specific styles of individual behaviour (emotional habits), is encapsulated in the personality framework, and relates to the perception of individuals of their own behaviour. Trait EI is therefore seen as a personality trait, whereas ability EI is seen as part of cognitive ability (Carroll, 1993; Tett et al., 2005). Trait EI is also referred to in the literature as trait emotional self-efficacy (Petrides, 2011:660).

De Raad (2005) is also of the opinion that trait EI lies within the boundaries of the Big-Five personality domain. The components of the Big-Five personality domain are extraversion, agreeableness, conscientiousness, emotional stability and intellectual autonomy. His research confirmed that trait EI aligns with at least four of these Big-Five personality domains.

Subsequent research by Petrides and colleagues established that correlations between trait EI and the Big-Five are due to genetic factors. This supports the argument that EI is a personality trait (Vernon et al., 2008).

The construct of trait EI does not assume that an ideal EI profile exists that needs to be attained. Scholars of trait EI argue that some emotional profiles are advantages in certain contexts and others are not. The assumption therefore is that no specific target trait EI profile exists which will lead to optimal performance at work and in society in general. The personality facets of the Petrides Trait EI model are listed in Table 2.13 below.

Table 2.13: The domain of trait emotional intelligence (Petrides, 2010:137)

Personality facets as part of Trait EI	Views of participants
Adaptability	See themselves as being flexible and willing to adapt to new conditions
Assertiveness	Participants feel forthright, frank, and willing to stand up for their rights
Emotion expression	Individuals report being capable of communicating their feelings to others
Emotion management (others)	Individuals feel capable of influencing other people's feelings
Emotional perception (self and others)	Individuals are clear about their own and other people's feelings
Emotion regulation	Participants feel capable of controlling their emotions
Impulsiveness (low)	Individuals see themselves as reflective and less likely to give in to their urges
Relationships	Individuals report being capable of maintaining fulfilling personal relationships
Self-esteem	Individuals view themselves as successful and self-confident
Self-motivation	Individuals view themselves as driven and unlikely to give up in the face of adversity
Social awareness	Participants see themselves as accomplished networkers with superior social skills
Stress management	Individuals report being capable of withstanding pressure and regulating stress

Trait empathy	Being capable of understanding someone else's perspective
Trait happiness	Being cheerful and satisfied with life
Trait optimism	Individuals see themselves as confident and likely to ''look on the bright side'' of life

Petrides (2011) contends that any EI questionnaire can be used to measure trait EI, on condition that the test results are interpreted through the lens of trait EI theory. A specific instrument, however, exists for the measurement of trait EI, namely the Trait Emotional Intelligence Questionnaire (TEIQue). The TEIQue instrument is available in various forms as well as in more than 15 languages. Each form is briefly explained below.

TEIQue full form consists of 153 questions facilitating scores on 15 personality facets, 4 factors as well as an overall trait EI score. The TEIQue short form is based on the full form and consists of 30 questions, two from each of the 15 personality facets. The TEIQue 360° is available in a full and short form and provides a measure of a candidate's trait EI from an external party perspective. The TEIQue adolescent instrument is based on the TEIQue full form but targeted at the age group 13 to 17. A short form of the TEIQue adolescent instrument is also available, consisting of 30 questions. The TEIQue child form is an instrument targeted at the age group 8 to 12 years. It consists of 75 questions which measures 9 personality facets.

2.8.4.1 The Genos EI Model

Palmer et al. (2008) define EI as a "set of skills relevant to how we perceive, understand, reason with and manage our own and others' feelings". The Genos EI Model resulted from a factor analytic study done of existing EI models. The resulting EI model consisted of five ability-based dimensions found common to the available inventories (Gignac, 2010). These dimensions are as follows:

- Recognising and expressing emotions
- Understanding emotions external
- Emotions to direct cognition
- Emotional management
- Emotional control

A 64-item self-report inventory, known as the Swinburne University Emotional Intelligence Test (SUEIT) was developed to measure the above five dimensions (Palmer & Stough, 2001). Subsequent to the development of the five factors model, Gignac (2005) conducted a comprehensive factor analysis of the SUEIT. Resulting from this analysis is a seven-dimensional EI model. Gignac (2010a) argues that factors obviously associated with EI are inherent to this model, and he does not include personality components or competencies. The seven factors and their accompanying descriptions are displayed in Table 2.14 below.

Table 2.14: The Genos emotional intelligence inventory (Palmer et al., 2010)

EI factors	Skills
Emotional self-awareness	To perceive and understand one's own emotions
Emotional expression	To effectively express one's own emotions
Emotional awareness of others	To perceive and understand the emotions of others
Emotional reasoning	To use emotional information in decision-making
Emotional self-management	To effectively manage one's own emotions
Emotional management of others	To positively influence the emotions of others
Emotional self-control	To effectively control one's own strong emotions

Following the conceptualisation of the seven-factor model of EI, the original 64-item self-report inventory (SUEIT) was revisited by Gignac (2005). The revised 70-item self-report inventory to measure how often the emotionally intelligent behaviours are displayed across the above seven EI factors is named the Genos EI. The Genos EI takes approximately 12 to 15 minutes to complete and each factor is measured by ten items scored by means of a 5-point Likert scale. The scale ranges from "very seldom or not true of me" to "very often true of me or true of me." A total EI score as well as seven subscale EI scores are produced. The Genos EI is purposefully designed for use in the workplace. Wording of the items is therefore phrased within the workplace context.

Palmer et al. (2010) contend that the *Genos EI inventory* measures typical EI performance in the workplace opposed to maximal performance. They further argue that the inventory measures individual differences in the frequency of individuals exhibiting emotionally intelligent behaviours in the workplace.

Borg and Gall (1979:157) recommend reliability, validity and norms to be considered when evaluating a quantitative measurement for use in research. In terms of reliability, research results have shown good consistency within the factorial components of the Genos EI model as well as stability over time (Gignac, 2010b). The Cronbach's alpha for the normative sample is found to be very high (exceeding 0.90) for each participating country, with the Cronbach's alpha for each EI subscale found to be within respectable ranges. The internal consistency reliability estimates associated with the Genos EI scales are illustrated in Table 2.15 below.

Table 2.15: Internal consistency reliability estimates (Gignac, 2010a)

	American N=374	Asian N=450	Australian N=4775	Indian N=174	South-Africa N=1023	Mean
Total EI	.97	.96	.96	.95	.94	.96
Emotional Self-Awareness (ESA)	.83	.82	.83	.84	.77	.81
Emotional Expression (EE)	.83	.77	.81	.67	.75	.77
Emotional Awareness of Others (EAO)	.88	.87	.87	.83	.81	.85
Emotional Reasoning (ER)	.76	.79	.74	.60	.67	.71
Emotional Self-Management (ESM)	.83	.80	.79	.72	.73	.77
Emotional Management of Others (EMO)	.87	.87	.86	.80	.83	.85
Emotional Self-control (ESC)	.80	.82	.78	.76	.73	.78

In terms of re-test reliability, the coefficient for two months is found to be 0.83 with the coefficient for 8 months 0.72, suggesting the Genos EI produces fairly stable EI scores over time. On EI subscale level, the average of the re-test coefficient was found to be 0.77 after a period of two months and 0.66 after eight months. As with total EI scores, the re-test reliability on subscale level showed stability over time.

From a validity perspective, Gignac contends that each of the 70 items of the *Genos EI inventory* was formulated within the workplace context and the items can be associated with measuring emotionally intelligent behaviours in the workplace. The model is formulated, subsequent to an extensive review of existing EI measures, to include strictly EI factors only. It was decided to exclude personality and general competencies from the model. Additionally, each of the 7 EI factors in the model is measured by 10 unique items. Gignac argues it is reasonable to accept that the *Genos EI inventory* has face validity (appears to be measuring the dimensions we are interested in measuring and recognised as such by respondents) as well as content validity (the items do represent the EI construct).

Gignac (2005) did an extensive confirmatory factor analysis (CFA) to determine, amongst others, factorial validity. The Genos EI model was found to be statistically significant and fitting the EI construct. Also, the method of scoring, as well as the interpretation of the *Genos EI inventory* scores, is found appropriate in relation to the underlying EI model.

Gignac (2010a) highlights two examples of the Genos EI predicting practical outcomes in terms of sales performance. In the first sample, 22.1% of variance in sales performance could be attributed to Genos EI scores. In the second sample, the Genos EI model was found to predict revenue of recruitment consultants. Based on the above, the *Genos EI inventory* appears to have predictive validity.

The *Genos EI Inventory* is suggested to have discriminant validity owing to limited correlation found with factors not associated with EI. Examples of these factors are personality and socially desirable responding. Gignac (2010a) reports that less than 10% of the variance in the *Genos EI inventory* was found attributable to the socially desirable responding of the participants. The inventory contains an inconsistency index as well as two socially desirable responding scores. The inventory was also found not measuring the same as measures of personality such as the Big-Five (Gignac, 2005).

In terms of norms, the *Genos EI inventory* was normed in 2007 using a sample of 4775 adults. In order to represent the average distribution found in the workplace, the sample consisted of individuals ranging in ages from 18 to 76 years with mean 41.5 years. In terms of geographical distribution, the sample consisted of Australia (60.5%), Hong Kong (4.6%), India (3.6%), New Zealand (1.8%), Singapore (3.9%), South Africa (8.8%), United Kingdom (2.0%), United States

of America (7.8%) and others (7%). The gender breakdown was 52.9% females and 47.1% males. The mean age was 33.5 (SD=9.8).

2.9 The business case for emotional intelligence

Additional to the business case for EI as published by the Emotional Intelligence Consortium (Cherniss, 1999), several scholars report research results on the relationship between EI competencies and workplace performance in the literature. EI is highlighted in the literature as having predictive validity in various areas of occupational performance, amongst others sales performance, academic performance, leadership and employee engagement (Dulewicz & Higgs, 1998; Goleman, 1998b; Nel, 2001; Bar-On *et al*., 2006; Mount, 2006; Sala, 2006; Lennick, 2007; Palmer & Gignac, 2012).

Scholars claim EI skills are the foundation to performance and have a significant impact on organisational performance. Studies done by Dulewicz and Higgs (1998) found that EI competencies comprise 45% of the overall competencies differentiating performance. Goleman (1998b) did similar studies and reported EI competencies as 67% of overall performance competencies. Mount (2006) is of the opinion EI is more predictive of performance in business than the skills, knowledge and expertise of employees. Investigating the impact of EI in management performance, superior performers were found to score higher on the EI competencies of achievement motivation, impact and influence, self-confidence, flexibility and adaptability. EI was found to enable skills and knowledge competencies which lead to performance. EI competencies, therefore, provide traction for other competencies to perform.

The business cases for EI report on L'Oreal's gaining a net revenue increase of $2 558 360 subsequent to sales agents being selected on the basis of EI competencies (Cherniss, 1999). The Centre for Creative Leadership found a lack of EI to be at the core of executive derailment. The ability to handle stress was found to be a determinant of the success of retail store managers, and sales people at Met Life, high on optimism, outsold their pessimistic sales colleagues by 37%. The business cases also report on research done by the Hay/McBer Research and Innovation Group illustrating that sales persons employed at a furniture retailer based on their EI, showed half the dropout rate during their first year. The Hay/McBer Research and Innovation Group also found sales persons at a computer company, hired on the strength of their EI, were 90% more likely not to drop out of their sales training. Restaurant managers in the

United Kingdom scoring higher in EI outperformed their colleagues. Their restaurants had higher guest satisfaction, lower turnover as well as 34% more growth in profit.

In order to further highlight the relationship between EI and occupational performance, a brief overview of examples of research illustrating the relationship between EI and sales, EI and academic performance, as well as EI and leadership, are provided in the following section. The above areas have been chosen from the literature owing to the perceived absence of similar research unpacking the relationship between EI and various roles in the IT industry. This gap in the literature has also been highlighted by Joseph et al. (2010:149).

2.9.1 EI and sales performance

Nel (2001) investigated the relationship between EI and sales performance of call centre agents in the insurance industry in South Africa. The study identified a significant relationship between EI as measured by the ECI and agent performance in client services, sales and administration. The relationship between EI competencies and sales performance was examined at Bass Breweries (Loyd, 2001). A strong relationship between EI as measured by the ECI and the sales performance of area development managers and sales agents was found. Luskin et al. (2005) reported a 25% productivity increase of financial advisors following emotional intelligence training.

Arguably one of the most significant examples of EI adopted as a strategy by business to improve sales performance is the American Express Financial Advisors (AEFA) case study (Cherniss & Caplan, 2001). AEFA played a leading role in adopting corporate EI training and realised accompanying benefits. During 2000, an independent audit was done to evaluate the benefits achieved following EI training programmes done in 1999. Benefits reported were increased revenue and growth rate of new clients, as well as increased growth in revenue from existing clients (Lennick, 2007).

Jennings and Palmer (2007) expanded the body of literature in terms of the impact of EI on sales performance. EI development programmes at Sanofi-Aventis confirm a positive correlation between the EI of sales representatives and their sales performance. The research shows that growing the EI of sales representatives can lead to increased sales. This positive correlation indicated EI contributing to more than 18% of sales performance.

2.9.2 EI and academic performance

One of the studies indicating a significant correlation between emotional intelligence and academic performance was conducted by James Parker and colleagues (Parker et al., 2004). This research showed that at least 17% of scholastic performance is based on emotional intelligence.

2.9.3 EI and leadership

Following the publication of an article by Goleman (1998a) in the *Harvard Business Review*, Johnson and Johnson mandated a study of more than 1400 employees in 37 countries to determine whether EI does impact leadership performance. The study confirmed the argument of Goleman and revealed a strong link between EI and leadership performance (Cavallo & Brienza, 2001). A further noteworthy study illustrating the impact of emotional intelligence on occupational performance was conducted by Ruderman in organisations across North America during 2001. The research showed a strong correlation between emotional intelligence and leadership. Results illustrated at least 64% of effective leadership is based on emotional intelligence (Bar-On, 2003:7).

2.9.4 EI and occupational performance

A significant correlation between emotional intelligence and occupational performance was illustrated in a study by Handley in 1996. This research in the United States Air Force indicated that at least 24% of the variance in the performance of recruiters could be attributed to emotional intelligence. The ability of the model to identify high and low performing recruiters was found to be 72% accurate. This means that 7 out of 10 individuals can be correctly identified as having the potential to be a high or low performer when this model is used. The USAF used this model to recruit recruiters and in the process reduced mismatches by 100 in the first year, translating to a saving of $2.7M annually (Bar-On et al., 2006).

The above-mentioned studies are examples of increasing evidence that learning to become more aware of our emotions, more accurate at perceiving and interpreting the emotions of others, and becoming better at managing our own emotions and those of others can have a significant positive influence on our performance at work.

2.9.5 Conclusion

Considering the business case for emotional intelligence as reviewed above, as well as the absence of the human in strategic alignment models and EA tools, a gap in the literature is evident. The EI required from IT professionals such as the CIO, enterprise architects, business analysts, systems analysts and project managers, who need to use these EA tools in order to align business and IT, is ignored. Taking into consideration the business case for EI, the concept of competency profiling as an aid to identifying and presenting the unique employee characteristics needed to fulfil particular roles is explored in the next section.

2.10 Competency profiling

Distinction is made in the literature between the terms 'competencies' and 'competences' (Boyatzis, 1982; Hornby & Thomas, 1989; Woodruffe, 1993; Mirabile, 1997; Shellabear, 2002; Le Deist & Winterton, 2005; Teodorescu, 2006). Confusion between the two terms as well as disagreement among scholars on the definition of these terms is apparent in the literature. This distinction is important in examining the practices of competency and competence profiling in the IT industry. Boyatzis (1982) originally defined a *competency* (plural *competencies*) as "an underlying characteristic of a person". He is of the opinion that a competency could also be a motive, trait, skill or an aspect of a person's self-image or social role. It could also be a body of knowledge that the person uses. The practice of competency profiling originated in 1973 when McClelland was of the opinion that an alternative to traditional academic intelligence testing as part of predicting job performance had to be developed. Scholars argued that academic intelligence testing had failed to predict successful performance and institutions such as the US Foreign Service were keen to find an alternative. McBer and Company, amongst other research institutions, found specific competencies to predict improved performance (Boyatzis, 1982).

Boyatzis (1982) defines competency profiling as a way of identifying the skills, knowledge, attitudes and behaviours required to accomplish a particular activity, task or career. Competency profiles are therefore useful for organisations to identify and present the unique employee characteristics needed to fulfil particular roles. Scholars such as Boyatzis (1982) and Shellabear (2002) argue competency profiles benefit the organisation as well as employees and play a role in development, training and succession planning. Competency profiles also play a role in

performance management with the aim of increasing occupational performance (Shellabear, 2002).

Hornby and Thomas (1989) define a competency (plural competencies) as knowledge, skills and qualities of effective managers and leaders. Woodruffe (1993) argues competencies are associated with behaviour. He is of the opinion that competencies are specifically related to job performance and posits that competencies as a dimension of behaviour, allow a worker to perform competently. He defines a competency as a specific set of behaviour patterns that an employee needs to bring to a job in order to perform the required tasks and function with competence. The causal relation of competencies to performance is shared by Spencer and Spencer (1993) as well as Hartle (1995). Competencies are characteristics of an individual which drive superior job performance, and encompass knowledge and skills, as well as traits and motives (Hartle, 1995). Mirabile (1997) argues competencies encompass knowledge, skills, abilities or characteristics associated with high performance. Dubois (1998) shares this view and defines competencies as knowledge, skills, mindsets and thought patterns that lead to successful performance when used. Rothwell (2002) supports the view of the above scholars, also including knowledge and skills in his view of competencies. In addition, he views competencies as abilities needed by an individual to accomplish critical work tasks.
Shellabear (2002) shares the view of several of the above scholars, arguing that the term 'competencies' as a plural (single 'competency'), refers to personal attributes and behaviours required for a particular job role. Knowledge, skills, attitudes and behaviours as core elements of competencies are once again stressed.

Shifting the focus to the definition of competence reveals similar difference in opinion in the literature. Three primary views of competence are found in the literature. Competence is seen either a skill, personality trait or as knowledge (Haynes, 1979; Bassellier, et al., 2001).

In order to be able to perform a specific task as part of a job, an individual needs to have specific *skills*. Scholars argue that a minimum set of skills is required to perform effectively in a job (Bassellier et al., 2001). The skills approach to competence therefore implies a fit between the individual and the tasks required as part of the job.

Haynes (1979) originally viewed competence as a *personality trait* and included aspects such as knowledge, motives, social role as well as skills. Cockerill (1989) shares this view and refers to self-confidence as a trait needed for output competences such as presentation skills.

Bassellier et al. (2001) explore competence in the IT context and support the *knowledge* approach to competence. They define IT competence as explicit and tacit knowledge possessed by an individual enabling him or her to exhibit IT leadership. Shellabear (2002) also views knowledge and skill as a competence required for improved performance in a specific job role and not as a competency. Two classifications of knowledge originating from Polanyi (1967) are found in the literature. Knowledge is classified as either explicit or tacit. Explicit knowledge is knowledge about a subject that an individual has accumulated over a period by, amongst other methods, academic studies. An example of explicit knowledge is to know the rules of the game of golf. Knowing the rules of the game does not mean the individual is a competent golfer. The individual has to have tacit knowledge of golf as well in order to be a competent golfer. Tacit knowledge is the 'know how' that has been accumulated over a period of time by applying the explicit knowledge of the game. It is the ability to use the explicit knowledge in order to perform well.

Competence is an enabler of performance, irrespective of which approach to competence is supported (skill, personality trait or knowledge). Although competence is sometimes used as a synonym for performance, it precedes performance but it does necessarily imply performance. Elkin (1990) relates competences to job performance. Gilbert (1996) contends competence is a function of worthy performance and views competent people as those able to achieve results required without excessively costly behaviour. Competence is also seen as the potential that leads to effective performance (Bassellier et al., 2001), as well as worthy performance, which leads to efficient accomplishment of organisational goals (Teodorescu, 2006).

Concluding this overview of competencies and competences, a brief overview of the distinction between competency models and competence models is provided. Competency models and competence models differ in terms of their composition, focus and use. A competency model for a job role contains specific skills, knowledge, attributes and behaviours that people who are successful in the particular job role have. These models are used during recruitment and development, as well as in performance management of employees, and according to Teodorescu (2006), typically encompass the skills, knowledge, attributes and behaviour regarded by the organisation as essential for successful performance.

Competence models provide clarity in terms of what an employee needs to accomplish in a job in order to achieve or exceed the team and organisational goals. A competence model can be

viewed as a roadmap providing precise and measurable milestones towards success in a job. Teodorescu (2006) contends a competence model typically defines the following aspects:

- The process to be used to achieve results in the job
- The accomplishments, tasks and best practices to follow in order to achieve the goals of the organisation
- The required skills and knowledge to assist in achieving the goals of the organisation

2.10.1 e-Skills vs. e-Competencies

Additional to the terms ‘competencies’ and ‘competences’, reference in the literature is also made to the terms ‘e-skills’ and ‘e-competences’ (Mitrovic, 2010). Accompanying these terms is the argument that the IT professional of the 21st century needs to be able to respond to the challenges experienced in the workplace in an inter-, multi- and trans-disciplinary manner. In order to fully understand the business of an organisation, IT professionals need to be competent and have the required skills (Wesso, 2008). Technology and competent (e-competent) and skilled (e-skilled) employees go hand in hand. It is further argued that highly skilled IT professionals and business leaders that understand IT and are informed about IT, as well as competent IT users, can contribute to an organisation’s actively participating in the knowledge economy (Bytheway, 2004; e-skills 2010).

The European Union originally established the European e-Skills Forum in March 2003 to foster dialogue between relevant stakeholders in an aim to reduce the e-skills gap. An e-skilled workforce is needed to apply technology and business processes effectively in driving innovation during the creation of new products and services imperative to increasing competitiveness of the economy (European e-Skills Forum, 2004). Following this drive, the South African Government established the multi-stakeholder Meraka e-Skills Institute (e-SI), which eventually led to the National e-Skills Plan of Action (NeSPA) published in 2010 (NeSPA, 2010). The Meraka e-Skills Institute is now known as the e-Skills Institute (e-SI).

E-Skills as defined by the European e-Skills Forum include a wide range of capabilities (knowledge, skills and competences) and are divided into three main categories, namely Information Communication Technology (ICT) practitioner skills, ICT user and e-Business skills (European e-Skills Forum, 2004:5). ICT practitioner skills are seen as capabilities needed for

researching, developing, designing, managing, producing, consulting, marketing and selling, integrating, installing and administrating, maintaining, supporting and servicing of ICT systems. ICT user skills are defined as capabilities needed for effective application of ICT systems and devices. These include the skills to cover the utilisation of common generic software tools and the use of specialised tools supporting business functions within industries other than the ICT industry.

E-Business skills are defined by the European e-Skills Forum as capabilities required for the utilising of opportunities provided by ICT. They are also seen as skills ensuring more efficient and effective performance of different types of organisations, to explore possibilities for new ways of conducting business and organisational processes, as well as to start-up new businesses (European e-Skills Forum, 2004:5).

Following the lead from the World Summit on the Information Society (WSIS) (2003) and the European e-Skills Forum (2004), the South African e-Skills Institute (e-SI) defines e-skills as an ability to develop and use ICT within the context of a knowledge environment as well as associated competences that enable the individual to participate in a world in which ICT is a requirement for advancement in business, government and civil society (Mitrovic, 2010). The term ‘e-skills’, therefore, encompasses a wide range of capabilities such as knowledge, skills and competences spanning a number of economic and social dimensions (WSIS, 2003).

In line with the above categories of the European e-Skills Forum, the e-SI classified four types of e-skills as follows:

- ICT practitioner skills
- ICT user skills
- E-Business skills
- E-Literacy skills

These e-skill types are essentially the same as the categories of the European e-Skills Forum, apart from adding e-literacy as a fourth type. The definitions of the first three types are congruent with those of the European e-Skills Forum. The fourth type, namely e-Literacy, is defined as being able to search for and retrieve information on-line, to navigate and communicate on-line, as well as to participate in on-line communities (Mitrovic, 2010).

Following work done by the European e-Skills Forum on e-skills, a large number of European ICT and human resource (HR) experts developed an e-competence framework (e-CF). The motivation for this is that e-competences are needed for the ICT business-related workplace, including competences for users, ICT practitioners and e-business managers (European e-Competence Framework 2008).

E-competence is defined as a demonstrated ability to apply skills, knowledge and attitudes to achieve observable results (e-CF, 2008). Appropriately rephrased in the above context of e-skills, e-competence is the demonstrated ability to apply e-skills, knowledge and attitudes to achieve observable results and e-skills are seen as an element of e-competences.

Here, it is also important to note that the possession of e-competencies is a necessary but not sufficient prerequisite for the effective and efficient development and use of sustainability information systems. Various industry and governmental initiatives aim to provide guidelines for the development of knowledge, skill and ability to ensure the effective management and utilisation of IT. The following section discusses three primary initiatives.

2.10.2 The European e-Competence Framework (e-CF)

The European e-Competence Framework (e-CF) version 1.0, published in 2008, is the result of multi-stakeholder collaboration on e-skills for a period of two years. The initiative was initiated post recommendations of the European e-Skills Forum in 2005. The framework is designed for use by ICT users, ICT supply companies, ICT practitioners, ICT managers and HR departments, the public sector, as well as by educational and social partners across the European Union. The design is specific to the above audience.

Subsequent to consultation with ICT stakeholders in Europe, The European e-Competence Framework 2.0 was released in 2010. The framework, the user guidelines for the framework, as well as the documentation on the methodology followed during the development of the framework, are outcomes of the two-year “European e-Competence Framework in Action” project started in 2009.

The framework is divided into four main dimensions. The first dimension comprises five competence areas, namely, plan, build, run, enable and manage. These competence areas were derived from the various business processes applied in the ICT industry, namely plan,

build, run, enable and manage. The second dimension consists of a set of 36 reference e-Competences for each competence area, including a generic description for each competence.

The third dimension provides proficiency levels of each e-Competence. The proficiency levels range from e-1 to e-5. The fourth dimension of the framework provides samples of knowledge and skills related to each of the e-Competences in dimension two. The framework does state that the samples are provided to add value and that they are not intended to be exhaustive.

An overview of The European e-Competence Framework 2.0 is provided in Table 2.15 below.

Table 2.15: The European e-Competence Framework 2.0

Competency area	e-Competency
A. Plan	A.1. IS and Business Strategy Alignment
	A.2. Service Level Management
	A.3. Business Plan Development
	A.4. Product or Project Planning
	A.5. Design Architecture
	A.6. Application Design
	A.7. Technology Watching
	A.8. Sustainable Development
B. Build	B.1. Design and Development
	B.2. Systems Integration
	B.3. Testing
	B.4. Solution Deployment
	B.5. Documentation Production
C. Run	C.1. User Support
	C.2. Change Support
	C.3. Service Delivery
	C.4. Problem Management
D. Enable	D.1. Information Security Strategy Development
	D.2. ICT Quality Strategy Development
	D.3. Education and Training Provision

	D.4. Purchasing
	D.5. Sales Proposal Development
	D.6. Channel Management
	D.7. Sales Management
	D.8. Contract Management
	D.9. Personnel Development
	D.10. Information and Knowledge Management
E. Manage	E.1. Forecast Development
	E.2. Project and Portfolio Management
	E.3. Risk Management
	E.4. Relationship Management
	E.5. Process Improvement
	E.6. ICT Quality Management
	E.7. Business Change Management
	E.8. Information Security Management
	E.9. IT Governance

The e-CF 2.0 does not refer to the construct of emotional intelligence or any specific emotional intelligence model. A review of the skills needed for each of the 36 e-Competences as presented in the 4th dimension of the e-CF framework, does, however, evince limited reference to some of the personality characteristics and skills also referred to in mixed EI models (Bar-On, 1997a; Goleman, 2001b), as well as the trait EI model of Petrides (Petrides, 2010). E-Competence D.8. Contract Management refers to *empathy* which is also referred to in the Interpersonal domain of the Bar-On EI model as well as the Social Awareness domain of the Goleman EI model (Bar-On, 1997a; Goleman, 2001b). E-Competence E.4. Relationship Management, in the 5th dimension of the e-CF framework, refers to the *building and maintaining of positive relationships* which is also referenced in the Interpersonal domain of the Bar-On EI model as well as the Relationship Management domain of the Goleman EI model (Bar-On, 1997a; Goleman, 2001b). Empathy, as well as building and maintaining relationships, is also part of the domain of trait EI (Petrides, 2010).

2.10.3 The TechAmerica Information Technology Competency Model

TechAmerica, previously known as the Information Technology Association of America (ITAA), released an IT Competency Model in 2008. This was as a result of collaboration between the ITAA, the US Department of Labor Employment and Training Administration (DOL/ETA) and IT industry stakeholders in the US and Canada. The model is also known as the ETA competency model and is hereafter referred to as such. The ETA model comprises the knowledge, skills and abilities viewed by the above stakeholders to perform well in IT roles. TechAmerica, as the guardian of the model, is responsible for ensuring the model is kept up to date. Member companies, for example, IBM, Apple Inc., Google, Microsoft, TIBCO, Software AG, SAP America Inc., KPMG LLP and PWC LLP, span the range from software to semiconductors, including start-up to multi-national organisations. TechAmerica is also affiliated with the Technology Councils of North America (TECNA) and the World Information Technology and Services Alliance (WITSA).

The ETA competency model, as common language between educators and the IT industry, aims to assist academic institutions with the update of curricula, the IT industry with recruiting of IT professionals, as well as individuals with preparation for IT job opportunities. It is intended that academic, government and the IT industry utilise the model in building a pipeline of IT talent towards increased IT industry competitiveness.

The model comprises four tiers of competency. Tier one comprises personal effectiveness competencies, tier two academic competencies, tier three workplace competencies and tier four consists of industry-wide technical competencies. Each tier provides a list and description of relevant competencies. An overview of the ETA competency model is provided in Table 2.16 below.

Table 2.16: The ETA Competency Model

Competency tier	Competencies
Personal effectiveness	Interpersonal skills and teamwork
	Integrity
	Professionalism
	Ethics
	Adaptability and flexibility

	Lifelong learning
	Dependability and reliability
Academic	Reading
	Writing
	Mathematics
	Science
	Communication: Listening and speaking
	Critical and analytical thinking
	Basic computer skills
Workplace	Collaboration
	Planning and organising
	Innovative thinking
	Problem solving and decision-making
	Working with tools and technology
	Business fundamentals
Industry-wide technical	Principles of information technology
	Information management
	Networks and mobility
	Software development
	User and customer support
	Digital media
	Compliance
	Security and data integrity

As in the case of the e-CF 2.0, the ETA competency model does not refer to the construct of emotional intelligence or any specific emotional intelligence model. The first competency tier, namely personal effectiveness, refers to *Interpersonal skills and teamwork* as well as *adaptability and flexibility*. These are also referred to in the interpersonal and adaptability domains of the Bar-On EI model as well as the relationship management and self-management

domains of the Goleman EI model (Bar-On, 1997a; Goleman, 2001a). Interpersonal skill, as well as adaptability, is also part of the trait EI domain (Petrides, 2010).

2.10.4 The Clinger-Cohen Core Competencies

Increased reliance on IT led to an increased focus from the US Government on the acquisition, management and use of IT systems during the 1990s. Various inefficiencies in federal IT agencies led to the development of the Information Technology Management Reform Act (ITMRA) of 1996. This Act, together with the Federal Acquisition Reform Act, became the Clinger-Cohen Act of 1996.

In collaboration with government departments, academia and the private sector, a set of core IT competencies was compiled. These Clinger-Cohen Core Competencies serve as a baseline to assist federal IT organisations in complying with Section 11315 (c) (3) of Title 40 of the Clinger-Cohen Act and Section 209 of the E-Government Act. Federal Chief Information Officers are accountable to ensure that the knowledge, skills and abilities represented in each competency are resident and developed within their organisation in order to effectively utilise and manage information technology. The Clinger-Cohen Core Competencies are not only used by US Government IT departments, but also by the private sector and public universities for education and recruitment, as well as development of a competent and effective IT workforce.

In an effort to drive continuous learning and professional development within the US Government IT workforce, the Federal CIO Council, with assistance from government departments, academic institutions and the private sector, ensures that the Clinger-Cohen Core Competencies and associated learning objectives are updated every two years. The Clinger-Cohen Core Competencies are listed in Table 2.17 below.

Table 2.17: The Clinger-Cohen Core Competencies

Competency area	Detail Competencies
1.0 Policy and Organisation	1.1 Department/Agency missions, organisation, functions, policies, procedures
	1.2 Governing laws and authorities
	1.3 Federal government decision-making, policy-making process and budget formulation and

	execution process
	1.4 Linkages and interrelationships among agency heads and the various CXO functions
	1.5 Intergovernmental programmes, policies, and processes management
	1.6 Records and information management
	1.7 Knowledge management
2.0 Leadership/Management	2.1 Defining roles, skill sets, and responsibilities of senior officials, CIO staff, and stakeholders
	2.2 Building federal IT management and technical staff expertise
	2.3 Competency testing – standards, certification, and performance assessment
	2.4 Partnership/team-building techniques
	2.5 Personnel performance management techniques
	2.6 Practices that attract and retain qualified IT personnel
3.0 Process/Change Management	3.1 Techniques/models of organisational development and change
	3.2 Techniques and models of process management and control
	3.3 Modelling and simulation tools and methods
	3.4 Quality improvement models and methods
	3.5 Business process redesign/reengineering models and methods
	3.6 Cross-boundary process collaboration
4.0 Information Resources Strategy and Planning	4.1 IRM baseline assessment analysis
	4.2 Interdepartmental, inter-agency IT functional analysis
	4.3 IT planning methodologies
	4.4 Contingency and continuity of operations planning (COOP)
	4.5 Monitoring and evaluation methods and techniques
5.0 IT Performance Assessment: Models and Methods	5.1 GPRA (Government Performance and Results Act) and IT: measuring the business

	value of IT and customer satisfaction
	5.2 Monitoring and measuring new system development
	5.3 Measuring IT success
	5.4 Defining and selecting effective performance measures
	5.5 Evaluating systems performance
	5.6 Managing IT reviews and oversight processes
6.0 IT Project/Programme Management	6.1 Project scope/requirements management
	6.2 Project integration management
	6.3 Project time/cost/ performance management
	6.4 Project quality management
	6.5 Project risk management
	6.6 System life cycle management
	6.7 Software development, testing and implementation
7.0 Capital Planning and Investment Control (CPIC)	7.1 Best practices
	7.2 Cost benefit, economic, and risk analysis
	7.3 Risk management models and methods
	7.4 Weighing benefits of alternative IT investments
	7.5 Intergovernmental projects – federal, state, and local
	7.6 Capital investment analysis-models and methods
	7.7 Business case analysis
	7.8 Investment review process
	7.9 IT portfolio management
8.0 Acquisition	8.1 Acquisition strategy
	8.2 Acquisition models and methodologies, from traditional to streamlined
	8.3 Post-award IT contract management
	8.4 IT acquisition best practices
	8.5 Software acquisition management
9.0 E-Government	9.1 Strategic business issues and changes associated with E-Government

	9.2 Web development and maintenance strategies
	9.3 Industry standards and practices for communications
	9.4 Channel issues (supply chains)
	9.5 Dynamic pricing
	9.6 Consumer/citizen information services
	9.7 Information accessibility (including Section 508 compliance)
10.0 Information Security/Information Assurance (IA)	10.1 CIO information security roles and responsibilities
	10.2 Information security/related-legislation, policies and procedures
	10.3 Privacy and personally identifiable information
	10.4 Information and information systems threats and vulnerabilities
	10.5 Information security controls planning and management
	10.6 IA risk management
	10.7 Enterprise-wide information security programme management
	10.8 Information security reporting compliance
	10.9 Critical infrastructure protection and disaster recovery planning
11.0 Enterprise Architecture	11.1 Enterprise architecture functions and governance
	11.2 Key enterprise architecture concepts
	11.3 Enterprise architecture interpretation, development and maintenance
	11.4 Use of enterprise architecture in IT investment decision-making
	11.5 Enterprise data management
	11.6 Performance measurement for enterprise architecture

12.0 Technology Management and Assessment	12.1 Network and telecommunications technology
	12.2 Spectrum management
	12.3 Computer systems
	12.4 Web technology
	12.5 Data management technology
	12.6 Software development technology
	12.7 Special use technology
	12.8 Emerging technology

The Clinger-Cohen Core Competency model, similar to the e-CF 2.0 and the ETA competency model, does not refer to the construct of emotional intelligence or any specific emotional intelligence model. Examining the 81 detailed competencies provided in the model, only one competency relates to the elements included in the Goleman, Bar-On and Trait EI models namely competency 2.4 *Partnership/teambuilding techniques* (Bar-On, 1997a; Goleman, 2001a; Petrides, 2010).

None of the reviewed industry and governmental initiatives providing guidelines for the development of knowledge, skill and ability for effective management and utilisation of IT refers to the construct of EI or any specific EI model.

The unit of analysis of this study, as discussed in Section 1.5, comprises business analysts, systems analysts and project managers. Documented standards for the business analysis and project management profession exist. There are, however, no such documented standards for the systems analysis profession. The following section will review the available standards for business analysis and project management.

2.11 Business analysis

The business analyst is one of the key actors in the SDLC responsible for engaging the business user, soliciting the requirement for information systems, and translating the requirement to functional business information system requirements.

2.11.1 The Business Analysis Body of Knowledge

A Guide to the Business Analysis Body of Knowledge® (2009) comprises the documented standards for the business analysis profession. It is produced and maintained by the International Institute of Business Analysis (IIBA) and is also known as *The BABOK® Guide*. It is the globally recognised definition of business analysis as a profession and includes knowledge areas, activities and tasks, as well as skills recommended for one to be effective as a business analyst.

2.11.2 Business analysis defined

The BABOK® Guide (BABOK, 2009) defines business analysis as "the set of tasks and techniques used to work as a liaison among stakeholders in order to understand the structure, policies and operations of an organization and to recommend solutions that enable the organization to achieve its goals". Business analysis involves defining and validating solutions to fulfil the needs, goals and objectives of business. It also involves analysis of information provided by various stakeholders such as business representatives, customers and IT professionals, and translating the information into relevant information technology solutions.

The BABOK® Guide (BABOK, 2009) defines a business analyst as any person that performs business analysis activities, irrespective of his/her title. *The BABOK® Guide* (BABOK, 2009:15) presents specific underlying competencies required by individuals to perform business analysis effectively. These underlying competencies will be discussed in detail in Chapter 4 when presenting the research findings.

2.12 Project management

2.12.1 The Project Management Book of Knowledge

A Guide to the Project Management Body of Knowledge (PMBOK, 2013), also known as the *PMBOK® Guide,* comprises the recognised and documented global standards for the project management profession. The norms, methods, processes and practices documented in the *PMBOK Guide* were compiled using good practice of practising project managers. The *PMBOK Guide* is produced and maintained by the Project Management Institute (PMI). The standards presented in the *PMBOK® Guide* (PMBOK, 2013) are globally recognised by project

management practitioners as being useful and adding value to most projects most of the time. The *PMBOK® Guide* (PMBOK, 2013) also acts as foundation reference for professional development and certification of project managers by the PMI as certification body.

2.12.2 Projects and project management defined

A project is a temporary effort by a single person or a team to create a unique product, service or result (PMBOK, 2013). A project generally comes to an end if the objectives of the project have been met, cannot be met or the need for the project does not exist anymore. Typical examples of projects are developing a new product, constructing a building, developing an information system, as well as establishing organisational change such as restructuring.

Project management is the utilisation of knowledge, skills, tools and techniques to achieve the project objectives (PMBOK, 2013). Furthermore, the *PMBOK® Guide* (PMBOK, 2013) provides 47 project management processes for use by practising project managers to manage a project in order to achieve a successful outcome. The 47 processes and the skills important to the success of the project manager will be explored in detail in Chapter 4 when presenting the research findings.

2.13 Conceptual framework

The conceptual framework for understanding the role of emotional intelligence in bridging the business – IT alignment gap, as presented in Figure 2.9 below, consists of the following components:

- The Genos EI Model as developed by Gignac (2005)
- The EI profiles of practising business analysts, systems analysts and project managers
- The views of 20 research participants on competencies influencing successful functioning in business analysts, systems analysts and project managers
- Competency guidelines from the IIBA and PMI for business analyst and project manager roles as published in BABOK and PMBOK
- The role of the human in business – IT alignment as documented in The Zachman Framework for EA, TOGAF, FEA and GEAF

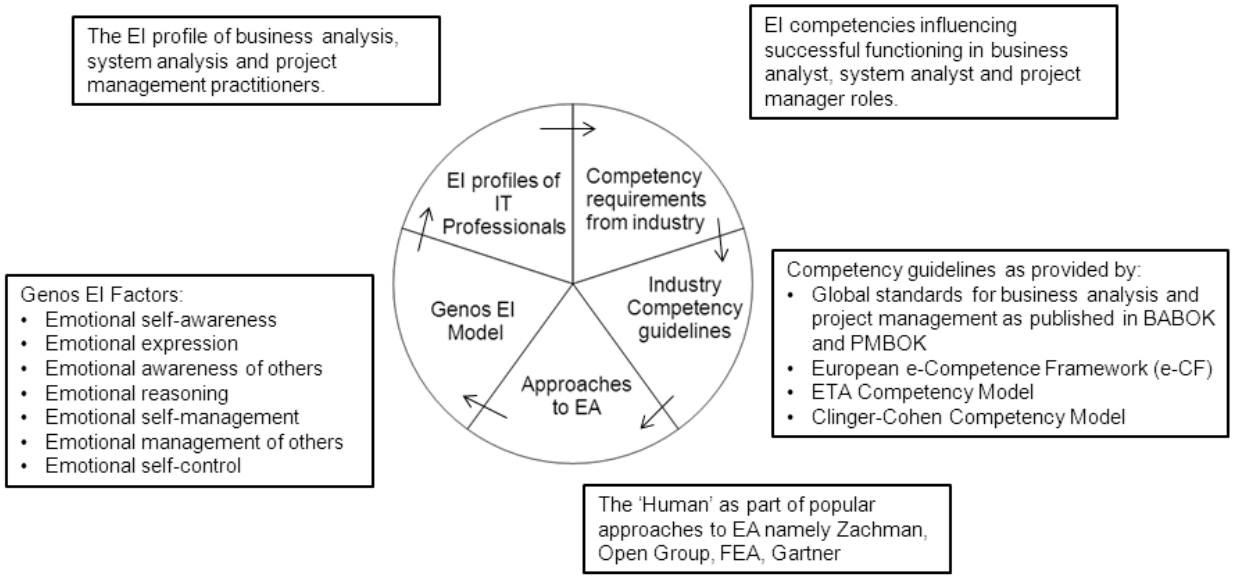


Figure 2.9: Conceptual framework

2.14 Summary

This chapter reviewed the literature on strategic alignment models available to assist business and IT to improve alignment. The review of strategic alignment models aimed to establish how human skills and competencies were addressed in these models as part of the facilitation of business – IT alignment. The most well-known approaches to EA were discussed with the specific aim of establishing whether reference is made to any skills, characteristics or competencies needed by IT professionals to optimally use these EA tools to improve business – IT alignment.

The examination of strategic alignment literature and enterprise architecture frameworks, as well as schools of thought on enterprise architecture, illustrated the absence of the human in enterprise architecture tools. The taxonomies, frameworks, methodologies and practices available to assist business and IT role players in aligning business and IT strategies, ignore the non-technical skills and competencies required of the IT professionals who utilise these tools. The human is neglected in the EA and strategic alignment literature.

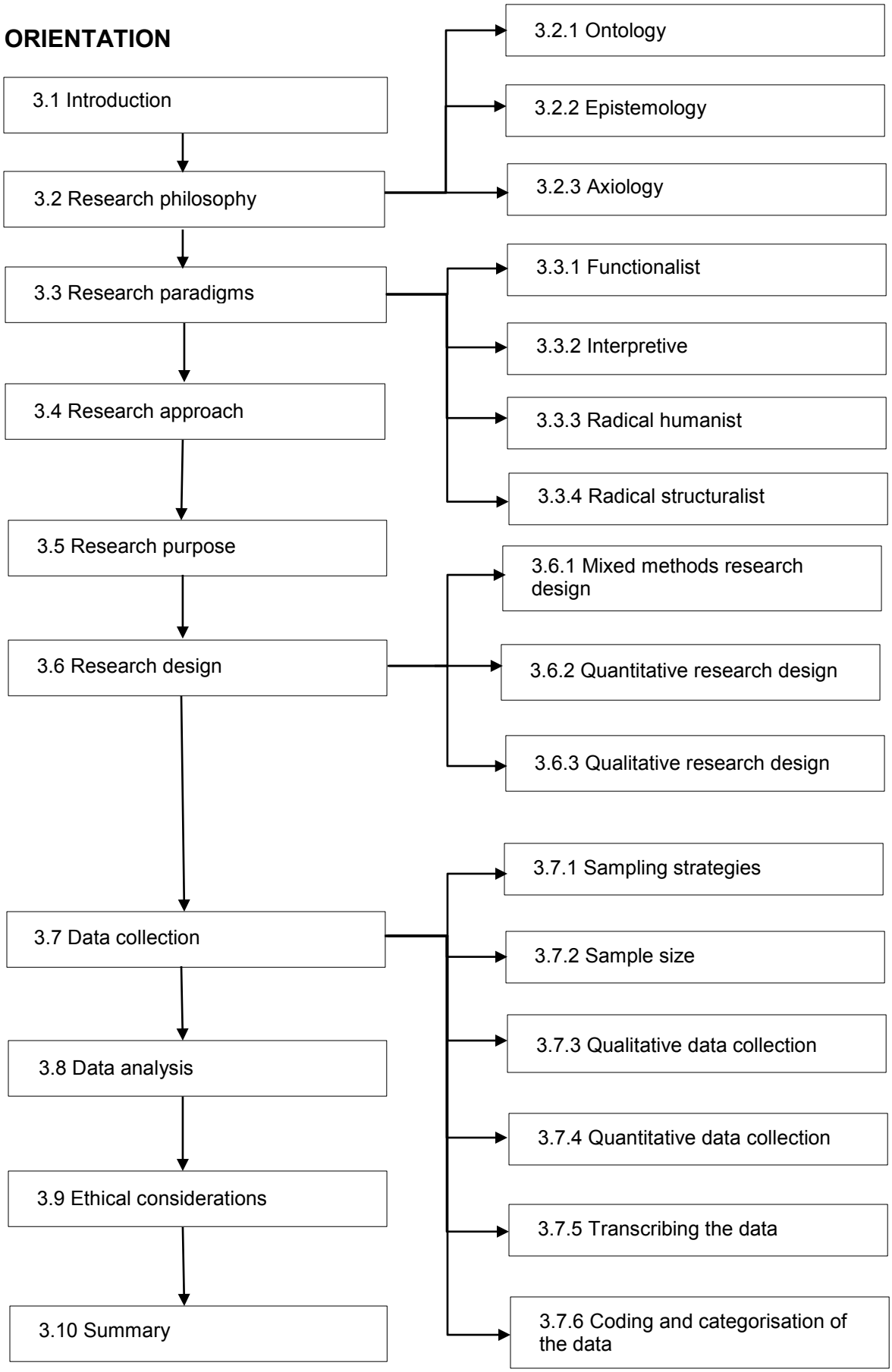
Subsequently, the construct of EI was introduced. The characteristics of emotions and feelings were explored. A historical development of the concept of intelligence was provided. This was followed by an investigation into the origins of EI. An overview of the ability, integrative, mixed and trait approaches to EI was provided. Literature on the impact of EI on occupational performance was reviewed to investigate research evidence of the impact of EI on the occupational performance of IT professionals.

No guidance is provided in the literature on whether EI is required of IT professionals such as the CIO, enterprise architects, business analysts, systems analysts and project managers in pursuing business – IT alignment. The business case for EI does not refer to the impact of EI on the occupational performance of IT professionals, and limited research evidence could be found of the impact of EI in the IT industry. Joseph et al. (2010) confirm this lacuna in the literature. The literature review established that there is no specific mention in the literature of strategic alignment as well as EA of the EI construct, or of any of the elements of the Genos EI model as a suggested element potentially contributing to business – IT alignment.

Subsequently, the concepts of e-Skills and e-Competencies were introduced. An outline of the European e-Competence Framework (e-CF), the ETA Competency Model and the Clinger-Cohen Core competencies was presented. No reference to the construct of EI or any specific EI model could be found in the e-CF 2.0, the ETA competency model or the Clinger-Cohen Core Competency model.

A review of the *BABOK® Guide* (BABOK, 2009) and *PMBOK® Guide* (PMBOK, 2013) was provided to establish which skills, knowledge and personal characteristics are recommended by the IIBA and PMI for effective functioning of business analysts and project managers. No evidence was found in the *BABOK® Guide* (BABOK, 2009) of the construct of EI or any specific EI model. EI is not mentioned as an underlying competency potentially influencing the effectiveness of a business analyst. No reference to EI was found in the *PMBOK® Guide* (PMBOK, 2013). The *PMBOK® Guide* (PMBOK, 2013) does acknowledge the existence of additional interpersonal skills that project managers make use of to achieve project success. The *PMBOK® Guide* (PMBOK, 2013) however, does not provide these skills.

The chapter concludes by providing the conceptual framework which will act as a lens to facilitate understanding of the role of EI in bridging the business – IT alignment gap. Chapter 3 provides the research strategy and research design employed to address the research problem.


ORIENTATION
3.1 Introduction
3.2 Research philosophy
3.3 Research paradigms
3.4 Research approach
3.5 Research purpose
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3.7 Data collection
3.8 Data analysis
3.9 Ethical considerations
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CHAPTER 3

RESEARCH DESIGN AND METHODOLOGY

3.1 Introduction

The chapter starts with an overview of the research problem and the problem statement. Subsequently, the research questions are stated. This is followed by an overview of the research philosophy, succeeded by the research approach. The choice of research paradigm, as well as the research purpose, is then discussed. The research design and a discussion of the data collection process are provided. The sampling strategy utilised to obtain the research participants is explored. The sample size and details of selected participants and participating organisations are provided. The qualitative data collection methods are then discussed. Subsequently, an overview of the quantitative data collection method is provided. The chapter concludes with a discussion on the ethical procedures of this study.

When organisations recruit IT professionals, they often focus on technical skills only. They seldom focus on generically labelled 'soft skills' such as empathy, self-awareness and self-regard – skills which are an integral part of EI. Additionally, there is an increasing awareness among scholars that technical skills alone are insufficient for success in the field of IT (Longenecker et al., 1996; Stein & Book, 2001; Kaluzniacky, 2004; Joseph et al., 2010).

Very little systematic research conceptualising the non-technical skills required for successful IT professionals has been done to date (Joseph et al., 2010). The same is true of the role of non-technical skills and EI in achieving business – IT alignment. Based on this gap in the literature and my practical experience as an IT manager, it is my opinion that uncertainty prevails regarding the role of EI in IT occupational performance and business – IT alignment. In my experience, the lack of consideration of EI in the recruitment and utilisation of IT professionals often leads to costly mismatches, negatively impacting business – IT alignment. This results in the following problem statement of this study:

"The role of emotional intelligence of information systems professionals in the non-achievement of business aims is unclear."

The following research questions, as illustrated in section 1.5, were posed to find answers to the above problem facing the IT industry:

- *What is the EI profile of business analysts, systems analysts and project managers?*

  The objective of this question was to investigate EI patterns that may develop when measuring the EI of selected business analysts, systems analysts and project managers. These patterns may hold the answers to the understanding and use of EI strategies within an IT enterprise, division or team, as a method of improving alignment between business strategies and IT strategies. To answer this question, a psychometric instrument was utilised to assess the EI of the participants.

- *How do EI competencies complement the functions of business analysts, systems analysts and project managers?*

  The objective of the question was to explore the alignment between EI competencies and the roles of business analyst, systems analyst and project manager. Once the two factors are aligned, the influence of EI competencies can be determined in order to explore the potential advantages of such alignment. Semi-structured interviews were conducted with IT managers accountable for information systems development in corporate organisations in various industries or IT managers accountable for systems development in software development organisations.

- *Why do EI competencies influence successful functioning in business analyst, systems analyst and project manager roles?*

  The aim of this question was to develop a better understanding of the relationships between IT roles and EI competencies. This question was also answered in the above-mentioned semi-structured interviews with IT managers.

- *How does the literature define successful functioning in business analyst, systems analyst and project manager roles?*

  The aim of posing this question was to contribute to determining the gap between how the literature defines successful functioning in business analyst, systems analyst and

project manager roles. and expectations of the IT industry. The answers to this question were determined during the literature review.

- *What is the gap between the EI of business analysts, systems analysts and project managers, and what the literature and industry expect?*

  This question was answered by comparing the patterns identified, during the EI assessments of business analysts, systems analysts and project managers, to the results of the literature review and the views of IT managers.

- *What could be included in the EI profiles of and certification requirements for business analysts, systems analysts and project managers?*

  The objective was to compile a taxonomy of suggested EI and other competencies to be used as part of the recruitment, selection and development of business analysts, systems analysts and project managers to potentially contribute to improved business – IT alignment. A further objective was to recommend specific EI competencies to potentially be included in the certification requirements for business analysts, systems analysts and project managers. As in the case of the previous question, this question was answered by comparing the patterns identified, during the EI assessments of business analysts, systems analysts and project managers, to the results of the literature review and the views of IT managers.

From an ontological perspective, I subscribe to the subjectivist approach. From an epistemological perspective, this research was conducted from an interpretive position within the radical humanist and interpretive research paradigms. The research approach was inductive. The purpose of this research was exploratory. A mixed-methods research design was adopted, combining quantitative and qualitative data. The qualitative design type was a multiple interpretive case study. Criterion sampling was the purposive sampling method employed for both quantitative and qualitative data collection. Quantitative data was collected by means of a psychometric instrument. Qualitative data was collected during semi-structured interviews.

3.2 Research philosophy

Saunders et al. (2009:107) argue that research philosophy is an over-arching term that relates to the development of knowledge and the nature of that knowledge. They contend that the adopted research philosophy contains important assumptions on how the researcher views the world. These assumptions made by the researcher, are the basis of the research strategy as well as the methods supporting the strategy.

The three pillars of research philosophy are ontology, epistemology and axiology (Heron & Reason, 1997; Saunders et al., 2009).

3.2.1 Ontology

From an ontological perspective, I subscribe to the emerging subjectivist approach to determine the nature of reality, and I believe the researcher and reality cannot be separated. Reality is dependent on my subjective perceptions as a researcher. I support the ontological position of idealism. I also believe that an objective reality does not exist, and that there is not only one reality, but that there are many. The interpretivist (naturalistic) paradigm will assist me in identifying these many realities in their natural context (Maree, 2010). I believe social phenomena originate from the perceptions and actions of social actors and can be understood from an internal perspective through words and names by the human mind.

Walsham (1995) and Nieuwenhuis (2010:53) define ontology as “the study of the nature and form of reality (that which is known or can be known)”. Saunders et al. (2009:110) define ontology as concerned with the “nature of reality”, that is, the nature of the world around us. Ontology is concerned with the question of whether there is an objective reality and what is the truth. From an ontological perspective, a researcher has to assume a position, based on an assumption, whether an objective reality (truth) exists or not.

Two opposing ontological positions or philosophical schools of thought are found in the literature, namely idealism and realism (Kanellis & Papadopoulos, 2009:3). The philosophy of idealism does not agree that there is an objective reality. Reality is dependent on the subjective perceptions of the researcher and exists through the words and names created by the human mind. Two views of idealism regarding the existence of objective reality exist, namely, subjective

idealism and objective idealism. Subjective idealism is rooted in 16th-century thought. Descartes was a primary philosopher in terms of subjective idealism and argued that one should not accept anything as true if a reason could be provided why it could possibly be false (Kanellis & Papadopoulos, 2009:3). Berkeley, another leading scholar of the 16th century, argued the world around us does not exist of objective realities but rather of a collection of ideas and states of mind. He contends that everything we touch, hear or feel around us comprises ideas and not objective reality.

Opposed to idealism, the philosophy of realism states that reality is objective and exists outside of words and names created by the human mind. The assumption is that abstract objects have an objective existence. The essence of what a realist believes is the world exists independently of the human mind. The physical world is also believed to exist independently of the human senses (Kohl, 1992:3). This world consists of "objectively given, immutable objects and structures" (Hirschheim, 1992:3).

Kantianism can be seen as an effort to reconcile the philosophies of ontological idealism and ontological realism. Kant (1724 – 1804) proposes two types of entities, namely 'noumena' and 'phenomena'. Noumena are entities that exist independently from human consciousness. Phenomena, however, are entities that depend on human consciousness. Phenomenologists believe the physical world does exist independently of the human mind, but reference should be made to phenomena as opposed to objects. Phenomenologists are of the opinion that empirical facts are subjected to knowledge independent of experience and determine how the mind works. Kant further argues knowledge can be acquired about phenomena only since noumena are beyond understanding. Furthermore, phenomenology recognises the role of human values, feelings and moral beliefs in judging objects, which provides meaning (Kannellis & Papadopoulos, 2009).

In addition, an ontological stance is influenced by the concepts of objectivism and subjectivism Saunders et al. (2009:110). A researcher assuming an objectivist ontological position believes social entities exist in reality external to social actors. However, a researcher assuming a subjectivist ontological position believes social phenomena originate from the perceptions and actions of social actors. These social phenomena are not stagnant. Social interaction between the social actors causes the phenomena to constantly change. Scholars therefore argue it is necessary to study the particular situation and interaction in order to understand the reality being created (Remenyi et al., 1998). The term 'social constructionism' is related to subjectivism in the

sense that it assumes reality is created during the daily social interaction and lived experiences of social actors.

3.2.2 Epistemology

From an epistemological perspective, my assumptions and beliefs as a researcher are:

- I accept that knowledge of the world is intentionally composed of the experiences of humans and meanings we add to phenomena (Kantianism)
- I believe that knowledge and meaning are the result of interpretation
- There is no objective knowledge independent of the mind of human beings. People and reality are therefore inseparable (Idealism)
- I believe reality is subjective
- I believe reality is dependent on the frame of reference of the researcher and observer
- As a researcher, I create my own subjective meaning during interaction with the social world and do not believe objective or factual accounts of events exist

The above epistemological assumptions will affect the way that I shall conduct this research. Patterns, trends and themes will emerge from this research. I shall get to know reality by understanding the real-life situations from the perspective of the insiders, rather than from my own point of view. I shall place emphasis on the participants' frame of reference. I shall not decide what counts as knowledge. What participants view as knowledge will emerge during interactions between the participants and myself. Also, knowledge will be subjective as it will be perceived and described through my observations. These abovementioned epistemological assumptions and beliefs imply research will be conducted according to my own paradigm beliefs.

Hirschheim (1992) argues epistemology refers to the researcher's theory of knowledge, specifically how knowledge is acquired and what is 'valid' knowledge. Walsham (1995) supports this view and contends that epistemology is concerned with the nature of knowledge claims and what constitutes acceptable knowledge in a field of study. Becker and Niehaves (2007) argue epistemology can be viewed as a science. They posit epistemology is the discipline of analysing how humans understand the knowledge about objects they perceive to exist. Nieuwenhuis

(2010:55) argues that epistemology relates to how one gets to know reality (truth), if reality does exist.

This view supports the argument of Becker and Niehaves (2007), that is, it addresses the issues of how we as humans can acquire knowledge through understanding. Epistemology assumes a relationship between the knower and the known, while one gets to know reality and discover the truth. From an epistemological perspective, the question arises whether knowledge can be viewed as subjective or only objective.

Orlikowski and Baroudi (1991) suggest three research epistemologies used to conduct social research. These correspond to the classification of Chua (1986), namely:

- Positivist
- Interpretive
- Critical

3.2.2.1 Positivism

Kolakowski (1972) posits that positivism confirms to the rule of phenomenalism. There is one experience only and he rejects all abstractions. Positivism asserts words and generalisations do not provide new insight into the world (nominalism). Positivism also assumes the separation of facts from values, as well as the unity of the scientific method.

Burrell and Morgan (1979) define it as an epistemology "which seeks to explain and predict what happens in the social world by searching for regularities and causal relationships between its constituent elements". They are of the opinion that a positivist view is based on the ontological assumption that the social world is external to individual cognition. The real world, therefore, consists of hard, tangible and relatively fixed phenomena, external to the researcher's mind and existing independently from an individual's appreciation of it.

Hirschheim (1992) contends positivism is built on a foundation of five pillars:

- Unity of the scientific method
- Search for human causal relationships
- Belief in empiricism
- Science is value-free
- The foundation of science is based on logic and mathematics

Unity of the scientific method implies the scientific method of acquiring knowledge is the accepted approach for all forms of enquiry. Positivism aims to find causal relationships among the components of the study. The emphasis is therefore on quantifiable observations that can be statistically interpreted. Positivist studies primarily aim to test theory in order to increase understanding of the phenomena being studied. The testing of the theory is followed by generalisation from the research setting to the population.

Positivism believes knowledge originates from empiricism only. This implies that knowledge can only originate from sensory experience. Positivism believes science is value-free. This implies beliefs and experiences of the researcher do not play a role in knowledge acquisition. The researcher is seen as external to the process of data collection and does not influence or is not affected by the data being collected (Remenyi et al., 1998:33). The fifth and last pillar on which positivism is built is on the belief that mathematics is the foundation of science.

Easterby-Smith et al. (2002:28) contend that the core of positivism is the belief that the social world exists externally and that its properties should be measured through objective methods. In line with the belief that science is value-free, the postulation is that there is one objective reality that is observable and the observer has little or no impact on the object being observed. Nieuwenhuis (2010) contends that positivism is generally viewed in the literature as a scientific quantitative research approach.

Nieuwenhuis (2010) is of the opinion that during the past two centuries, the prevailing view of the world was positivist. Increasing dissatisfaction with this traditional view of the world, accompanied by developments in social science theory that brought new insights and understanding of reality, gave rise to increased adoption of and interpretivist views of the world. He contends that research is no longer seen as a means of verifying theory but a ‘new’ method of developing theory.

3.2.2.2 Interpretivism

Burrell and Morgan (1979) contend that interpretivism focuses on the deeper meanings of social actions and how these are interpreted, understood and appreciated by individuals. There is no objective knowledge which is independent of human beings. Interpretivism believes reality is subjective and dependent on the frame of reference of the observer. Reality is thus influenced by the process of observation. Interpretivism does not concern itself with the search for broadly applicable laws and rules. It rather seeks to deliver descriptive analyses and deep understanding of social phenomena. Interpretivism implies that people and reality are inseparable. Interpretivists (qualitative) believe that the world consists of people with their own assumptions, intentions and attitudes. The interpretive researcher creates his or her subjective meaning during interaction with the social world and does not believe objective or factual accounts of events exist. Interpretivism is the belief that knowledge and meaning are the result of interpretation (Orlikowski & Baroudi, 1991:14).

Nieuwenhuis (2010) further argues one gets to know reality by exploring the experiences and meanings of other people regarding a specific phenomenon. In contrast with the scientific method, they believe it is not possible to find precise, systematic and theoretical answers to the complex problems of humans. In contrast with the positivist researcher, the interpretive researcher does not generalise to the population but rather aims to understand the phenomena to inform other research settings.

3.2.2.3 Critical

As presented above, epistemology relates to how one gets to know reality (truth) if reality does exist. Chua (1986) argues that the critical researcher believes a phenomenon can only be understood historically. The critical researcher is, however, not only concerned with providing an interpretation of how research participants view reality. They also actively critique the social world with the aim of establishing social change of the phenomenon under investigation. Orlikowski and Baroudi (1991) contend critical research aims to critique and transform the social reality being researched. Critical research assumes social reality is historically constituted. Humans produce and recreate this reality. Reality is, however, not stable, but seen as constantly undergoing change.

Hirschheim and Klein (1989) argue critical research has its roots in Marxist theory. Walsham (2005) and McGrath (2005) elaborate by arguing the critical stance aims to change the status quo because of an inherent belief in unjust social realities. The focus is therefore to change reality. Walsham (2005) illustrates this in his argument that a critical approach is focused on what is wrong with the world rather than what is right. McGrath (2005) further contends that the intention of critical researchers to change the status quo is usually expressed in terms of emancipation. Niehaves and Stahl (2006) argues this urge to emancipate has led researchers to focus on specific topics in IS such as power, gender and failure. They appropriately summarise by arguing critical research aims to change reality and 'emancipate alienated individuals'.

Niehaves and Stahl (2006) differ from the contention of Chua (1986), Orlikowski and Baroudi (1991) as well as Guba and Lincoln (1994) with regard to the relationship between the epistemologies of positivism, interpretivism and critical research. Niehaves and Stahl (2006) argue critical research is not an alternative to positivism and interpretivism. I support the view of Niehaves and Stahl (2006). Critical and non-critical research constitutes a distinct set of paradigms, but are, however, alternatives to each other. Critical research is closer to interpretivism than positivism, since critical research aims to change the social interpretation of the social reality.

Positivism and interpretivism can be evaluated by both critical and non-critical research. A researcher can be a critical positivist or a critical interpretivist. It is also reasonable to assume a non-critical interpretivist paradigm.

3.2.2.4 Delineation of epistemological assumptions

Becker and Niehaves (2007) present an epistemological framework providing specific epistemological questions they deem highly relevant to IS research. Since each researcher approaches research from his or her unique value system and set of beliefs, the framework is, in my opinion, useful in evaluating IS research. A brief overview of the framework is provided in the next section.

- What is the object of cognition?

This question is concerned with whether the researcher assumes the position of ontological idealism, ontological realism or Kantianism, as discussed in the above section on ontology.

- What is the relationship between cognition and the object of cognition?

A position of epistemological realism assumes it is possible to achieve objective understanding of an independent objective reality (truth). It is therefore dependent on ontological realism. This combination is referred to in the literature as positivism (Hirschheim & Klein, 1989). A position of constructivism assumes that the relationship between cognition and the object of cognition is determined by the subject – the interpretation of an objective reality or the absence of an objective reality.

- What is true cognition?

This question is concerned with a key component of epistemology, namely how humans can obtain true understanding, is accurate knowledge possible, and how can it be verified. According to the *correspondence theory of truth*, comparing statements to facts can assist in verifying statements (Becker & Niehaves, 2007). The essence of the *consensus theory of truth* is that truth is the result of consensus. Lastly, Becker and Niehaves (2007) argue that the semantic theory of truth involves the use of an object language as well as a meta-language to achieve clarity.

- Where does cognition originate?

There are three philosophical stances that relate to the source of our understanding. Empiricism regards the source of knowledge as experience. Rationalism regards intellect as the source of understanding. The position of Kantianism views both experience and intellect as sources of cognition.

- By what means can cognition be achieved?

This question is related to the methodology followed in achieving cognition. Becker and Niehaves (2007) argue understanding can be achieved by using inductive, deductive or hermeneutic methods. These aspects will be discussed in further detail in later sections of this chapter.

In this research, the aim was not to generalise to the population but rather aim to deliver a descriptive analysis and deep understanding of the phenomena to inform other research settings. The subject of my research is therefore suited to an interpretivist, subjective, qualitative research paradigm that focuses on people and especially how they interact, their motives and their relationships during the information systems development life cycle.

3.2.3 Axiology

Heron and Reason (1997) and Saunders et al. (2009) contend that axiology is a branch of research philosophy concerned with studying judgements about values. Axiology is relevant to the social research process since values guide our actions in life in general. Values may therefore affect the credibility of research results. The researcher demonstrates his or her values during the research process. Actions in research such as the choice of research philosophy and data collection techniques are guided by the values and life experiences of the researcher. A researcher that values personal interaction with research participants may, for example, choose interviews as a data collection technique, as opposed to requesting research participants to complete a questionnaire. Similarly, judgements made by the researcher may differ from those of researchers that have different values. Different researchers may therefore come to different conclusions, because of different value systems, backgrounds and life experiences. From a positivist epistemological position, research is conducted in a value-free manner. The researcher maintains an objective stance and is independent of the data. In terms of interpretivism, the researcher is part of the social reality being researched and is inherently subjective.

From an axiology perspective, I accept that I am values-biased and that the research objects will be interpreted in the light of my own experiences in life. I also accept that my personal value system may influence my choices, and my decisions, as well as my conclusions drawn, during this research study.

3.3 Research paradigms

A choice of research design is preceded by clarification of the researcher's choice of research paradigm. Lincoln and Guba (1985) are of the view that paradigms represent what we think about the world (but cannot prove). They argue our actions in the world, including the actions we

take as enquirers, cannot occur without reference to those paradigms: “As we think, so do we act” (Lincoln & Guba, 1985:15).

Guba and Lincoln (1994:105) argue a paradigm is the basic belief system or worldview that guides the researcher. Colman (2006) defines a research paradigm as a collection of conceptual frameworks that explains a specific theoretical approach to research. Saunders et al. (2009:119) contend a paradigm is a “way of examining social phenomena from which particular understandings of these phenomena can be gained and explanations attempted”. Nieuwenhuis (2010) defines a paradigm as a

> … set of assumptions or beliefs about fundamental aspects of reality which gives rise to a particular world-view – it addresses fundamental assumptions taken on faith, such as believes about nature of reality and the truth (ontology), the relationship between the knower and the known (epistemology) and assumptions about methodologies.

Burrell and Morgan (1979) formulate four main lenses (research paradigms) by which reality in social science is interpreted. These four paradigms are the functionalist, interpretivist, radical humanist, and radical structuralist paradigms. According to the abovementioned scholars, these paradigms assist researchers in clarifying their assumptions about reality in social science, function as a tool to facilitate understanding of the work of other researchers, and assist researchers with navigating their research journey (Saunders et al., 2009:120).

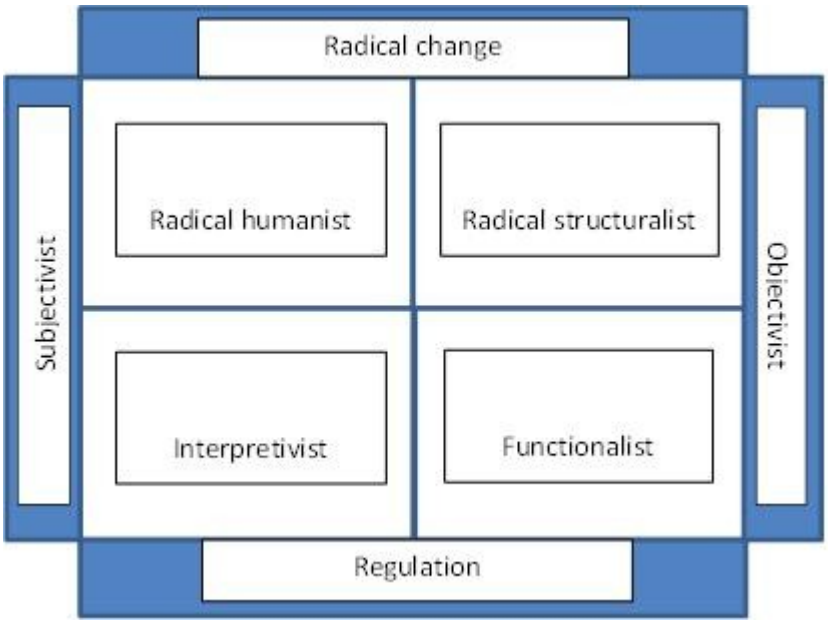

Figure 3.1: Burrell and Morgan paradigms and dimensions (Burrell & Morgan, 1979)

The four paradigms are mapped in four quadrants according to four conceptual dimensions, namely regulation, subjectivist, radical change and objectivist as illustrated in Figure 3.1.

The conceptual dimension of radical change suggests ways in which radical change can be accomplished in organisations, and is critical of organisational life. The conceptual dimension of regulation is less critical of organisational life. In this perspective, the focus is on suggestions to improve the status quo, opposed to radical change. A brief overview of the four paradigms and their mapping to the four dimensions will be provided in the next section.

3.3.1 Functionalist

The functionalist paradigm is located within the objectivist and regulatory dimensions. A researcher adopting the functionalist paradigm is concerned with solving practical organisational problems and developing a set of recommendations. The ontological position in this paradigm is objectivism.

3.3.2 Interpretive

The interpretive paradigm is located within the regulatory and subjectivist dimensions. The interpretive researcher takes a subjective ontological stance and is concerned with understanding fundamental meanings of organisational life. The aim of working in this paradigm is to understand and explain the world and organisational life around us.

3.3.3 Radical humanist

The radical humanist paradigm is located in the subjectivist and radical change dimensions. The ontological stance on this quadrant is subjectivism. A researcher working in this paradigm is concerned with critically exploring organisational life and the justification of the resultant radical change of the status quo. From a subjective perspective, the researcher aims to understand the views that social actors concluded from social phenomena and organisational life.

3.3.4 Radical structuralist

The radical structuralist paradigm is located in the radical change and objectivist dimensions. A researcher working in the radical structuralist paradigm adopts an objective ontological stance. This paradigm is concerned with analysis of objective organisational entities such as hierarchies and reporting relationships, with the aim of achieving fundamental change.

This research was approached from a subjective ontological stance and is focused within the *radical humanist* and *interpretivist* paradigms. The organisational life of the participating business analysts, systems analysts and project managers was critically explored with the aim of understanding and explaining the role of emotional intelligence of business analysts, systems analysts and project managers in Business – IT alignment.

3.4 Research approach

In this research, an inductive generalisation research approach was followed to assist with identifying the multiple realities potentially present in the data. The emphasis was on gaining understanding of the context in which business analysts, systems analysts and project managers perform, as well as the meaning participating organisations attach to this performance. Induction was also relevant, since the aim was not to generalise the population. Induction was also relevant, since research investigating the impact of EI during the systems development life cycle is new, and there is a paucity of literature. For this reason, it was more appropriate to follow an inductive approach by generating data and subsequently analysing and reflecting on trends and patterns suggested by the data (Saunders et al., 2009:127).
There are generally two approached to research apparent in the literature, namely deduction and induction (Saunders et al., 2009:124). The choice of a research approach is useful to the researcher for various reasons. Easterby-Smith et al. (2008) contend the choice of research approach provides the researcher with information in order to decide on the most appropriate research design. Furthermore, it assists in evaluating alternative research strategies.

The positivist paradigm is supported by a deductive research approach. Deduction involves the development of theory by means of thorough testing. Cause and effect relationships are examined and generalisations lead to predictions, explanation and understanding. Mouton (2001) argues that the most common forms of deductive reasoning are deriving hypothesis from

theories and models as well as conceptual explication. Deductive research, according to Robson (2002) and Saunders et al. (2009:124), involves five sequential steps:

- Presenting a hypothesis
- Indicating how the variables will be measured
- Testing the hypothesis
- Examining the outcomes
- Modifying the theory if needed subsequent to research findings

In contrast to deduction, inductive generalisation as a research approach is defined as applying inferences from specific observations to a theoretical population (Mouton, 2001). Inductive research is concerned with understanding the context in which phenomena are taking place, as well as developing an understanding of the phenomena, that is, spending time in the research setting to understand what is going on. In this regard, Saunders et al. (2009) relate deduction to testing a theory, as opposed to induction as building a theory.

The research approach adopted by the researcher, as in the case of research philosophy, influences the ways the researcher will go about finding answers to the research questions (design of the research), which will be expanded upon in the next section.

3.5 Research purpose

The purpose of this research was exploratory in order to gain a deeper understanding of the emotional intelligence competencies needed to improve the occupational performance of specific IT professional roles, namely the business analyst, systems analyst and project manager. The patterns that emerge in terms of the Emotional Intelligence (EI) of these IT professionals were explored in order to identify which main clusters of EI competencies are needed for improved functioning in these roles.

Saunders et al. (2009) argue research purpose is often categorised as exploratory, descriptive or explanatory. It may happen that the research purpose changes during the life cycle of the research project and it can happen that the research project has more than one of the abovementioned purposes.

The emphasis of exploratory studies is to discover new insights in terms of understanding of a particular problem (McMillan & Schumacher, 2010:53). The main ways of conducting exploratory studies are literature surveys, interviewing experts in the research area, as well as conducting focus group interviews (Saunders et al., 2009:140).

Studies with a descriptive purpose aim to provide an accurate description of a phenomenon. A descriptive study may precede an exploratory or explanatory study. The goal of explanatory studies is to investigate a particular situation or problem in order to find causality between variables.

3.6 Research design

In this study a mixed methods research design was followed, combining quantitative data with qualitative data in order to add depth and detail to findings (Swanson & Holton, 1997:93). The mixed method design allowed for the collection and corroboration of data collected and enhanced the credibility of the study (McMillan & Schumacher, 2010).

Cohen et al. (2000) argue a research design is used to describe the procedures for conducting a study. Its purpose is to assist in finding appropriate answers to the research questions. Nieuwenhuis (2010) argues a research design is a plan or strategy which starts with the underlying philosophical assumptions, progressing to the selection of research participants and data gathering techniques, to how the analysis will be done. The research design is the plan the researcher will follow in order to answer the research questions, how the research subjects will be impacted, as well as how the research data will be collected. The research questions have to be matched with the appropriate research design to ensure appropriate analysis of the research data and credible conclusions reached from the research questions.

Common research designs categories found in the literature are quantitative, qualitative, mixed methods and analytic (McMillan & Schumacher, 2010:20). Each of these categories has specific design types or research strategies and is shown in Table 3.1 below.

Table 3.1: Types of research design per research design category (McMillan & Schumacher, 2010:20)

Research design categories				
Quantitative		Qualitative	Mixed methods	Analytic
Experimental	Non-experimental			
True experimental	Descriptive	Ethnographic	Explanatory	Policy analysis
Quasi-experimental	Comparative	Phenomenological	Exploratory	Concept analysis
Single-subject	Correlational	Case study	Triangulation	Historical analysis
	Survey	Grounded theory		
	Ex post facto	Critical studies		
	Secondary data analysis			

Yin (2009) argues that each research strategy can be used for exploratory, descriptive and explanatory research purposes. The research design and research strategies followed in this study are summarised in Table 3.2 below.

Table 3.2: Research design summary

Research design categories				
Quantitative		Qualitative	Mixed methods	Analytic
Experimental	Non-experimental			
Not applicable	Descriptive	Case study	Triangulation	Not applicable

3.6.1 Mixed methods research design

Saunders et al. (2009:152) argue a mixed methods approach is a collective term for the use of both quantitative and qualitative data collection techniques and data analysis procedures in the same study. Two types of mixed methods approaches are found in the literature, namely mixed methods research and mixed model research (Saunders et al., 2009:152). In mixed methods research, quantitative and qualitative data collection techniques and analysis procedures are used in parallel or sequentially, but not in combination. The quantitative data are analysed in a quantitative manner and qualitative data are analysed qualitatively. The second mixed methods approach found in the literature is mixed model research involving combining quantitative and qualitative data collection techniques and analysis procedures. This translates to quantitative

data being analysed qualitatively and potentially converting qualitative data into numerical codes and analysing it statistically.

Data collection in this study was done sequentially. At first, qualitative data was collected during semi-structured interviews, after which quantitative data was collected some time later. The qualitative data was analysed using qualitative analysis procedures. The quantitative data, however, was analysed using qualitative analysis procedures. The approach was therefore a mixed model research approach (Saunders et al., 2009:153).

The mixed method research design was utilised in this study to capitalise on the benefits of triangulation, complementarity as well as aiding of interpretation (Saunders et al., 2009:154). Using two sources of data as well as two data collection methods assisted in corroboration of the findings of this study. Data from the qualitative collection was complemented by data from the quantitative collection to provide a more comprehensive interpretation. Mixed methods were also used to potentially expand on qualitative data using quantitative data or challenge the results from both methods (McMillan & Schumacher, 2010:405; Perry, 2012).

Creswell (2008) presents a notation system to illustrate the various mixed method research designs. The priority of particular methods is illustrated by uppercase letters, for example, ‘QUAL’ or ‘QUAN’. Lowercase letters, for example, ‘qual’ or ‘quan’, indicate a lower priority. The sequence of the collection of data is indicated by an arrow. A plus sign (+) indicates that qualitative and quantitative data are collected simultaneously.

This mixed method design for this research is therefore illustrated by the notation QUAL --> quan. The abbreviations indicate that secondary quantitative (quan) and primary qualitative (QUAL) data collection methods were used with qualitative data collection methods receiving higher priority (Teddlie & Tashakkori, 2003, Creswell, 2008). Subsequent to qualitative data, quantitative data were collected and interpreted together to provide a better understanding of the impact of EI in the occupational performance of business analysts, systems analysts and project managers as well as to identify themes and trends. In this exploratory study, priority is given to qualitative methods in order to explore how research participants interpret the impact of EI on the roles of the business analyst, systems analyst and project manager in achieving business – IT alignment.

3.6.2 Quantitative research design

The design type from a quantitative perspective (non-experimental) was descriptive. McMillan and Schumacher (2010:22) define a descriptive design as providing a summary of a phenomenon using numbers to describe individuals, that is, a quantitative summary. The aim was to, amongst others, identify the patterns of emotional intelligence visible in the sample of business analysts, systems analysts and project managers assessed. The quantitative summary can therefore be seen as the patterns identified in EI scores.

3.6.3 Qualitative research design

This research took the form of a multiple interpretive instrumental case study research design in which the views of multiple organisations employing business analysts, systems analysts and project managers in the information systems development life cycle were solicited.

The qualitative design type employed in this research was a case study. Bromley (1990) posits a case study involves systematic enquiry into an event or set of events which aims to describe and explain the phenomenon of interest. Robson (2002) contends a case study is a research strategy involving empirical investigation into a phenomenon within its real-life context and uses multiple sources of research evidence. Cresswell (2008) argues a case study constitutes in-depth exploration of an activity, event, process or individuals, referred to as a bounded system. Yin (2009:18), in line with Robson (2002), defines case study research as an empirical inquiry that investigates a contemporary phenomenon within its real-life context when boundaries between phenomenon and context are not clearly evident.

Epistemologically, a case study could be positivist, interpretive or critical. From an interpretivist perspective, case studies aim to achieve a holistic understanding of how research participants relate to and interact with one another in a specific context. It also aims to understand how the participants make sense of the phenomenon being studied. Maree (2010:75) argues that case study research offers a multi-perspective analysis in which the researcher considers the views of other relevant actors as well and not just the perspectives of the one or two participants in a situation.

Yin (2009) identifies a case study as either being a single case study or a multiple case study. A single case study involves the use of a single unique case, for example, a particular organisation in which a particular phenomenon is investigated within the organisation's unique context. A multiple case study involves the use of more than one case, for example, more than one organisation to investigate whether similar findings are obtained in each organisation.

In the literature, a distinction is found between intrinsic and instrumental cases (McMillan & Schumacher, 2010:345). An intrinsic case study is focused on the particular case opposed to an instrumental case study, aiming to develop an in-depth understanding of a particular theme or issue, rather than just a specific case. In terms of epistemology, a case study can be either positivist, interpretive or critical, depending on the underlying research philosophy of a study.

3.7 Data collection

3.7.1 Sampling strategies

Sampling is defined as the process followed by the researcher to select a part of the population for the study. Research participants can be chosen either in a purposively (non-probability) or representative (probability) manner. In this study, participants were chosen purposively. Criterion sampling was the purposive sampling method for both qualitative and quantitative data. Qualitative data was collected by interviewing IT managers. Quantitative data was collected by means of a psychometric instrument. The sample of business analysts, systems analysts and project managers that completed the psychometric instrument was purposively nominated by their managers because of their particular functional roles.

In purposive sampling, participants are chosen subjectively based on their unique characteristics. Sampling is made purposively to ensure the richest possible source of data in terms of participants and research settings. Patton (1990) identified 16 purposive sampling strategies as shown in Table 3.3 below.

Table 3.3: Purposive sampling strategies (Patton, 1990)

Sampling strategy	Methodology
Extreme or deviant case sampling	Selecting participants from unusual manifestations of the phenomenon, e.g. top performing individuals
Intensity sampling	Selecting participants from intense but not extreme manifestations, e.g. good performers
Maximum variation sampling	Selecting a wide range of variations of interest
Homogenous sampling	Selecting participants of similar background and experiences
Typical case sampling	Selecting one or more typical cases
Stratified purposeful sampling	Select above average, average and below average participants to capture variations
Critical case sampling	Selecting cases that are important in the reference framing and those that make a point dramatically
Snowball sampling	Participants are used to refer the researcher to other potential participants as part of their social network
Criterion sampling	Selection of participants all meeting a predetermined criterion of importance
Theory-based construct sampling	Incidents, slices of life, time periods or people are sampled based on their representation of important theoretical constructs
Confirming and disconfirming cases	Confirming cases are additional examples that fit existing emerging trends or patterns while disconfirming cases do not fit the trends
Opportunistic sampling	Impromptu decisions on sampling to take advantage of new opportunities during data collection
Purposeful random sampling	Randomly select research participants from the population of interest
Sampling politically important cases	Selecting participants from a politically sensitive site
Convenience sampling	Sampling what is factual and convenient
Combination or mixed purposeful sampling	Utilising a combination of the purposive sampling strategies

Representative or probability sampling is most often used in survey research strategies. In probability sampling, an objective measure is used for selection of the participants with no human subjective intervention.

Maree and Pietersen (2010:172) contend that the following methods of sampling can be used in probability sampling:

- Simple random sampling
- Systematic sampling
- Stratified sampling
- Cluster sampling

In simple random sampling, the population is numbered sequentially for each member of the population to be uniquely identified. The number of participants to be chosen is determined randomly usually by pre-compiled tables or software. In systematic sampling, a starting point in the population is chosen at random, where after participants are selected based on a sampling interval. Stratified sampling involves the population being divided into homogeneous groups named strata. In each of these strata, simple random sampling or systematic sampling is applied to select participants. In cluster sampling, as in the case of stratified sampling, the population is divided into homogeneous groups. The groups are smaller than the strata in stratified sampling and are called clusters. Clusters are randomly selected from which participants are either selected randomly or all members are selected.

Purposive sampling is the dominant sampling strategy found in qualitative research. In this study, qualitative sampling was based on non-probability and purposive sampling, rather than probability or random sampling approaches. Participants were selected because of defining characteristics that made them holders of the data required for this study. The aim was to obtain the richest possible source of information to answer the research questions.

Criterion sampling as defined by Patton (1990) was used as primary purposive sampling method for both qualitative and quantitative data. At the design stage of the study, it was decided to collect qualitative data by interviewing managers accountable for information systems development in corporate organisations in various industries or managers accountable for systems development in software development organisations. The sample consisted of IT professionals as illustrated in Table 3.4 below.

Table 3.4: Research participant roles

Role	Description	Reasons for selection
PMO manager	Line manager responsible for managing a Project Management Office (PMO). These participants are also project management practitioners responsible for the recruitment, development and utilisation of project managers in the organisation.	PMO managers are responsible for the recruitment, development and utilisation of project managers in the organisation. They are therefore ideally suited to provide insights in terms of how and why EI competencies influence project manager roles.
Development managers	Line managers accountable for the information systems development function in organisations. This includes responsibility for the recruitment, development and utilisation of business analysts, systems analysts and project managers in the organisation.	Some organisations utilise development managers for the recruitment, development and utilisation of business analysts, systems analysts and project managers in the organisation. They are therefore suited to provide insights in terms of how and why EI competencies influence these roles.
COO	Chief Operating Officers (COOs) accountable for the information systems development function in organisations. This includes responsibility for the recruitment, development and utilisation of business analysts, systems analysts and project managers in the organisation.	Some organisations utilise chief operating officers for the recruitment, development and utilisation of business analysts, systems analysts and project managers in the organisation. In these cases, they are suited to provide insights in terms of how and why EI competencies influence business analyst, systems analyst and project manager roles.

Project managers	Project management practitioners in various industries.	Based on their experience in daily interaction with business and IT stakeholders, project management practitioners are in a favourable position to provide insights into competency requirements.
CIO	Chief Information Officers (CIOs) in various industries.	The CIO is ultimately accountable for business – IT alignment by means of appropriately utilising business analysts, systems analysts and project managers in the organisation. They are therefore likely participants to have rich insights into the research topic.
BA managers	Line manager responsible for managing the business analysts. This can either be in a matrix structure or in a business analyst centre of expertise. These participants are also business analysis practitioners responsible for the recruitment, development and utilisation of business analysts in the organisation.	BA managers are responsible for the recruitment, development and utilisation of business analysts in the organisation. They are therefore ideally suited to provide insights in terms of how and why EI competencies influence business analyst roles.
SA managers	Line manager responsible for managing the systems analysts. This can either be in a matrix structure or in a systems analyst centre of expertise. These participants are also experienced in system analysis and responsible for the recruitment, development and utilisation of business analysts in the organisation.	SA managers are responsible for the recruitment, development and utilisation of systems analysts in the organisation. They are therefore ideally suited to provide insights in terms of how and why EI competencies influence systems analyst roles.

The above roles were purposively chosen since part of their responsibility is addressing business – IT alignment by utilising business analysts, systems analysts and project managers

in the SDLC. They were therefore the most likely participants to have insights into the research topic.

3.7.2 Sample size

Patton (1990) confirms that there is no strict sample size for qualitative studies. The design will depend on what information will be most useful and most credible (Hoepfl, 1997). The following guidelines adapted from McMillan and Schumacher (2010:328) were used to determine the sample size for this research:

- Purpose and focus of the study
- Availability of participants
- Peer reviewed sample size

As an exploratory study, the purpose of this research was to investigate the impact of EI on the occupational performance of business analysts, systems analysts and project managers in aligning business and IT strategies during the systems development life cycle. The maturity and size of business analysis, systems analysis and project management disciplines vary across industries and information systems development organisations. Sampling size was therefore adapted accordingly. Availability and willingness of the research participants were determining factors in sample size. Although potential participating sites were easy to locate, some of the information systems development organisations were reluctant to participate in the research because of a perception of limited benefit to them; also, their systems development workload did not allow for non-revenue earning research activities. Some organisations were also in principle not willing to share information. Taking into account the above limitations, the sample size was peer reviewed in the Department of Information Technology at the Cape Peninsula University of Technology, and found suitable for the purpose of the study.

With reference to Table 3.4, the sample of 20 interviewees was taken from 20 organisations in the Western Cape province of South Africa. The detail of each of the organisations is illustrated in Table 3.5 below.

Table 3.5: Participating organisations

Organisation no.	Industry	Organisation size in employees
1	Financial Services	1001 to 5000
2	Hospital and Health	10000+
3	Logistics & Supply Chain	1001 to 5000
4	Retail	10000+
5	Financial Services	10000+
6	Government Administration	10000+
7	IT and Services	51 to 200
8	IT and Services	1 to 50
9	IT and Services	1001 to 5000
10	Financial Services	10000+
11	Retail	10000+
12	Media	5001 to 10000
13	IT and Services	Not applicable
14	IT and Services	51 to 200
15	Computer Software	51 to 200
16	IT and Services	201 to 500
17	Financial Services	201 to 500
18	Computer Software	51 to 200
19	IT and Services	Not applicable
20	Computer Software	51 to 200

3.7.3 Qualitative data collection

Five major methods for collecting qualitative data are found in the literature, namely observation, interviews, questionnaires, document review and focus groups. In this research, interviews were used as the method for collecting primary qualitative data.

An interview involves a discussion between the researcher and the research participant in which the aim is to gain insight into the ideas, beliefs, views, opinions and behaviours of the research participants (Nieuwenhuis, 2010). This research made use of qualitative interviews to build an understanding of the research participant's social reality. Three types of interviews are used in qualitative research, namely semi-structured, unstructured (open-ended), and structured interviews.

In this exploratory study, semi-structured qualitative interviews were conducted. This data collection method was appropriate, taking into account the interpretivist epistemology of this study. It allowed the researcher to probe answers provided as well as allowing participants the opportunity to explain and build on their answers. This added to the richness of the collected data. In semi-structured interviews, the researcher has a list of questions which may vary from interview to interview. Some questions may be omitted or the sequence in which the questions are asked may change. Typically, the interview is recorded and notes are taken during the interview.

The research participants were managers responsible for the management of business analysts, systems analysts and project managers in information systems development organisations. Potential interviewees were approached telephonically or via email. The rationale for the study, the research approach, the research design and sampling strategies were explained. Details were provided on the data collection strategies as well as the contribution of the study. Potential participants were also briefed on the ethical considerations of the study. Subsequent to this initial engagement, one-to-one interviews were conducted with each of the willing participants.

The interviews were conducted over a five-month period. They were conducted in the workplace and lasted between one and two hours. A predetermined list of questions, included in Appendix K, was used as guideline and each interview was digitally recorded. Transcripts were prepared afterwards and complemented with written notes taken by the researcher.

3.7.4 Quantitative data collection

The objective of collecting secondary quantitative data was to find the EI patterns that may develop when measuring the EI of selected business analysts, system analysts and project managers. The quantitative data was collected using a psychometric instrument, namely the *Genos EI Inventory* (Gignac, 2010a). The *Genos EI Inventory* is discussed in detail in Chapter 2, including evidence of reliability and validity as well as appropriateness for use in South Africa (Gignac & Ekermans, 2010:643).

Participants were nominated by their respective managers. Participation was, however, based on informed consent. Either the participants were briefed on the study by their managers after the initial interview, or they were briefed by the researcher in a formal session arranged by the

relevant manager. Potential participants were briefed on the rationale for the study, the research approach, the research design, as well as the sampling strategies. The data collection strategy as well as the contribution of the study was explained. Potential participants were also briefed on the ethical considerations of the study.

Following the recommendations of Elias and Theron (2012:153), each potential participant was provided with a copy of a formal informed consent form explaining the purpose of the study, who was conducting the research, under whose auspices, as well as the benefits of the study. The formal informed consent form is included in Appendix A. The principle of voluntary participation was explained. The procedure to be followed in order to complete the assessment as well as the amount of time required for participation was provided. Risk and benefits of the study were highlighted as well as the process of providing informed consent and cancelling consent.

Participants were informed that participation was confidential but not anonymous, and that individual results would at all times remain confidential. It was explained that the data would be used for pattern recognition only and no individual information would be made available to any participant in the study. Participants were informed that overall patterns identified during this research would be published as a result of this research. No individual results would be published and no individual feedback of these research results would be given to any of the research participants. Details were also provided on how to contact the researcher or CPUT, in the case of any clarification needed on any aspect of the study.

Based on the information provided in the briefing sessions, each potential participant had to decide whether they wished to participate in completing the EI assessment. Participants indicated their consent by handing their manager or the researcher a physically signed informed consent form. Alternatively, the option of signing, scanning and emailing the consent form to the researcher was also provided.

The *Genos EI Inventory*, as discussed in Section 2.8.4.1, was made available on the online Blackboard e-learning platform of CPUT (http://myclassroom.cput.ac.za/), utilising the Respondus 4.0 campus-wide software. This was done with the permission of the Department of Industrial Psychology at Stellenbosch University (SU) as custodian of the instrument for research purposes in South Africa. The researcher arranged with the Centre for e-Learning at CPUT for the creation of a unique user-ID and password for each participant. Following the creation of the relevant log-in credentials, each participant was enrolled on the Blackboard e-learning platform

for the *Genos EI Inventory* and provided with the log-in credentials. Each participant was also provided with the internet address (URL) to the survey as well as an MS PowerPoint presentation providing the instructions for completing the *Genos EI Inventory*. The MS PowerPoint presentation is included in Appendix J.

3.7.5 Transcribing the data

Each interview was digitally recorded and subsequently transcribed verbatim by myself. The transcribed interviews are included in Appendix E. The transcribed data was proofread afterwards and verified by listening to the recordings again. Any transcription errors were corrected. During the transcription process, I made notes of any impressions, ideas or insights. Each transcribed interview and corresponding recording was stored in a separate folder per participant and a backup copy stored on CD as well as on Google Drive.

3.7.6 Coding and categorisation of the data

The coding of qualitative data was done by carefully reading through each transcribed interview line by line and labelling each meaningful segment with a three-letter label representing a unique keyword. The keywords were developed during the coding process and a master list was kept in a spreadsheet of all keywords used in the study. The results of the coding process were also stored in the spreadsheet, including labels and keywords, as well as the interview questions to enable further classification. A quote from the data that reflected the keyword was stored for easy reference. For confidentiality and anonymity, each participating organisation was allocated an organisation number. Subsequent to the coding process, the coded data was sorted according to keyword and summarised. The result was a spreadsheet containing an entry per keyword, showing how many times reference had been made to the keyword and how many organisations had referred to the keyword.

During the next phase, related keywords were combined into categories. The identification of categories was guided by the research questions and objectives. The names of the categories were compiled from a combination of terms that emerged from the data – actual terms used by the interviewees, as well as terms used in existing theory and literature (Strauss & Corbin, 2008). Keywords were amongst others grouped, based on the seven dimensions of the Genos EI model (Gignac, 2010a) as illustrated in Chapter 2, Table 2.14, using the Genos Emotional

Intelligence Inventory Technical Manual as guidance (Gignac, 2010a). Some keywords were removed and not combined as they had too little support. This process was done iteratively until all coded data was labelled into relevant categories. The final list of categories is presented in Table 3.6 below.

Table 3.6: Data categories

Category number	Category	Reference frequency	Number of organisations
1	Emotional Intelligence	9	6
2	Emotional Reasoning	17	7
3	Collaboration	13	8
4	Emotional Self-Control	16	9
5	Emotional Awareness of Others	94	10
6	Emotional Self-Awareness	17	10
7	Emotional Expression	24	11
8	Emotional Management of Others	38	11
9	Experience	33	11
10	Professional	33	12
11	Emotional Self-Management	75	13
12	Communication	56	16

Once the categorisation had been completed, each of the transcribed interviews was reread to ensure that all insights that emerged from the data were appropriately captured as part of the coding and categorisation process. To add to the trustworthiness of the data analysis, the keywords and categories were verified for consistency by cross-checking them with the text.

3.8 Data analysis

3.8.1 Qualitative data analysis

Nieuwenhuis (2010) contends that qualitative data analysis is usually based on an interpretive philosophy. The aim is to investigate meaningful content of the qualitative data, that is, determining the meaning attributed to phenomena. This is done through analysing the perceptions, attitudes, understanding, values and feelings of research participants. Data analysis in this study was done in an iterative process as described by Seidel (1998). While reflecting on

data collected at participating organisations, some gaps were identified or questions arose. In these cases, a follow-up discussion was held to clarify issues or collect more data. Throughout the analysis process, I referred to my field notes, keeping in mind the research questions. Qualitative data was analysed manually without making use of any computer software.

The first step in the data analysis process was organising the various datasets. Each digital recording and its accompanying field notes were electronically filed. Copies of the recordings were archived for potential retrieval in case of accidental loss or theft. Recordings were also appropriately labelled to facilitate easy retrieval. Subsequently, each interview was transcribed verbatim. Transcription of the data was done by me to assist with interpretation and building insight. Copies of the transcribed interviews were archived together with the digital recordings.

The next step in the data analysis process was to get to know the data by reading the transcriptions and listening to the digital recordings if needed. While doing this, notes were made of any impressions. This process is referred to as “memoing” (Punch, 2005:201). The next step was the coding of the data. Coding was done by my reading through the transcriptions and segmenting the data into meaningful units (McMillan & Schumacher, 2010:276; Nieuwenhuis, 2010). Codes allocated were developed during the coding process, that is, inductive coding. On completion of the initial coding of the data, codes were revised and refined. An example of the results of the coding process can be found in Appendix G.

Following the coding process, related codes were combined and classified into themes or categories. Each category was given an appropriate description. This was done in an iterative process until all coded data were combined into categories (McMillan & Schumacher, 2010). On completion of the inductive categorisation, the categories were revisited to determine the relationship between them. The results of the coding process are summarised in Appendix H and the final list of categories is provided in Appendix I.

3.8.2 Quantitative data analysis

The secondary quantitative data collected by utilising the *Genos EI Inventory* was scored by the Department of Industrial Psychology at Stellenbosch University (SU) using SPSS computer software. The scored profiles were subsequently analysed inductively for pattern recognition only. The quantitative data was interpreted together with the qualitative data, moving from specific data to general categories and patterns (McMillan & Schumacher, 2010:367).

3.9 Ethical considerations

Saunders et al. (2009:117) define ethics as “beliefs about what is right or wrong from a moral perspective”. Ethical considerations are of primary importance during research (Saunders et al., 2009; Maree, 2012). The ethical standards followed in this study are described in the following section using the guidelines provided by Saunders et al. (2009), McMillan and Schumacher (2010), Elias and Theron (2012), and Maree (2012).

3.9.1 Research authority approval

Permission to conduct the research was formally obtained from the Faculty of Informatics and Design Research Committee at the Cape Peninsula University of Technology, as well as from the Faculty Ethics Committee before the start of the data collection.

3.9.2 Full disclosure

The researcher was open and honest with research participants concerning all aspects of the study. The rationale for the study and the research design were explained to the participants and no information was withheld in order to deceive the participants. The participants were also invited to raise any questions regarding the research with their manager, the researcher and the research supervisor at any time personally or via email.

3.9.3 Voluntary participation

Assurance was given to each manager approached for an interview as well as each business analyst, systems analyst as well as project manager invited to participate in completing the *Genos EI Inventory* that participation was voluntary. No one was at any stage of the project coerced into taking part. Participants were informed that they could refuse to sign the consent form and thereby not participate in this study. They were also informed that they could decide to withdraw from the research and not participate at any time. It was also emphasised that withdrawal from this study would not affect their relationships with their employers.

3.9.4 Privacy

During the briefing sessions as well as in the consent form, participants were informed that participation would be treated as confidential but not anonymous. It was highlighted that the data collected from the *Genos EI Inventory* would be used for pattern recognition only and no individual information would be made available as a result of this study. Participants were informed that overall patterns identified during this research would be published as a result of this research. No individual EI results would be published. Participants were also informed that no individual feedback of EI profiles would be given to any of the research participants.

The Genos EI psychometric test used in this study was scored by an independent professional from the Department of Industrial Psychology at Stellenbosch University, accredited for the use of the instrument. The scoring was therefore done by an individual 'blind' to the study (Maree, 2012).

3.9.5 Informed consent

Formal written consent, as included in Appendix A, was obtained from each of the research participants. Participants were therefore given a choice whether to participate or not. Participants were given the opportunity to refuse to take part without any penalty. Participants were also informed that they could withdraw their consent at any time without any penalty.

The following informational aspects as recommended by Elias and Theron (2012:155) were included in the consent form.

- Purpose of the study
- Statement on voluntary participation, refusal to sign and cancelling of consent
- Procedure to complete the EI assessment and duration
- Participant confidentiality
- Risks and benefits to participants
- Contact details of researcher and supervisor for more information about the study

3.10 Summary

In this chapter, an overview of research philosophy was provided and the ontological and epistemological assumptions of this study were delineated. An overview of research paradigms was provided. The research design was illustrated, followed by an explanation of the methods followed for the collection of qualitative and quantitative data. The chapter was concluded with an overview of the ethical considerations of this study. In summary, from an ontological perspective, this study assumed the position of idealism, disagreeing with the belief in an independent objective reality. In addition, I assumed a subjectivist ontological position, believing social phenomena originate from the perceptions and actions of social actors.

From an epistemological perspective, the study was approached from an interpretive paradigm. I believe reality is subjective and dependent on the frame of mind of the observer. Also, the study was approached from a constructivist paradigm, believing the relationship between cognition and the object of cognition, is defined by the subject. From a Kantian perspective, I view both experience and intellect as sources of cognition. From the perspective of Burrell and Morgan (1979), this research was focused in the *radical humanist* and *interpretivist* paradigms. The role of business analysts, systems analysts and project managers was critically explored with the aim to understand and explain the role of emotional intelligence of these SDLC stakeholders in Business – IT alignment.

The research approach followed was inductive generalisation. The research design was mixed-methods. The research strategy from a qualitative perspective was a multiple interpretive instrumental case study. The research strategy utilised from a quantitative perspective was a survey. The data collection technique for qualitative data was semi-structured interviews. The data collection technique for collecting quantitative data was a psychometric instrument.

CHAPTER 4

RESEARCH FINDINGS AND DISCUSSION

4.1 Introduction

In Chapter 3, I discussed the choice of research paradigm and explained the purpose of this study. The research design and data collection methods were discussed and substantiated. In this chapter, the findings of this study are reported.

The bulk of business analysts, systems analysts and project managers assessed in this study, demonstrated low EI. There is a disconnect between the expectations of the industry, business analysts, systems analysts and project managers and their governing bodies in respect of EI. The industry expects EI as a key requirement of business analysts, systems analysts and project managers. EI is, however, neglected by governing bodies and global professional guidelines in the form of industry competency frameworks. The majority of organisations that participated in this research viewed certification as a business analyst or project manager as relatively unimportant. Certification was not seen as an entry-level requirement indication that the candidate would be successful as a business analyst or project manager. Participants preferred experience as a business analyst, systems analyst or project manager, rather than formal qualifications and certification.

These findings are discussed as EI profiles of business analysts, systems analysts and project managers. This is followed by presenting the industry requirements for effective business analysts, systems analysts and project managers, as expressed during the interviews with the 20 participating organisations. Subsequent to presenting the industry requirements, the global standards and guidelines for business analysis and project management are presented. Since data collection is discussed in detail in Chapter 3, I briefly describe the sample and an overview of the keywords and categories identified in this study.

4.2 Describing the sample

Twenty cases were selected for collecting qualitative data. Seventeen organisations participated, as well as two independent IT professionals. In the case of one organisation, two interviews

were conducted. One of these interviews represented the business analysis and the other the systems analysis and design disciplines. IT professionals who participated in the interviews were either employed as managers of business analysts, systems analysts and project managers, or were experienced practitioners in one of these roles. A brief summary of the selected cases for this study is provided in Table 4.1 below.

Table 4.1: Description of selected cases

Cases	Scope of operations	Industry	Employees
1	South Africa	Financial Services	1001 to 5000
2	International	Hospital & Health Care	10 000+
3	South Africa	Logistics and Supply Chain	1001 to 5000
4	Africa, Europe and Australia	Retail	30 000+
5	International	Financial Services	10 000+
6	Cape Town	Government Administration	22 000+
7	South Africa	IT and Services	51 to 200
8	Southern Africa, Europe, United Kingdom	IT and Services	1 to 50
9	South Africa	IT and Services	1001 to 5000
10	International	Financial Services	10 000+
11	Africa	Retail	10 000+
12	South Africa	Media	5001 to 10 000
13	Independent	IT and Services	Not applicable
14	South Africa	Computer Software	51 to 200
15	South Africa	Computer Software	51 to 200
16	South Africa	IT and Services	201 to 500
17	South Africa	Financial Services	201 to 500
18	International	Computer Software	51 to 200
19	South Africa	IT and Services	Not applicable
20	South Africa	Computer Software	51 to 200

Three of the participating organisations were organisations focused on developing computer software, each varying from 51 to 200 systems development employees. Three organisations were from the financial services industry. One had between 201 and 500 employees, one up to 5000 and the other 10 000 plus employees. Only one organisation was a government administration organisation with 10 000 plus employees. A hospital and health care organisation as well as two retail organisations, each with 10 000 plus employees was included. One organisation represented the media industry with between 5001 and 10 000 employees. Five organisations represented the IT and Services industry. One organisation had employees up to

5000 people, one up to 500, two up to 200 and the last a maximum of 50. One of the independent IT professionals was an experienced business analyst and the other experienced in project management.

Case 1 is a South African-based financial services group listed on the South African stock exchange. Its core business includes long- and short-term insurance, asset management, savings, investment, health care administration and employee benefits. The organisation employs between 1001 and 5000 employees. Case 2 is a private hospital group operating in South Africa and internationally and listed on the South African stock exchange. The organisation employs more than 10 000 personnel in the hospital and health care industry.

Case 3 is a media logistics and supply chain organisation in South Africa, providing logistics solutions for media products, amongst others books, magazines and newspapers. The organisation employs between 1001 and 5000 staff members. Case 4 is a South African-based retail organisation operating retail stores in Africa, Europe and Australia. The organisation has been in existence for almost five decades and employs in excess of 30 000 staff members.

Cases 5 and 10 are from the same organisation, operating in the financial services industry. Case 5 represents the business analysis discipline in the organisation and Case 10 represents the systems analysis and design discipline.

Case 6 is a provincial government organisation employing in excess of 22 000 people. Case 7 functions in the IT and services industry in South Africa. This firm provides project management and business analysis services and employs between 51 and 200 staff members. Case 8 operates in southern Africa as well as in Europe and the United Kingdom. It provides financial business intelligence solutions and employs up to 50 staff members.

Case 9 is an Internet services provider (ISP) employing between 1001 and 5000 staff members in the IT and services industry in South Africa. Case 11 is a South African retailer employing over 42 000 people. The organisation is listed on the South African stock exchange and operates more than 700 stores in Africa. Case 12 is a leading publishing group that has been in existence for almost 100 years. The organisation is listed on the South African stock exchange and employs between 5001 and 10 000 people.

Cases 13 and 19 are two independent IT professionals. The former is employed in the project management office (PMO) of a manufacturing organisation, but participates as an independent project management professional not representing his employer. Participant 19 is an independent business analysis professional consulting to organisations in various industries.

Cases 14, 15, 18 and 20 are all software development organisations operating in the computer software industry. Each employs between 51 and 200 IT professionals. Case 16 operates in the South African IT and services industry, employs in excess of 200 people, and provides business intelligence and information management solutions. Lastly, Case 17 is a financial services organisation focusing on investments and insurance.

4.3 Keyword and category summary

The keyword *experience* was the keyword most used by interviewees. Seventeen of the interviewees mentioned experience. Collectively, all 17 referred to this keyword 32 times. Additional to experience, communication, emotional self-management, professional building and maintaining of relationships, assertiveness, emotional management of others, emotional expression, emotional self-awareness and emotional awareness of others were the keywords most used by the interviewees. In contrast, flexibility, optimism, well-presented, cultural fit, empathy, integrity, passion, positive disposition, team player and conflict resolution were the least used keywords. The results of the coding process, as described in Chapter 3 are presented in Table 4.2 below.

Table 4.2: Keyword summary

Keyword	Reference frequency	Number of organisations
Flexibility	5	4
Optimism	5	4
Well-presented	5	4
Cultural fit	5	5
Empathy	9	5
Integrity	7	5
Passion	5	5
Positive disposition	8	5
Team player / team work	6	5

Conflict resolution	11	6
Self-confidence	8	6
Emotional intelligence	8	6
Emotional maturity	17	7
Respect	11	7
Adaptability	10	8
Collaboration	13	8
Emotional self-control	16	9
Listening	13	9
People skills	12	9
Technical competence - understand the subject matter	14	9
Emotional awareness of others	23	10
Emotional self-awareness	17	10
Emotional expression	24	11
Emotional management of others	27	11
Assertiveness	15	12
Build and maintain relationships	28	12
Professionalism	21	12
Emotional self-management	27	13
Communication	35	16
Experience	32	17

The data categories referred to the most that crystallised from the data were experience, communication, emotional self-management, emotional management of others, and professional and emotional expression. The results of the labelling and grouping process, as described in Chapter 3, produced the final list of 12 categories as presented in Table 4.3 below. Seven of final 12 categories correspond to the seven factors of the Genos EI model as illustrated in Table 2.14.

Table 4.3: Data categories

Category number	Category	Genos EI model	Reference frequency	Number of organisations
1	Emotional intelligence		9	6
2	Emotional reasoning	Yes	17	7
3	Collaboration		13	8
4	Emotional self-control	Yes	16	9
5	Emotional awareness of others	Yes	94	10
6	Emotional self-awareness	Yes	17	10
7	Emotional expression	Yes	24	11
8	Professionalism		33	12
9	Emotional management of others	Yes	38	13
10	Emotional self-management	Yes	75	13
11	Communication		56	16
12	Experience		32	17

Although emotional awareness of others was collectively mentioned the most by all interviewees (94 times), this was not the primary criterion for labelling and grouping. The primary criterion was how many interviewees mentioned this category. In this instance, 10 of the 20 interviewees mentioned emotional awareness of others. It is therefore not the top category. Experience is the top category, since it was mentioned by 17 of the 20 interviewees. The following section provides a summary of the EI scores of business analysts, systems analysts and project managers as measured by the *Genos EI Inventory*.

4.4 EI profiles of business analysts, systems analysts and project managers

The majority of business analysts, systems analysts and project managers assessed in this study had low EI. The following section provides the EI profiles of these selected business analysts, systems analysts and project managers. This refers to the research questions below as presented in Section 1.5:

What is the EI profile of business analysts, systems analysts and project managers?

These EI profiles will be compared in Section 4.7 with what the literature and industry expect.

The Genos EI scores consisted of eight different scores per participant. There is a total EI score as well as one for each of the seven factors of the Genos EI model illustrated in Table 2.14. As stated in Chapter 3, the Genos EI scores were analysed inductively for pattern recognition only and interpreted in a qualitative manner. This interpretation is illustrated in Table 4.4 below.

Table 4.4: EI score interpretation (Gignac, 2010a)

EI Scores	Category	Interpretation
80 - 99	Very high	Very high level of frequency in exhibiting EI behaviours
61 - 79	High	High level of frequency in exhibiting EI behaviours
41 - 60	Average	Average frequency in exhibiting EI behaviours
21 - 40	Low	Low level of frequency in exhibiting EI behaviours
1 - 20	Very low	Very low level of frequency in exhibiting EI behaviours

4.4.1 EI profiles of business analysts

In terms of average EI scores, the majority of the business analysts were in the low category presented in Table 4.4. None of the participating business analysts scored 'high', or above, on any of the factors of the Genos EI model. A summary of the EI scores per factor of the Genos EI model for participating business analysts is presented in Table 4.5 below. For ease of reference when interpreting the following tables, the seven factors of the *Genos EI inventory* as provided in Table 2.14 are as follows:

- emotional self-awareness (ESA)
- emotional expression (EE)
- emotional awareness of others (EAO)
- emotional reasoning (ER)
- emotional self-management (ESM)
- emotional management of others (EMO)
- emotional self-control (ESC).

Table 4.5: Summary of EI scores for business analysts

Factor	Participating Business Analysts															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
ESA	45	39	43	42	39	37	39	43	37	42	48	42	35	42	36	33
EE	43	41	39	39	37	35	31	38	32	41	46	39	26	41	35	35
EAO	43	36	40	45	37	37	36	38	39	40	44	44	40	40	37	32
ER	43	39	40	40	36	34	35	35	34	42	37	41	36	41	36	33
ESM	36	38	35	41	33	36	33	35	32	42	45	43	29	41	32	35
EMO	42	38	36	44	37	36	38	34	37	44	35	40	39	41	33	31
ESC	41	42	43	43	39	43	36	35	36	43	42	40	32	43	39	25

In terms of emotional self-awareness (ESA), 8 of the 16 business analysts (50%) were in the low category and 8 (50%) in the average category. Eleven (69%) were low and 5 (31%) average in emotional expression. Twelve (75%) were low and 4 (25%) average in emotional awareness of others. Twelve (75%) scored low and 4 (25%) average in emotional reasoning. Eleven (69%) were low and 5 (31%) average in emotional self-management. Twelve (75%) were low and 4 (25%) average in emotional management of others. In terms of emotional self-control, 8 of the 16 business analysts (50%) were in the low category and 8 (50%) in the average category.

4.4.2 EI profiles of systems analysts

None of the systems analysts were high or above on any of the Genos EI factors. In terms of average EI scores, the majority of the systems analysts were in the low category presented in Table 4.4. A summary of the EI scores per factor of the Genos EI model for participating systems analysts is presented in Table 4.6 below.

In terms of emotional self-awareness (ESA), 8 of the 22 systems analysts (36%) were in the low category and 14 (64%) in the average category. Fifteen (69%) were low and 7 (31%) average in emotional expression (EE). Thirteen (59%) were low and 9 (41%) average in emotional awareness of others (EAO). Twelve (75%) were low and 4 (25%) average in emotional reasoning (ER). Sixteen (72%) were low and 6 (28%) average in emotional self-management (ESM). Seventeen (77%) were low and 5 (23%) average in emotional management of others (EMO). In terms of emotional self-control (ESC), 15 (68%) were in the low category and 7 (32%) in the average category.

4.4.3 EI profiles of project managers

None of the participating project managers scored 'high' or above on any of the factors of the Genos EI model. In terms of average EI scores, the majority of the project managers were in the low category. A summary of the EI scores per factor of the Genos EI Model for participating project managers is presented in Table 4.7 below.

In terms of emotional self-awareness (ESA), 7 of the 31 project managers (23%) were in the low category and 24 (77%) in the average category. Eighteen (58%) were low and 13 (42%) average in emotional expression (EE). Fifteen (48%) were low and 16 (52%) average in emotional awareness of others (EAO). Fifteen (48%) were low and 16 (52%) average in emotional reasoning (ER). Twenty (65%) were low and 11 (35%) average in emotional self-management (ESM). Fifteen (48%) were low and 16 (52%) average in emotional management of others (EMO). In terms of emotional self-control (ESC), 16 (52%) were in the low category and 15 (48%) in the average category.

Table 4.6: Summary of EI scores for systems analysts

Factor	Participating Systems Analysts																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
ESA	42	47	46	41	36	42	50	36	48	43	48	50	34	36	34	38	42
EE	41	26	43	34	35	35	43	32	48	34	45	43	33	29	31	40	48
EAO	38	36	43	35	34	41	45	42	49	34	40	46	32	27	29	40	43
ER	42	23	40	40	37	38	41	33	45	34	43	45	37	31	33	38	39
ESM	36	32	45	38	36	36	48	34	43	35	42	45	34	31	29	40	43
EMO	37	25	39	39	35	36	46	33	46	34	37	43	33	31	28	37	43
ESC	31	37	38	32	36	39	46	28	45	39	44	45	35	30	28	43	46

Factor	Participating Systems Analysts				
	18	19	20	21	22
ESA	38	33	38	42	43
EE	34	35	31	37	39
EAO	40	21	32	41	45
ER	38	30	32	37	37
ESM	30	36	26	39	39
EMO	36	35	30	40	41
ESC	36	38	26	46	38

Table 4.7: Summary of EI scores for project managers

Factor	Participating Project Managers																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
ESA	36	42	44	50	42	42	42	49	41	39	39	48	49	43	42	37	49
EE	40	37	41	45	39	36	39	40	40	35	35	46	36	37	34	41	46
EAO	39	43	41	48	39	34	38	39	40	38	36	41	50	45	41	38	43
ER	39	38	36	49	42	38	39	41	38	38	41	47	46	41	41	32	39
ESM	42	39	40	44	36	36	33	39	37	36	33	43	32	41	39	38	41
EMO	40	40	42	45	40	36	43	42	39	39	36	41	47	45	38	38	42
ESC	36	41	41	41	36	42	34	43	37	40	39	41	42	44	42	38	43

Factor	Participating Project Managers													
	18	19	20	21	22	23	24	25	26	27	28	29	30	31
ESA	50	50	48	46	47	38	35	41	45	44	50	42	39	44
EE	50	41	41	45	42	40	35	37	36	43	49	39	37	41
EAO	43	45	43	45	41	38	30	44	38	42	50	37	36	40
ER	41	48	44	44	42	40	34	43	39	43	50	38	38	40
ESM	47	41	41	37	39	34	35	36	43	42	46	39	38	36
EMO	49	45	43	45	34	35	35	41	42	45	48	32	37	40
ESC	38	46	40	41	40	34	35	38	43	36	45	44	39	38

4.5 Industry expectations

The participants of this study believed that EI competencies influence successful functioning in business analyst, systems analyst and project manager roles. Experience as a business analyst, systems analyst or project manager and knowledge of the industry they are functioning in was preferred over formal qualifications and certification as a project manager or business analyst. For most of the participants, certification was not part of their primary recruitment criteria and therefore would not influence selection. Behavioural competencies and EI were of greater importance.

The findings from the qualitative data analysis are presented relative to the purpose of the research. As presented in Chapter 3, the purpose of this research was to gain a deeper understanding of the EI competencies complementing the functions of business analysts, systems analysts and project managers in bridging the business – IT alignment gap.

This section will present the competency requirements for these roles as expressed by research participants during the 20 interviews with industry. These requirements relate to the following sub-research questions as presented in Section 1.5:

> *How do EI competencies influence functioning in business analyst, systems analyst and project manager roles?*
>
> *Why do EI competencies influence successful functioning in business analyst, systems analyst and project manager roles?*

The questions asked to the participants that produced the richest data during the interviews with industry were:

- What are you looking for when recruiting business analysts, systems analysts and project managers and why?
- What are you not looking for and why?
- How do you define successful functioning in a business analyst, systems analyst and project manager?
- What do you expect from your business analyst, systems analyst and project manager in terms of behaviour?

Twelve categories emerged from the data, illustrating the competency requirements for business analysts, systems analysts and project managers. These categories are presented in Figure 4.1 below. Each of the categories will be discussed in detail in the following section. This will be done is descending order of importance for the participating organisations.

Figure 4.1: Competency categories

4.5.1 Experience

In terms of competency requirements for business analysts, systems analysts and project managers, *experience* emerged as first in order of priority for the cases involved on this study. The keyword 'experience' was mentioned 46 times by 17 of the 20 organisations (85%) as a desirable quality for business analysts, systems analysts and project managers. Experience not only involves a track record of functioning in one of the above-mentioned roles but also having the business knowledge of specific systems. In terms of project management, it includes experience of managing specific type of projects, for example, infrastructure and insurance software development projects. Figure 4.2 below illustrates experience as first in order of priority for the 20 participating organisations.

Figure 4.2: Experience

When screening candidates for potential projects, Participant 1 sought a certain level of knowledge, experience and technical capability that might be required for the project. In cases of a building infrastructure type project, a project manager with knowledge and experience of managing projects in the building environment was needed. Generally, a certain level of business knowledge and experience in project management was needed. Compared with knowledge and experience, certification as a project manager was considered relatively unimportant. Participant 1 stated: "*I am looking for experience. I know how to do this, rather than I have the qualification. The qualification becomes secondary*."

Organisation 2, a private hospital group, regarded experience in project management foremost when recruiting project managers. This group recognised the value of professional certification but this did not influence the selection of project managers. When recruiting business analysts, Organisation 3 not only required business analysis experience, but also experience in working in software development environments. When having to choose between qualifications or certification, and aspects such as emotional awareness, self-awareness, empathy and communication, Organisation 3 would rather appoint the business analyst without the qualification or certification.

Participant 4 contended that when recruiting IT professionals, 10 or more years' experience was not required. They would rather recruit IT professionals with between two and six years' experience and grow the skills and experience internally. Experience as a systems analyst, was valued by Organisation 5. Understanding the business as well as its environment was, however, of more importance. *"The problem for me in a systems analyst, and I am talking*

about the high-profile one, if you bring him in during a crisis time, then it is a problem because the person needs to understand the environment. This is not what we need at that time. In a crisis time we need an experienced person that can walk in and understand the full picture." Although technical skills and experience of business analysis are valued when recruiting business analysts, for Organisation 5, behavioural competencies are more important than experience.

For both attributes of both project manager and business analyst, Organisation 6 valued organisational experience or experience in the relevant discipline. Certification was seen as important during the recruitment process, but once the candidate was inside the environment, certification was of lesser importance. Participant 6 contended: *"In terms of weighing that up against the experience, I would probably weigh the experience higher than the certification. Once you are in the organisation and you are working as a project manager or a business analyst, I think it is about your previous experiences and successes and how you then assign appropriate projects to the most appropriate business analyst."*

Organisation 7 claimed that knowing a project management methodology such as Prince2 had no bearing on one's capability or credibility as a project manager. Experience as a project manager, supported by personal reference, constituted the best indicators during recruitment. Participant 7 reiterated: *"No. A lot of clients like it. It puts a tick in the box for them but it does not do anything for me. I have had many good project managers with a PMP certification and equally I have had shocking project managers with a PMP."*

A good business analyst should, according to Participant 8, first and foremost understand the business. When providing financial business intelligence solutions, one of the first requirements from their clients is insight into the business and experience. There is a shortage of business analysis skills with experience in financial business intelligence solutions. Participant 8 contended: *"A good business analyst must first and foremost understand business. Everybody is looking for experience and I do not know where the candidates must get the experience. Do you take the guys that have no experience?"*

Experience in the project management discipline was a key requirement for Organisation 9 when recruiting project managers. They did not necessarily look for a project manager with knowledge and experience of managing projects in the Internet Service Provider (ISP) industry. Depending on the project concerned, recruitment would also be based on experience in using specific project management methodologies such as 'agile'. Participant 9 argued that there had been a distinct mind shift from the traditionally defined waterfall project management methodology to agile project management, and commented: *"So, if you are*

looking for an agile project manager, I would be weary of a person with only a defined background. There is a very distinct mind shift from defined project management to agile project management."

Participant 9 was a strong believer in certification and believed it commented on a person's background*. "I will give some weight to PMP or Prince2 certification. On the scrum side, I will give some weight to a certified scrum master or scrum practitioner."* Certification would therefore not be the deciding factor during recruitment but it would carry some weight, especially the PMP and Prince2 certifications.

Experience of project management in the retail industry weighted strongly during recruitment and selection of project managers for Organisation 11. Experience in other industries was valuable as well, but would not necessarily be the deciding factor. Experience of project management in the relevant area, for example, supply chain, was a deciding factor as well. Because Organisation 11 is a SAP house, general knowledge of SAP also carried weight as part of the recruitment decision. Organisation 11 did not value certification highly in project management. This organisation required a basic qualification in project management as well as working experience as a project manager. Respondents contended that certification did not imply the candidate was a good project manager.

Past experience and success as a project manager comprised some of the primary criteria in the recruitment and selection of a project manager in Organisation 12. Although certification as a project manager was preferred, it did not constitute part of the primary criteria. Certification provided a degree of assurance that the candidate understood the body of project management knowledge.

Participant 13, as an independent project management professional, considered a track record in practising project management a key requirement. *"You are looking for somebody that has been exposed to project management before, years of experience."* In terms of certification as a project manager, Participant 13 shared the views of Organisations 11 and 12. *"You are not necessarily looking for somebody that is certified or has done something in project management. A certification or a degree or diploma in project management does not necessarily equip you with what you need. It is not the be all and end all. I am sure it is helpful but I feel exposure is maybe more important."*

Applicable experience was a key requirement during recruitment of project managers and business in software development Organisations 14, 15, 18 and 20. Each of these organisations, however, experienced difficulty in finding the appropriate experience amongst

available candidates in the market. Organisation 14 required project managers to have knowledge of software development as a discipline as well as experience in managing software development projects. *"I personally have given up on finding the right PM. You get guys that say they are project managers but then they have never managed software projects. If you do not know anything about software development but you call yourself a software project manager, it will not help me."*

Organisation 15 experienced the same shortage of experienced business analysts in the market. They contended that their best business analysts had 20 years' plus experience. *"There are not so many people out there with experience – good business analysts."*

Software development Organisation 18 had experienced a lack of experienced project managers available in the market. They had therefore resorted to training their own project managers internally. *"The vast majority of project managers we have in the company, we trained internally. They grow into project management opposed to being hired as project managers. We find very few good experienced project managers available in the market. Whether they don't exist in the industry or exist in availability is difficult to tell. I think there are a lot of people who say they are project managers but they do not fit that category for us."*

Organisation 20 experienced the same difficulties as the other software development organisations in finding the appropriately experienced project managers. *"The reality with the market as it is, if a good project manager comes through the door, you grab them."* As in the case of Organisation 14, knowledge of software development as a discipline, as well as experience and skill in managing software development projects, was needed. Participant 20 averred that the entry barriers into the IT industry were very low; this produced project management candidates in the market who did not have the required technical depth and knowledge. *"[On the] IT side, we allow people to just come in. They do not know anything about IT. Train them a bit on some principles and they call themselves project managers. They do not have any of that technical depth and knowledge."*

Organisation 14 insisted that their project managers attend a formal project management course, as well as become certified as scrum masters and qualified in Prince2. The aim was to ensure that they were equipped with the knowledge and theoretical background of project management and scrum as agile methodologies. Organisation 15 recognised the value of certification as a business analyst, for example, CBAP, but did not regard it as an entry-level requirement. For them, CBAP provided a good reference framework and equipped candidates with the knowledge of the required standard of business analysis.

Organisation 18, however, did not regard certification as important. According to the respondents, the training project managers acquired on a course was of greater value than a certificate. Certification as the end game, in their opinion, was a complete waste of time and led to narrowing the focus of the candidates. They argued that certification, even at company level, restricted rather than assisted individuals and companies. Candidates needed to apply all their learning as opposed to just the process they had been told was the best process. *"It restricts people thinking an approach … to blindly following an approach where really they should be saying which of the things I know and do not know I should apply to the situation. You need to be a lot more fluid than saying, well, you have a certificate; therefore you can do [it]. I would rather be fully aware that the person cannot do [it] and needs to be coached and mentored than to say well you have the certificate, therefore you can go for it."*

With regard to certification, Organisation 20 shared the view of Organisation 18. For Organisation 20, experience in managing software development projects was far more valuable than certification. *"Having run a software project is for me much more valuable. It is the same with developers. Sometimes developers come and say they are Microsoft certified or whatever. I say 'so what'. Show me the code you have written. Your certification does not actually mean anything."* Organisation 20 did not believe in certification as a scrum master either and was of the opinion that some organisations saw certification as a proxy for performance. Organisation 20 contended that certification did not imply that the individual would be a good performer in the workplace. "*I suppose it is a risk mitigation thing. We mitigate risk by interrogating the person and trying to figure out what he actually knows."*

4.5.2 Communication

Sixteen of the 20 organisations (80%) reported *communication* as a desirable competency for business analysts and systems analysts, as well as for project managers. This category emerged as the second most desirable of the 12 categories. It includes being approachable, having listening skills, being able to communicate effectively in written and oral form, communicating effectively at various levels in the organisation, as well as expressing oneself clearly to a technically and non-technically competent audience to ensure a thorough understanding of what is being said. The 20 participants collectively referred to communication as a key requirement 48 times. Figure 4.3 below illustrates the prioritisation of communication.

Figure 4.3: Communication

Participant 1 noted that when recruiting a project manager, the ability to communicate was key. *"I do not have to do that later. That rallying around, that communication ability, getting the people focused in the right direction, technically you may call that communication. There is, however, a style of communication at the start of a project and you need it towards the end of the project."* Participant 2 contended: *"Teamwork is first, then communication, accepting responsibility is three, decision making four and fit with company culture is fifth."* Figure 4.4 below illustrates the competencies as prioritised during the interview with Organisation 2.

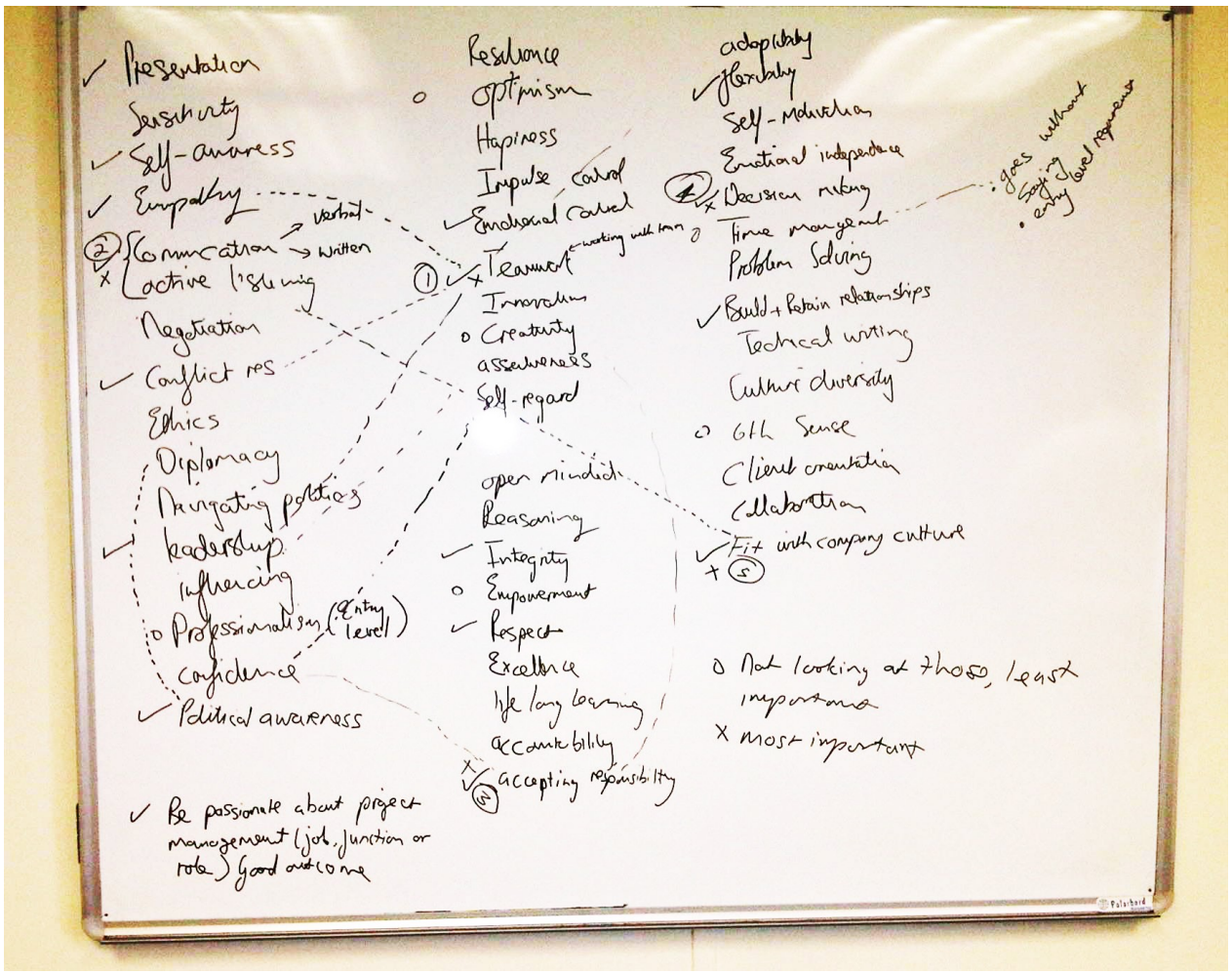

Figure 4.4: Competencies prioritised by Organisation 2

Organisation 4 did not have a formal project management office (PMO) staffed with project managers. In this case, the business analysts also fulfilled the project management role. They also did not have formal systems analysts but did have analyst developers. In terms of each of these three roles, Participant 4 contended that the ability to communicate was essential. Communication was evaluated during the recruitment process. The participant stated, "*I look at how he communicates and is he comfortable.*"

In terms of the systems analyst, Organisation 5 reiterated: "*Listening is very important and acknowledging other people's viewpoints."* Participants contended: *"He must have the ability to communicate a complex situation in laymen's terms. He will have to be able to present back to the business side so business can understand. It is communication."*

The prioritisation of competencies for the systems analyst as done during Interview 5 is presented in Figure 4.5 below.

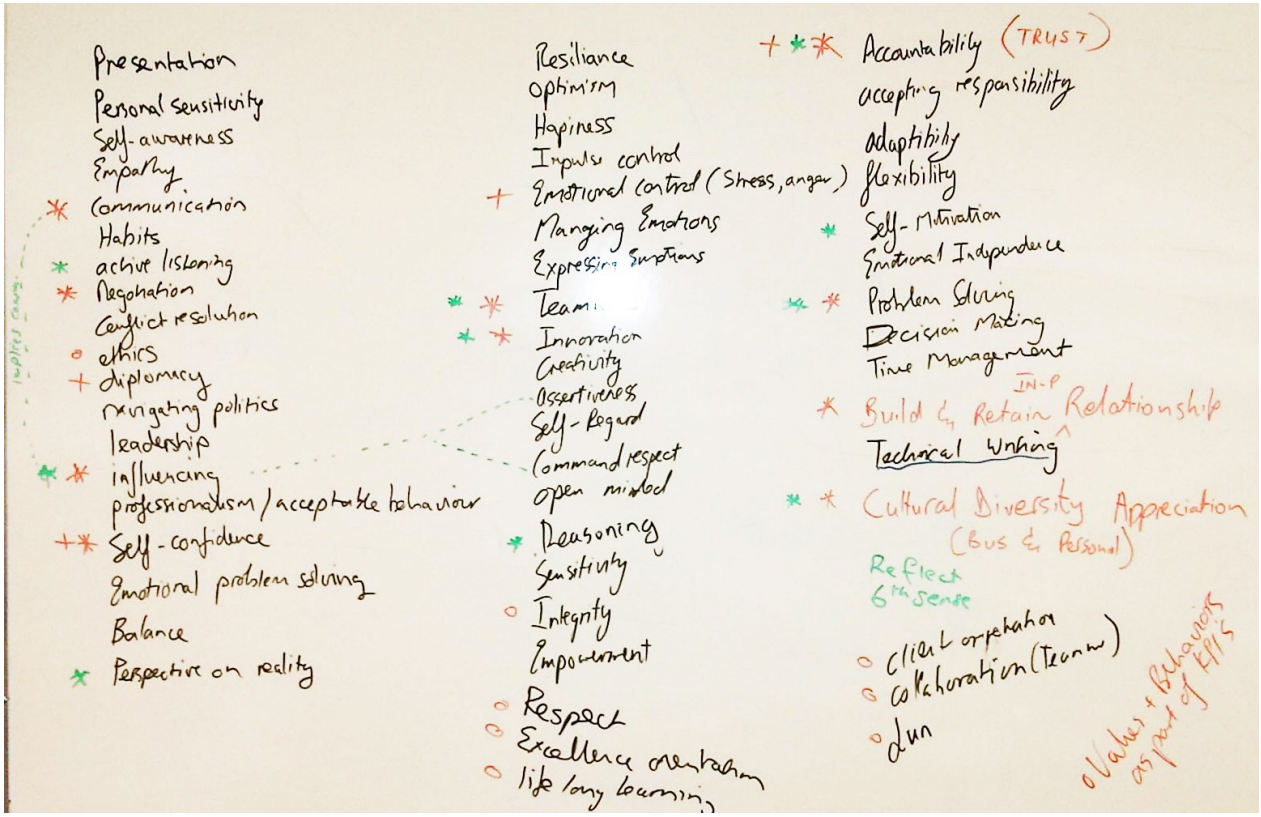

Figure 4.5: Competencies prioritised by Organisation 5

Organisation 6 referred to communication as human skills and argued: *"Ability to listen, to communicate, to interact and to steer a discussion in a logical direction. To understand what is important and what is not important. To understand who is important and who is not important [and] to extract knowledge from people. That is for me the most important, the communication skills, to understand what you are hearing, to play it back to the audience, get confirmation and to do this in a structured way and to move forward to solve a problem."* Organisation 6 stressed the importance of communication in creating confidence with the end-user during the interview. As part of communication, the ability to listen was also highlighted as essential in business – IT alignment. It is argued that often IT professionals do not listen to what the requirement from business is, leading to a frustrated user and wasted effort by business analysts and project managers during the SDLC.

Organisation 9 contended that project managers who were poor communicators, "*are a deal breaker*". For them, good verbal and written communication skills were very important. Participant 10, as a business analysis competency manager, regarded the ability to communicate as an essential competency when recruiting business analysts. She stressed: *"Relationship building is extremely important to us because business analysis is about relationships. It is about communication and relationships with the stakeholders and how*

best to get information from your stakeholders which is required for you to develop your requirements." The ability to influence and be self-confident is included as part of the desired communication skills for the business analyst.

Participant 11 explained that effective proactive communication by the project manager was highly valued in the retail environment. This includes perception management. Participant 13 argued that successful project managers communicated effectively and inspired. Participants 14 and 15 supported this, and accentuated listening skills of project managers in software development organisations. Participant 16 stressed the importance of the oral, written and presentation skills of project managers. Participant 17, in the same role as Participant 10 as a business analysis competency manager, regarded the ability to listen as an essential competency of an effective functioning business analyst. Participant 19, as an independent business analysis professional, supported the above argument and stated, "*The person has to listen, be assertive, understand and has to be honest."*

Both Participants 18 and 20 supported the argument that communication was essential for a project manager to be effective. When asked what he was looking for when hiring a project manager, Participant 18 claimed the key was communication and organisational skills. The project manager should *want* to communicate, opposed to keeping the information to him/herself, and treating it as power. Participant 18 reiterated: *"For me the number one thing with project management is communication. You can fail on everything else but if you are really good at communicating, you can pull it through the other side. You can be brilliant at everything else but fail at communication; then it is guaranteed that your project will fail. Certainly you do not want to fail on everything else and only through communication, it is going to be tough to pull it out through the other side, but for me that is kind of the key."* Communication was equally valued in the role of the business analyst, with the ability to listen highly regarded. It was also argued that business analysis is, in essence, about communicating *"in a much more formal manner".*

Communication as a theme is visible up to the last interview with Participant 20, who required project managers in a software development organisation to be *"good communicators"* who *"speak well".*

4.5.3 Emotional self-management

Emotional self-management was stated as desirable for business analysts, systems analysts, as well as for project managers by 13 of the 20 organisations (65%). It is third in order of priority. This category encompasses the relative frequency with which individuals successfully manage their own emotions at work. The successful adjustment to negative emotional states at work is accentuated. Focus is placed on the engagement in activities to maintain a positive disposition while at work. It involves the ability to move on from an emotional setback, rather than dwelling on the situation. Also included are exhibiting a passion for what the individual is doing, having a general optimistic outlook on life, adapting feelings and thinking to changing situations, and assertively expressing one's emotions. The 20 participants collectively referred to emotional self-management as a key requirement 83 times. Figure 4.6 below illustrates the prioritisation of emotional self-management.

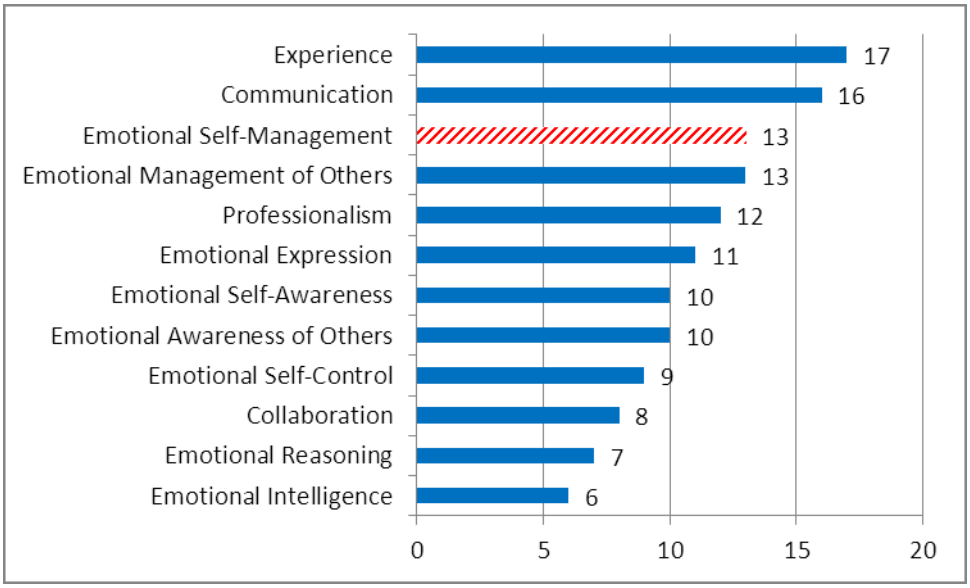

Figure 4.6: Emotional self-management

Participant 2 contended emotional self-management was a key requirement when recruiting a project manager, by stating, "*Emotional control and team work are needed.*" Participant 3 stressed the importance of emotional self-management in the role of the business analyst. "*I think stress management is important. Ultimately I do look at your CV but I want to see how you respond under pressure and communicate under pressure."* Participant 4 was of the opinion that IT professionals had to be able to control their emotions and stated: "*You have to be able to control it. It is about how you handle it. May I kick the chair? I prefer the answer to be 'no', but it does not work like that. I do not like kicking chairs or storming out of rooms."*

Organisation 5 acknowledged that emotions, as well a positive attitude, had a role to play in the business analysis workplace. Business analysts, however, needed to be equipped with the competence required for emotional self-management. As part of a thinking-environment culture in the business analysis competency centre, formal coaching and mentoring programmes were run to assist business analysts in building the required competence in emotional self-management. In terms of the role of the systems analyst, it was recognised that a balance with regard to emotional self-management was required. *"I do not think … everyone must now be soft and flaky. You need those hard-core guys as well. He also needs to understand when he needs to be assertive to get the job done."*

Participant 6 contended that there was considerably greater scope for emotions in the role of the business analyst than in the case of the project manager. The business analyst needed to be more attuned to emotions and needed to make use of the human touch from time to time to extract difficult information as part of crafting a solution. In terms of the project manager, Participant 6 contended emotions should be kept at bay. *"We can't have people getting emotional and panicky, becoming unpredictable when you are responsible for delivering a project."* Participant 6 continued by stating, *"We all agreed we are going to deliver milestone A on the 12th. No space for emotional discussions about it. Milestone A will be delivered on the 12th."*

The project manager needs to pay attention to the way the message is communicated. Participant 7 argued that in some cases individuals acted from a position of authority and did not treat people well. He argued that it was rare that one could afford to behave like that. He did not contend that one may not lose one's temper, but believed that one had to apply emotional self-management when dealing with project stakeholders.

Emotions do have a place in business analysis, according to Participant 8. At some point, the business analyst needs to raise his or her voice when making a point and cannot keep quiet. As a business analyst, however, one needs to control one's emotions.

Organisation 9 contended that adaptability and flexibility were critical for the project manager role. The project manager also had to have the optimistic outlook that a project could be delivered successfully, based on a firm sense of reality. *"So, I would say the ability to portray optimism, to be a glass-half-full guy as opposed to a glass-half-empty type of guy, are important. That is not to say you should not manage reality. You must understand the reality. It is just how you react to that reality [that] is the important thing."*

Participant 11 stressed the importance of the project manager in the retail environment's emotional self-management. A thick skin was needed and the project manager should be resolute, since he or she would be blamed should things go wrong. The project manager was expected to "keep things together". It was clearly stated that emotional self-management was a desired competency. *"I cannot work with you if you react emotionally under stress."* Furthermore, the project manager was expected to have a positive attitude, to steer away from a blaming culture and be adamant and assertive to get and keep the project team on board and productive.

Participant 12 felt that assertiveness and the ability to be resolute was just as important in the media industry. Additionally, Participant 12 argued that optimistic IT professionals were more successful in general. As in the case of the media industry, Participant 13 supported the value of emotional self-management in the role of the project manager. Assertiveness was important, but the project manager should express himself emotionally in an appropriate manner. Adaptability and flexibility, as well as a positive attitude, were valued competencies.

The necessity of emotional self-management in project management and business analysis is also evident in software development organisations. Participant 15 argued in terms of assertiveness; the business analyst "*needs to make himself count*". The business analysts should be able to be very critical and strong and be able to manage their emotions. Organisation 18 related communication to emotional self-management: *"Communication is managing my emotion, and therefore ensuring the way I communicate is correct both for me and the receiver as well as listening. Hearing the emotions of what they are conveying is just as important as what they are saying. That is just as important in business analysis as in project management."* When recruiting project managers, software development Organisation 20 required people who were adaptable, who could change and learn new things. In software development, the project manager was also required to be competent at managing emotions.

The necessity of emotional self-management in business analysis was supported by Participant 17 (financial services) as well as by Participant 19 (independent business analysis professional). Participant 17 argued: *"Then your attitude needs to be appropriate. You cannot walk around all day complaining about the person that changed his mind again. It is that positive energy. If you are positive, it will influence all those around you. You have to be positive and have energy. By us* [sic] *you do not have the privilege to work on just one project at a time. You cannot really plan beforehand. With that comes flexibility and adaptability. You need structure as a business analyst but at the same time [have to] be flexible enough.*" Participant 19 contended a business analyst should be able to adapt to

circumstances. Emotional self-management should be applied. Behaviour should be adapted according to the situation. In some cases the business analyst should take a softer approach and in others be much more assertive to get a point across.

4.5.4 Emotional management of others

Emotional management of others was stated as desirable for business analysts and systems analysts, as well as for project managers, by 13 of the 20 organisations (65%). It is fourth in order of priority as illustrated in Figure 4.7 below. This category involves actions taken to successfully manage the emotions of others. This includes actions taken to motivate colleagues or subordinates, as well as demonstrations of modifying the emotions of others for their own personal betterment at work. Emotional management of others also encompasses creating a positive working environment for others, or specifically helping an individual resolve an issue that is causing them distress. The 13 participants collectively referred to emotional self-management as a key requirement 42 times.

Figure 4.7: Emotional management of others

In addition to experience and flexibility as a project manager, Participant 1 specifically stated behavioural competencies and EI as key requirements during the recruitment process. In cases where there was conflict in the team, the project manager needed to be able to intervene and manage the emotions of team members involved to breach the conflict. Also, in situations where the project owner or sponsor was absent from a project, not committing enough time and energy, or providing the required leadership on a project, the project manager had to be competent in emotionally influencing in order to achieve a positive project

outcome. Participant 1 asserted, *"I am looking for someone who can sense where there is a potential issue that can affect the project's success and is willing and able to step into whatever the breach might be. Typically it can be a thing like the project owner is not committed, not providing them with the right kind of leadership. There could be undertones on the project between the team members that mean that there is conflict and therefore non-delivery because the guys are not focusing on what they need to focus on."*

Among the IT professional roles relevant to this study, Participant 2 regarded EI, and specifically the ability to manage the emotions of others, as the highest requirement for the business analyst. The business analyst needed to be able to deal with project stakeholders that are in a heightened state of emotion when a project is running late or when the project is not doing what it is supposed to do. As in the above-mentioned case of the project manager in Organisation 1, the business analyst had to be able to step in and manage the emotions of project stakeholders towards a positive project outcome. The importance of the ability of the business analyst to influence stakeholders emotionally was supported by Participants 4 and 6, as well as by Participant 10. Organisation 5 also shared the same belief with regard to the role of the systems analyst.

Participant 6 required a business analyst to be able to steer a discussion in a logical direction and influence stakeholders to resolve issues causing them distress. *"Then I would think the next important thing is to show the client and create a sense of confidence in that you understand the problem, you understand what the challenge is and then respond with 'there is a plan, leave it with us. We will start crafting a solution for you for this challenge'. That to me is what I expect from a business analyst in the first encounter. Much more of a listener but at the same time instilling confidence in that we can overcome this challenge and provide solutions without at that stage be all-knowing and minimising the business problem."* Although, according to Participant 6, the project manager was more methods-based, he or she still had to be able to manage the emotions of stakeholders towards a positive project outcome. This was equally important for Organisation 7, providing project management services. Interviewee 7 stressed the importance of a project manager's being able to embrace the emotional challenges, engage the stakeholders, and get the target audience excited about a solution, long before it arrived.

For Organisation 9 as an ISP, the project manager's ability to manage the emotions of others, as well as the ability to understand and manage conflict, was essential to success. *"Especially our project managers by design do not have line management responsibilities. They have to manage by influence. The ability to understand and manage conflict is very*

important especially when you are managing via influence. The ability to understand and motivate teams is very important."

The ability of the project manager to manage the emotions of others was also highly valued by Participant 11, the head of the project management competency in a retail organisation. The project manager had to adjust his or her style to determine what was going to work or not in the particular environment. Participant 11 argued, *"You have to pick up the culture and the ways of working in the environment very quickly."* The project manager had to support the team emotionally in order to optimise performance. To be successful, the project manager needed to know *"when it is needed to make a noise and when to support".*

Participant 12 shared the views of Participants 4 and 6, as well as those of Participant 10, with regard to the importance of the ability of the business analyst to influence stakeholders emotionally. A business analyst needed to be able to change people but not offend people. In a case where stakeholders evinced resistance to change, the business analyst had to suggest ideas in such a way that the stakeholders did not feel they had not been heard. Participant 12 was of the opinion that a successful business analyst managed the emotions of stakeholders and led the audience to evaluating an idea as a possibility.

Participant 13 contended that the project manager needed emotional wisdom in handling team dynamics that could influence project success and asserted: *"Culture, personalities and stuff like that. You must be able to distinguish between people making a contribution and people taking chances. You need tact and diplomacy but must be able to take charge."*

Participant 16 felt a project manager needed to think about how, in cases where a stakeholder had specific ideas, to get around them and get the buy-in. *"It is a very emotionally mature kind of place to be in."* In line with the above opinions, Participant 19, as an independent business analysis professional, argued a business analyst needed to be able to manage the emotions of the stakeholder towards a successful outcome. *"He has to have an opinion without prescribing. He has to have a much more consultative approach. Most of the time you have to guide the client to what you want to achieve."*

4.5.5 Professionalism

When hiring a project manager or business analyst, *professionalism* was a key requirement among 60% of the participants. The keyword 'professional' was mentioned 33 times by 12 of the 20 organisations as a desirable quality. Professionalism was listed as the fourth most

important competency in order of priority. Among the 20 cases, three themes emerged as being part of a true business analysis, systems analysis or project management professional. These themes are behaviour, excellence and appearance. Figure 4.8 below illustrates the prioritisation of professionalism.

Figure 4.8: Professionalism

Behaviour is the dominant emerging sub-category of professionalism. IT professionals are expected to behave appropriately. This involves not telling rude jokes and showing a level of respect when engaging your audience as well as maintaining an emotional distance from their clients. Communication is linked to professional behaviour in the sense that participants expect project managers to speak well, concern themselves with the facts, and not become emotional in their communication.

Table 4.8 provides an overview of comments made which highlight the importance of behaviour as part of professionalism. Transcripts can be found in Appendix E on the CD accompanying this thesis.

Table 4.8: Professional behaviour

Theme	Participant	Comment
Behaviour	3	*"For me, when I speak about communication and the ability to engage with your audience, a level of respect and a level of professionalism dovetail into that. I do not believe that you can fully engage with your audience; you cannot fully engage and collaborate if you do not have that amount of respect and professionalism about you."*

		"I do not believe that you can fully engage with your audience; you cannot fully engage and collaborate if you do not have that amount of respect and professionalism about you."
	6	*"I would think to show a sense of professionalism and give the client the confidence that the problem or task at hand is being taken seriously."*
	8	*"You always try to be professional in what you do."*
	16	*"Project managers must be professional. If they become emotional in their communication. You need to be factual."* *"The fact that you can distance yourself a bit from certain things and not get involved."*
	19	*"Show respect for your client and the people you are dealing with."* *"Show respect for the environment."*
	20	*"They stick to their promises. They do not behave inappropriately. Do not tell rude jokes. It is easy to see when someone is not being professional."* *"If you want to be a work professional, there is a certain level of emotional distance that is expected."*

In terms of excellence, IT professionals are expected to deliver high-quality work and not neglect their standard of delivery. Being emotionally competent emerged as a requirement for project managers and business analysts. This involves acting appropriately in each situation. This is the core of EI and involves applying emotional self-management and self-control, as well as appropriate expression of emotions in daily interaction with colleagues and clients. Table 4.9 provides an overview of comments made which highlight the importance of behaviour as part of professionalism. Appendix E on the CD accompanying this thesis contains further detail.

Table 4.9: Professional excellence

Theme	Participant	Comment
Excellence	2	*"I think self-control is a good thing. That is where professionalism comes in."*
	3	*"Definitely a level of professionalism and emotional competence."*
	12	*"At this level I think the work is not sloppy. You can have a team delivering a fantastic solution, but if you have not ticked all the boxes around getting it live … you might go live but it will be pulled apart in a year's time."*
	16	*"The emotional kind of stuff. I think it is very much about being professional."*

Appearance of business analysts, systems analysts and project managers emerged as a core aspect of professionalism. Participant 16, for example, argued interaction with clients became a problem when the project managers did not come across as presentable. How the IT professional portrayed him- or herself was critical. Participant 19 contended a business-like appearance was needed and IT professionals should always dress and operate in deference to their clients.

Table 4.10 provides an overview of comments made which highlight how the participants valued the appearance of business analysts, systems analysts and project managers as part of professionalism. Further detail can be found in Appendix E on the CD accompanying this thesis.

Table 4.10: Professional appearance

Theme	Participant	Comment
Appearance	16	*"If you are not presentable or not this it becomes a problem. Your interaction stars becoming a challenge."*
	19	*"You need a behavioural code, a certain ethic, maturity, and a professional business appearance."* *"Business analysts are usually utilised by corporates and then you have to be able to portray the corporate look and culture. The golden rule is you must always dress and operate like the people that are your clients."* *"It has various aspects. It is about the image. How you portray yourself. Showing respect for your client and the people you are dealing with. Show respect for their environment."*

	20	*"Someone who projects the brand."* *"Someone who is presentable."*

4.5.6 Emotional expression

Emotional expression as a category measures the relative frequency with which an individual expresses emotions in an appropriate way at work. 'Appropriate' implies the right way, at the right time and to the right people, verbally or non-verbally, or a combination of both. Eleven of the 20 organisations (55%) indicated the appropriate expression of emotion as desirable for business analysts and systems analysts, as well as for project managers. In terms of competency requirements, it is sixth in order of priority for the 20 organisations participating in this research and the keyword was mentioned 24 times. The prioritisation is illustrated in Figure 4.9 below.

Figure 4.9: Emotional expression

According to Participant 1, part of the responsibility of a project manager, was to take a team member to task if it became evident that the particular team member was dragging his feet, missing deadlines, undermining the team or creating conflict in the team. The project manager had to address this appropriately in conversation with the team member involved without destroying the relationship. The appropriate expression of emotion should build on the relationship and was therefore a key requirement during the recruitment process. Participant 1 reported, *"I am looking for somebody that has that kind of balance in the way*

that they deal with people. They can take people to task when they are not performing but get them to do it in such a way that they do perform."

The value of appropriate expression of emotion by the project manager was recognised by Participants 7, 12, 13, and 16, as well as by Participant 20. Participant 7 encouraged open communication and believed the project manager should share the message, whether good or bad. He specifically stressed the way in which the news was shared. *"To me the EI part is there to share the good news and share the bad news. Do both of them in a nice way. Do not reprimand someone, certainly not in front of his peers, ever. If you need to reprimand him, do it in a nice way."* Participants 12 and 13 stressed that the project manager needed to conduct him- or herself appropriately, and did not need to shout at anybody. Screaming in the workplace was not regarded as appropriate, and inspiring team members was viewed as part of the definition of success. Participant 13 believed emotions did have a role to play in the project management workplace. The project manager should, however, respect the humanity of the team members and should ensure that they grow from the experience. *"You need to respect their humanity and let them be better people at the end of the day. You cannot go and affect their humanity because you are angry. You do it in a way that you also develop them."* Participant 16 emphasised the way in which the message is conveyed, while Participant 20 argued that inappropriate expression of emotion in the project management workplace was unprofessional.

The following section will focus on the views of the participants on appropriate expression of emotion by business analysts. In terms of the business analysis role, the way in which the news is shared also emerges as a central theme.

Participant 6 referred to a human touch and an element of showing humanity, while Participant 12 was of the opinion that a business analyst needed to be able to change an opinion without offending the stakeholder. Participant 17 contended there was a safe space for emotions in the business analysis workplace. In their department, away from the client, business analysts could vent and share their frustration with their colleagues. Support and advice were provided to enable the business analyst to grow and build competence in managing his/her emotions. The team was encouraged not to express emotions inappropriately outside the safe team environment. *"If you act emotionally, they will think you cannot handle it so they will want someone else next time. You cannot afford it. But, you are human. That is why I always say in the department is a safe space. Throw your toys there and if you feel better it is OK. You can then go out and continue. Or in the process we can help you. Is it too much for you? Can we perhaps jump in to help? We could have been in*

such a situation before so we could potentially advise. Support the person and let them go out again."

For Participant 19, as an independent business analysis professional, the appropriate expression of emotion in the right way, at the right time and to the right people was essential. He felt that your personal things and emotions should be kept apart from the workplace, and did not believe in emotions in the workplace at all. He stated: *"You are there to do a certain job. Pretty much to act appropriately in any given situation."* Similar to the project management and business analysis roles, appropriate expression of emotions was regarded just as essential for the systems analyst. Organisation 5 highlighted the importance of expressing emotions appropriately, at the right time, and to the right people, taking into account different cultures.

4.5.7 Emotional self-awareness

Emotional self-awareness is the ability to be aware of and understand one's emotions. It involves understanding what one is feeling and why, as well as how one's emotions may motivate or affect one's thoughts and behaviours. Ten participants agreed that emotional self-awareness was needed as part of the competencies of a business analyst and systems analyst, as well as of a project manager. In terms of competency requirements, it was seventh in order of priority for the 20 organisations participating in this research. This is graphically presented in Figure 4.10 below.

Figure 4.10: Emotional self-awareness

Participant 1 argued that emotions had a definite role to play in the project management workplace, and as humans, we were emotional beings. It was not possible for us to leave our emotions at the door. We did, however, need to manage our emotions in such a way that they worked together to achieve whatever we needed to do. *"I have to manage my emotions and the emotions of those around me in such a way that they actually invite me to come back again to do the next project. That is important to me as a project manager because it means my work is sustainable. It is important to the group project office because it means we get return business. It is important to the organisation because my skills, knowledge and experience are reinvested in the organisation. So no, we can't check our emotions out."* Participant 1 was of the opinion that *emotional* outbursts and uncontrolled emotional anger would not assist the project manager. The emotion needed to be channelled and managed, and in order to do that, the project manager needed to be actively aware of and understand his or her emotions.

Participant 7 supported the view of Participant 1 with regard to emotions in the project management workplace and argued that the project manager had to embrace the fact that people had emotions that change every day. Project managers were encouraged to talk about their feelings and embrace the emotional challenges in the workplace. *"People will empathise with you and help you out … embrace the emotional challenges that we all have. Don't discount it."*

Emotional self-awareness is essential for any knowledge worker, according to Participant 12. Participant 16 also recognised the value of emotions in the project management workplace and argued project managers needed to be aware of and understand their own emotions as well as those of their stakeholders to facilitate successful project outcome. The project manager needed to remain professional. Participant 20 contended that the project manager needed to manage her emotions to ensure that her performance did not deteriorate. *"If she does not have a handle on her emotions, her performance is going to suffer and other people's perception of her is going to suffer."* To be able to do this, acute self-awareness was required.

Emotional self-awareness as an essential ability of the business analyst was recognised by Participants 3, 6 and 12. Participant 3 contended standing in front of stakeholders could often be intimidating. Emotional maturity and self-awareness were key requirements and regarded as more valuable than formal qualifications as a business analyst such as the CBAP certification. Participant 6 acknowledged there was room for emotions in the business analysis and project management workplace, and that people responded to emotion. The

business analyst needed to be more attuned to emotions, as in the case of the project manager.

4.5.8 Emotional awareness of others

Ten of the 20 organisations (50%) reported *Emotional awareness of others* as a desirable competency for business analysts and systems analysts, as well as for project managers. This category emerged as the eighth most desirable of the twelve categories. This category involves the ability of the business analyst, systems analyst and project manager to recognise emotions expressed by others in the workplace, either verbally or non-verbally. It includes the keywords 'culture', 'empathy', 'team player', 'respect', and 'people skills', as well as 'building and maintaining relationships'. *Emotional awareness of others* is illustrated in Figure 4.11 below.

Figure 4.11: Emotional awareness of others

Participant 1 required project managers to have the ability to recognise emotions expressed by stakeholders and intervene in order to facilitate successful project outcome. The project manager needed to be able to identify any potential undertones on a project such as conflict between the team members and therefore not delivering, or potential user resistance to functionality users were not convinced they either wanted or needed. Simply continuing implementation and ignoring these types of issues were not sustainable for long-term organisational success. The project manager needed to be able to "read the team" (Organisation 13) and to "understand people and their emotions" (Organisation 16).

Participant 1 argued that even though the project had been delivered successfully, should the client for whom the project had been delivered state he would never have the project manager on one of his projects again, then the project manager would have failed. The ability to build and maintain relationships with stakeholders is essential to success and a key element of the recruitment criteria for a project manager.

The ability to build and maintain relationships as part of emotional awareness of stakeholders was of equal importance to Organisation 7 as a provider of project management services. For them, the project manager's ability to be emotionally aware of the emotion stakeholders, as well as building and maintaining human relationships with stakeholders, was of more importance than formal qualifications. *"We have PhDs and MBAs. It all comes to naught. It is all about the person's competency and human relationships. That was the most important thing to us. Is this guy really good at talking to people, understanding their needs and making it happen for them?"*

Participant 14 found it difficult to recruit suitable project managers. "You do not get the guy that has the skill to work with people and to work with the client." Key to the success of the project manager was to keep the relationships with the project team as well as with the client intact. *"You have to be able to listen to the people that know how it will impact you. You have to translate that to inform the client and still keep the relationship intact. You also have to retain the respect of your people."* This view was supported by Participants 16 And 20 in their definition of a successfully functioning project manager. Participant 16 argued, *"I think it is someone who has good relationships with whatever stakeholders he interacts with. In other words, it is his own team, so he is respected by his team, his client and any other stakeholders for that matter,"* while Participant 20 stated: *"You cannot be a project manager and not have people skills. You must be able to interact with people ... Is this person easy to get along with?"*

Organisations 2, 13, 14 and 16 acknowledged the importance of respect as part of building and maintaining relationships, with Organisations 2, 9 and 14 stating the requirement for the project manager to be a team player. Being empathetic, as well as fitting into the culture of the organisation, was also part of the requirement for a project manager for Organisations 2, 12 and 14.

Six of the 20 participants stressed the ability to build and maintain relationships as key to the success of a business analyst. During the recent recruitment of a business analyst, Organisation 3 specifically advertised for someone with six years' business analysis experience, including workshop facilitation and stakeholder liaison. Part of the desired

attributes was someone that was approachable, with good communication and interpersonal skills. For Participant 4, finding business analysts who had the skill to interact with the client and drive the team was problematic. Participant 8 experienced similar difficulties. *"My view is a good business analyst can talk to a financial director as well as a person that does data capture. Social and soft skills are very important."*

Relationship building was extremely important to Organisation 5. For them, business analysis was about relationships. *"It is about communication and relationships with the stakeholders, and how best to get information from your stakeholders which is required for you to develop your requirements."*

In terms of the definition of a successful business analyst, Participant 17 felt a good balance between technical and personal skills was needed. Included in this definition of people skills were *"the relationships the person can build, how the business analyst can build trust with people, how the business analyst can trust people and how comfortable are people to share information with the business analyst".* Participant 17 contended the business analyst would not be able to be successful without relationships. Being technically competent, the business analyst would prove his or her competence to the client. Relationship skills, however, were needed to complement the technical skills in getting the business requirements documented. Good relationships with the business clients, as well as with the IT team, were needed. Both sides had to trust the business analyst to facilitate knowledge sharing. Healthy relationships also played a role in building goodwill to ensure support between the business analyst, the project manager and IT team, as well as between the business analyst and business client, when things did not happen as anticipated by the business. The value of connectivity with the client, as well as healthy relationships to assist in soliciting the information needed by the business analyst, was confirmed by independent business analyst professional Participant 19. He contended, *"As a business analyst you have to be able to associate with many types of people. You will always get personality conflicts. A business analyst must try to get around it. Part of the job is to get information in. if you do not have connectivity with the person, you will not be able to maximally get the information that you need."*

The ability to build and maintain relationships was listed by Organisation 5 as a key competency requirement of the systems analysts. This prioritisation as done by Organisation 5 is presented in Figure 4.12 below.

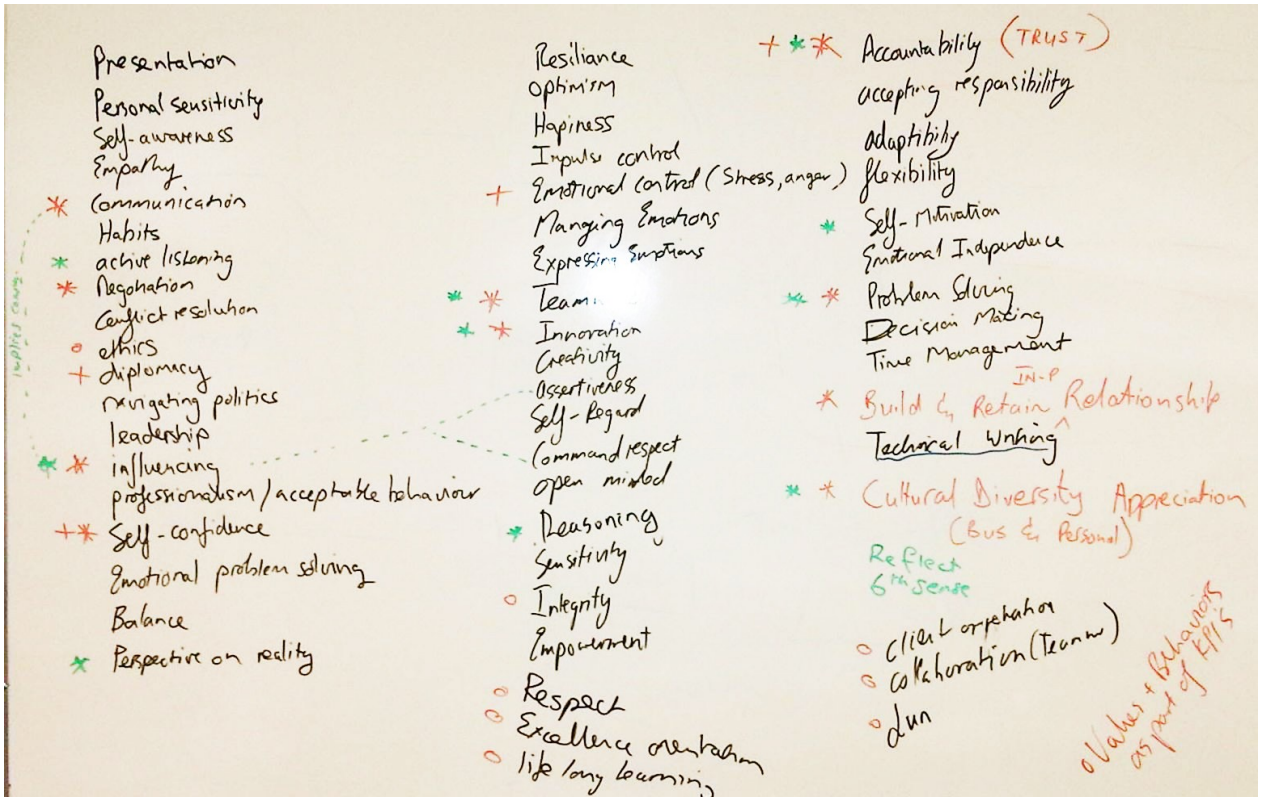

Figure 4.12: Build and maintain relationships

4.5.9 Emotional self-control

Emotional self-control was stated as desirable for business analysts, systems analysts, as well as for project managers, by nine of the 20 organisations (45%). From the 12 categories, it is ninth in order of priority for the research participants. This category comprises an individual's ability to control strong emotions reactively in the workplace.

The research participants referred to emotional self-control a key requirement for business analysts, systems analysts and project managers 16 times. Figure 4.13 below illustrates the priority allocated by the research participants to emotional self-control.

Figure 4.13: Emotional self-control

The necessity of emotional self-control as part of the competencies of a business analyst, systems analyst as well as project manager, was confirmed by nine organisations. Although we as humans cannot leave our emotions at the door when entering the workplace, the project manager has to manage emotions in such a way that they work together to achieve project objectives. It was reiterated that the project manager had to manage emotions and the emotions of those around him or her in such a way that it led to being invited back to manage another project. Participant 1 acknowledged: *"So no, we can't check our emotions out. Emotional outbursts and uncontrolled emotional anger, is* [sic] *not going to help me. You need to channel and manage the emotion."*

The necessity of emotional self-control as part of the competency set for the project manager was also confirmed during the session with Organisation 2 as illustrated in Figure 4.14 below.

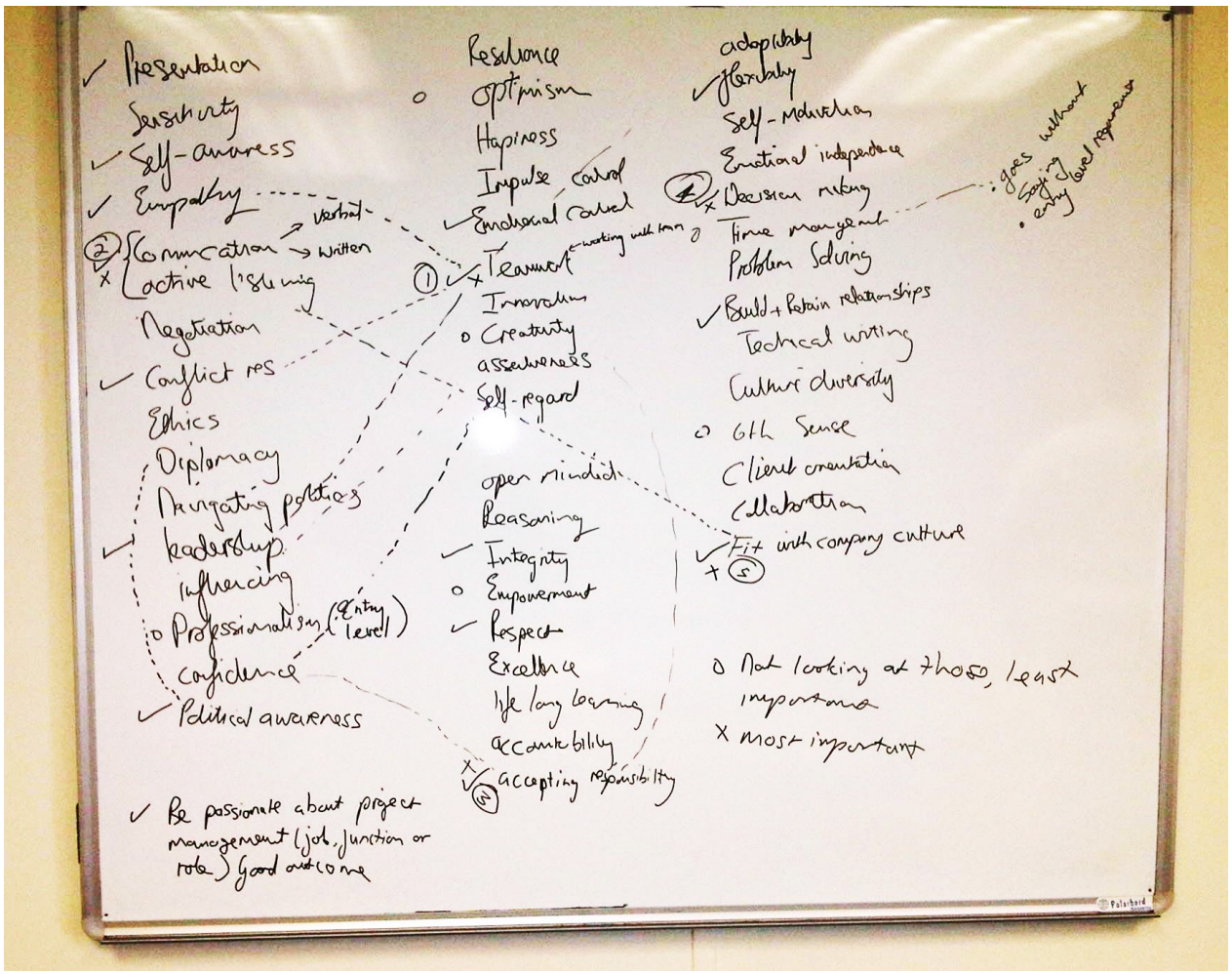

Figure 4.14: Emotional self-control (Organisation 2)

Participant 3 argued impulse control was extremely important for the business analyst, including professionalism and professional conduct in the face of business. "*If I heard that a BA of mine was in a stakeholder meeting and lost their temper for some reason because business was not listening or did not like their ideas, there would have to be some level of counselling. It is completely contradictory to what we were talking about EI, that self-awareness and how is my message being received. So the impulse control very important."*

Although from time to time, it is needed to raise one's voice to make a point, Participant 8 argued it has to be done in a formal manner without any emotional outburst. He did not allow any emotional outbursts from his business analysts. It did not fit into the culture of the organisation as consultants. One had to handle the situation appropriately by asking questions, but he stated, *" … but it does not give you the right to an outburst. You rather keep quiet. You ask questions but you do not have an outburst."* Similarly, Participant 17 argued the business analyst could not overreact in case of a disagreement. There was a safe place for emotions in their office away from the client where the business analysts could vent

and share their emotions. She encouraged her business analysts not to get personal and not to let their emotions get out of control. As humans, we have emotions, and she had provided a process to protect her business analysts by facilitating emotional self-control.

The relevance of emotional self-control for the business analyst as well as the project manager were echoed by Organisations 4, 11, 12 And 13. Organisation 5 confirmed emotional self-control was not only important for the systems analyst, but for everyone in the organisation. Self-control was listed as a key requirement for the systems analyst as illustrated in Figure 4.15 below.

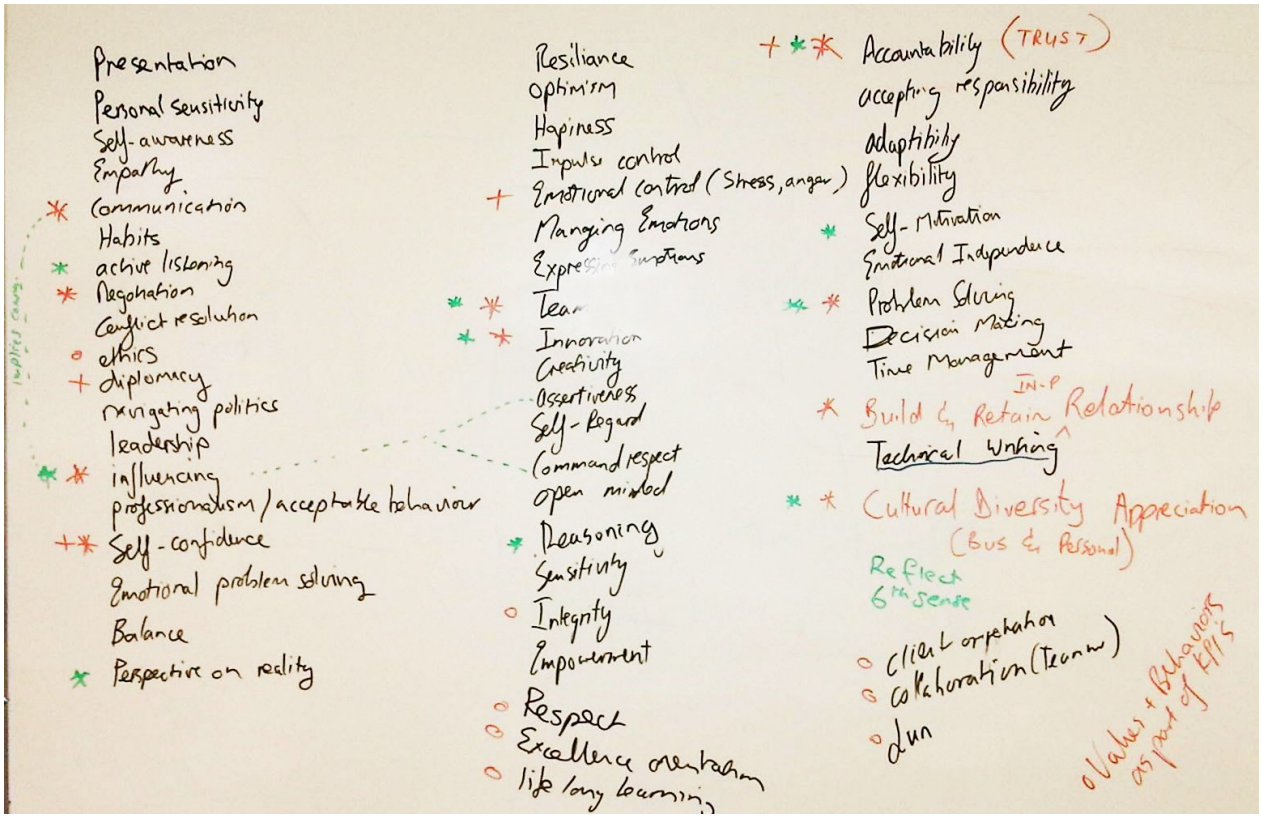

Figure 4.15: Emotional self-control (Organisation 5)

4.5.10 Collaboration

A collaborative and participative style was a key requirement for project managers at Organisation 1. The project manager needed to support the client and fellow IT team members towards successful project delivery when needed. This implied getting involved and not just remaining on the side-line if needed to facilitate delivery. *"To come alongside you and say it is not my job to do your job but I am willing to help you. Why am I willing to do*

that? It is because I want successful delivery and I want to deliver it in a sustainable way. It is that kind of style I am looking for, participative and balanced."

Collaboration was stated as desirable for business analysts, systems analysts as well as for project managers by eight of the 20 organisations (40%). From the 12 categories, it is tenth in order of priority for the research participants. Figure 4.16 below presents the prioritisation of *collaboration* as a category.

Figure 4.16: Collaboration

Participant 3 contended the business analyst was inherently part of the IT team and was expected to be a team worker. Whether working with the client or fellow IT team members, she believed one succeeded or failed as a team. Collaboration and trust were therefore key success factors for any IT team. Participant 6 viewed the project manager as more methods-based, whereas the business analyst was more "*we will find the solution together*". The importance of collaboration as part of the business analysis toolbox was confirmed by Participant 10.

Organisation 7 contended that people collaboration skills were essential to the success of a project manager. This was supported by Participant 9, who argued that software development projects were highly collaborative in nature. The project manager needed to understand user behaviour and needed to have high EI. In the absence of these competencies, the project manager would fail, irrespective of applying project management processes or not. *"Even if you have the process down, applying the process without understanding the emotional world, will be a problem."* Organisation 14 confirmed the

importance of the project manager's ability to collaborate in software development organisations. The respondent stated, *"It is our problem and we have to try and solve it … I want a team player that can work with people and take responsibility."*

4.5.11 Emotional reasoning

Emotional reasoning includes the ability to consider one's own emotions and the emotions of others during decision-making. This competency was referred to as 'emotional maturity' by the research participants. *Emotional reasoning* was stated as desirable for business analysts, systems analysts as well as for project managers by seven of the 20 organisations (35%). From the 12 categories, it is eleventh in order of priority for the research participants.

Figure 4.17: Emotional reasoning

Participants 3, 17 and 19 stressed the importance of emotional maturity as part of the competencies of a successful business analyst. When asked what was expected from the business analyst in terms of behavioural competencies, Participant 3 replied, *"Certainly a level of emotional maturity."* Participant 17 was of the opinion that a level of emotional maturity was needed to understand reality during the business analysis process. The business analyst was pressurised from the business as well as the IT side and should not take disagreements personally. *"You cannot over-react if someone does not agree with you. You cannot throw your toys out of the cot if someone changes their requirement. You have to understand what is the reality and how you handle it. It is a type of maturity that comes with this."* For Participant 19, as an independent business analysis professional, maturity was a key requirement when recruiting business analysts.

During the recruitment of project managers, emotional maturity was an essential competency assessed during interviews for Organisation 14. However, there was no prescribed way of assessing the emotional maturity of candidates. During the interview, candidates were asked various questions to gauge the response and draw conclusions in terms of the candidates' emotional maturity. In terms of the project manager's behaviour, Interviewee 14 stated, *"One of the most important things for me is emotional maturity."* In response to being asked if emotions had a place in the project management workplace, Participant 14 stated one of the aims in their organisation was to instil emotional maturity in all their people and projects. They had a process to deal with problems and an outlet for emotions. *"It is there and it exists. They must just follow process."*

Organisation 16 and 20 shared the view of Organisation 14 of the necessity of emotional maturity. There is a certain level of emotional maturity that accompanies a capable project manager. Emotional maturity was therefore a key requirement when recruiting project managers. For Organisation 16, although the candidate had to have the necessary experience and qualifications, maturity was of more importance that actual technical skill in a project manager. Participant 16 contended: *"This sort of soft skills part is in my mind more important than the real technical skills of a project manager."*

4.5.12 Emotional Intelligence

The keyword *emotional intelligence* was mentioned by six of the 20 organisations (30%) as a requirement for business analysts, systems analysts and project managers. From the 12 categories, it is last in order of priority for the research participants. Figure 4.18 below illustrates the prioritisation of *emotional intelligence* as keyword.

Figure 4.18: Emotional intelligence

When asked about the requirements when recruiting a project manager, Participant 1 listed EI, additional to knowledge, experience and flexibility. "*The third component that I am looking for is the behavioural competencies / EI. That goes to the heart of it. I never look for just a tick box manager."*

In terms of the IT professional roles of business analyst, systems analyst and project manager, Participant 3 maintained that EI was the highest requirement for the business analyst. Participant 9 affirmed the value of EI and stated there was definitely room for emotions as part of the project management environment. He argued that software development projects were very collaborative in nature and stated, *"If you do not understand emotion, I would almost say that you will fail as a project manager."* He continued by saying, *"So, if you do not understand user behaviour and do not have high EQ as a project manager, on a development project, you will almost certainly fail. Even if you have the process down, applying the process without understanding the emotional world, will be a problem."*

Participant 12 differed from Participant 3 and contended the EI of a project manager should be greater than that of the business analyst owing to the potential damage that could be done. He asserted: *"I am trying to say that a project manager is not only dealing with getting a delivery done but getting it done through other people. A business analyst does not have that through other people part as much. I would say it is an easier job. The EI of a project manager should be more. A project manager with a lower EI will do more damage than a business analyst."*

Participant 13 claimed emotions had a place in the project management environment, although the project manager needed to remain professional and handle emotions appropriately. He argued: *"I think it is important to be assertive and say I am disappointed in this situation that occurred and it is a result of something you did. I don't think you should be angry and scream at people or sulk all day. You should handle it in an appropriate manner. Screaming in the workplace is not appropriate. I know many people struggle with it to go to somebody in a meeting to say you had your chance, now just sit down. That is why I think EI is very important."*

Participant 18 supported the opinion that EI was essential to the competency set of the business analyst and project manager. He however warned against making a laundry list of the requirements for the perfect incumbent. For him a combination of competencies per IT professional role was of greater value. He stated, *"I am weary to say yes we need this, this and this."* He contended that it was possible to have a candidate that possessed all the competencies on the list but *"is just hopeless".* For him, it was preferable to evaluate the individual and place him or her as best one could.

4.6 Global professional guidelines

There are many gaps in the global professional guidelines. The European e-Competence Framework 2.0, the ETA competency model, and the Clinger-Cohen Core Competency model dominantly focus on technical skills required for IT professionals with no explicit statement that EI has value. There is reference to personality characteristics and skills that also form part of certain EI models. It appears as if research since the mid-1990s suggesting EI impacts occupational performance has been ignored in these global professional guidelines. There is no mention of EI and there is no evidence that these guidelines recognise EI as a contributing factor in the performance of IT professionals.

The *Guide to the Business Analysis Body of Knowledge*® (BABOK, 2009) ignores the construct of EI. No mention is made to EI as a contributing factor to the effectiveness of a business analyst. The *PMBOK*® *Guide* (PMBOK, 2013) is the only global guideline that refers to EI. The *PMBOK*® *Guide* (PMBOK, 2013) regards EI as important for the project manager to be successful. It is, however, briefly mentioned and not elaborated on.

This section provides the findings of the review of industry frameworks, namely the European e-Competency Framework, the ETA Competency Model as well as the Clinger-Cohen Core Competencies as presented in Chapter 2. Successful functioning in business analyst and

project manager roles as defined in the *Guide to the Business Analysis Body of Knowledge*® (BABOK, 2009) as well as the *PMBOK® Guide* (PMBOK, 2013) is provided.

These findings relate to the following research questions as presented in Section 1.5:

> *How does the literature define successful functioning in business analyst, systems analyst and project manager roles?*

4.6.1 Gaps in the European e-Competency Framework (e-CF 2.0)

Section D.8 Contract Management and Section E.4 Relationship Management mention the skills to building positive relationships *(*European e-Competence Framework 2.0, 2010*).* This competency is also mentioned in the Interpersonal domain of the Bar-On EI model, as well as the Relationship Management domain of the Goleman EI model (Bar-On, 1997; Goleman, 2001b).

Section E.4 refers to empathy, which is also referred to in the Interpersonal domain of the Bar-On EI model as well as the Social Awareness domain of the Goleman EI model (Bar-On, 1997a; Goleman, 2001a). Both empathy and building relationships are part of the domain of trait EI (Petrides, 2010).

In summary, although there is reference to some of the personality characteristics and skills referred to in mixed EI models (Bar-On, 1997a; Goleman, 2001a), as well as the trait EI model of Petrides (Petrides, 2010), the e-CF 2.0 does not refer to EI or any one of the EI models as provided in Chapter 2.

4.6.2 Gaps in the ETA Competency Model

The ETA Competency Model, as presented in Section 2.10.3, acts as a common language between educators and the IT industry. It aims to assist academic institutions with the update of curricula. It is also intended to assist the IT industry with recruitment of IT professionals as well as individuals with their preparation for IT job opportunities. The model is also intended for utilisation by academia, government and the IT industry to assist in building and contributing towards a pipeline of IT talent for increased competitiveness in the IT industry.

The first competency tier in the ETA, namely personal effectiveness, refers to *interpersonal skills and teamwork,* as well as *adaptability and flexibility*. These are also referred to in the

interpersonal and adaptability domains of the Bar-On EI model as well as the relationship management and self-management domains of the Goleman EI model (Bar-On, 1997a; Goleman, 2001a). Interpersonal skill, as well as adaptability, is also part of the trait EI domain (Petrides, 2010). Although there are corresponding competencies between the ETA and EI models, the ETA competency model does not refer to the construct of EI or any specific EI model.

4.6.3 Gaps in the Clinger-Cohen core competencies

Increased reliance on IT led to the development of the Clinger-Cohen Act of 1996. In collaboration with government, academia and the private sector, a set of core IT competencies was developed. The US federal CIOs are accountable to ensure that the core competencies are present and developed in their IT organisations to ensure the effective management and utilisation of IT. The core competencies are also used by the private sector as well as academia to recruit and develop IT talent. Irrespective of the goal and use of the Clinger-Cohen core competencies, the human is neglected in this initiative to specifically ensure that IT is effectively managed and utilised.

The Clinger-Cohen Core Competency Model provides 81 detailed competencies. No reference is made to the construct of EI or any specific EI model. Only one of the 81 competencies relates to the elements included in either the Goleman, Bar-On or trait EI models. This competency is 2.4 *Partnership/teambuilding techniques* (Bar-On, 1997a; Goleman, 2001a; Petrides, 2010).

In summary, none of the reviewed industry competency models refer to the construct of EI or any specific EI model. Based on this finding, it is concluded that the limited reference to EI competencies is not an indication that the European e-Skills Forum, the information Technology Association of America, the US Department of Labor Employment and Training Administration, and the US Federal CIO Council recognise the contribution of EI in the performance of IT professional roles.

4.6.4 Gaps in the Business Analysis Body of Knowledge

A Guide to the Business Analysis Body of Knowledge® (BABOK, 2009) defines business analysis as a profession; it is also referred to as the *BABOK® Guide*. It can be viewed as a collection of knowledge within the business analysis profession. It presents the current generally accepted practices in business analysis. The *BABOK® Guide* (BABOK, 2009)

provides a detailed description of each of the business analysis knowledge areas. The activities and tasks associated with each knowledge area are described. The skills necessary to execute the activities and tasks effectively are also provided. A skilled business analysis practitioner is expected to demonstrate these skills and knowledge. This business analysis body of knowledge is defined and enhanced by the business analysis professionals who apply it in their daily work as business analysis professionals.

The *BABOK® Guide* (BABOK, 2009) provides six knowledge areas. Each of these knowledge areas describes the knowledge a business analyst needs to have and understand as well as the tasks this IT professional need to be able to perform. The knowledge areas are supported by the chapter that provides the underlying competencies supporting effective business analysis.

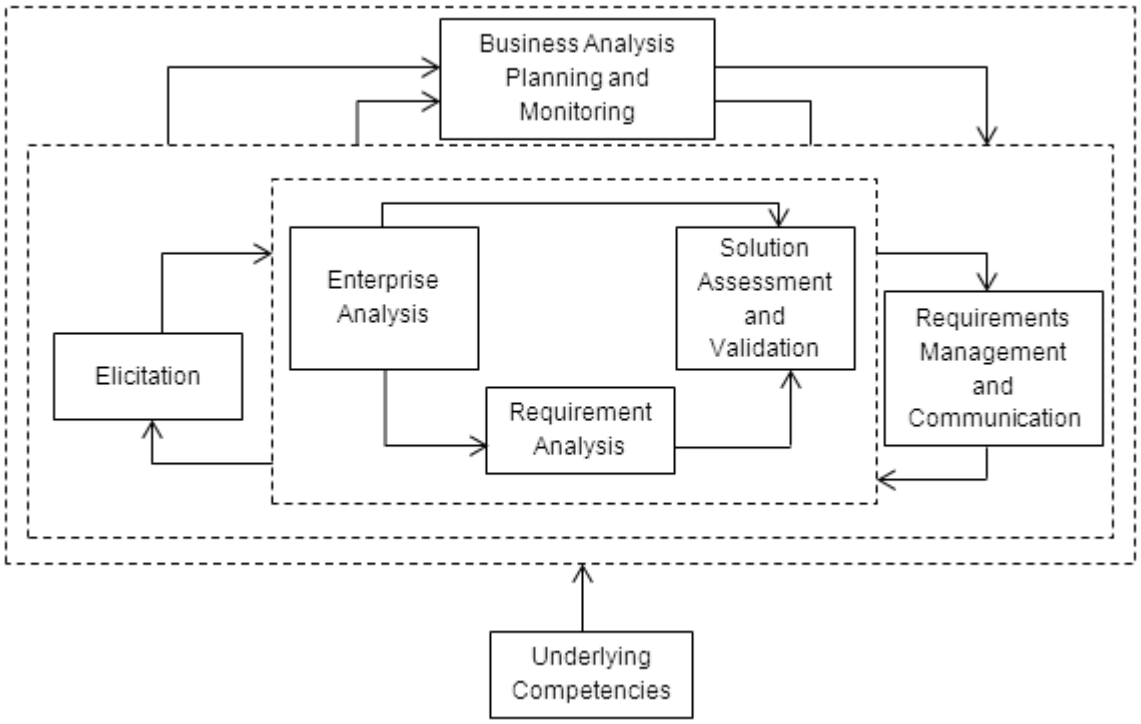

Figure 4.19: BABOK knowledge areas (BABOK, 2009)

The relationships between the underlying competencies and the other knowledge areas are illustrated in Figure 4.19 above.

The *BABOK® Guide* (BABOK, 2009:15) defines underlying competencies as the skills, knowledge and personal qualities that support the effective performance of business analysis. As part of this definition, it also refers to the terms ‘behaviours’ and ‘characteristics’

required by the business analyst (BABOK, 2009:141). The underlying competencies are grouped into five competency areas and illustrated in Table 4.11 below.

Table 4.11: BABOK® underlying competencies

Competency	Behaviours, characteristics, knowledge and personal qualities.
Analytical thinking and problem solving	Creative thinking
	Decision making
	Learning
	Problem-solving
	Systems thinking
Behaviour characteristics	Ethics
	Personal organisation
	Trustworthiness
Business knowledge	Business principles and practice
	Industry knowledge
	Organisational knowledge
	Solution knowledge
Communication skills	Oral communications
	Teaching
	Written communications
Interaction skills	Facilitation and negotiation
	Leadership and influencing
	Teamwork
Software applications	General purpose applications
	Specialised applications

The *BABOK® Guide* (BABOK, 2009) does not refer to the construct of EI or any specific EI model. No mention is made of EI as an underlying competency potentially influencing the effectiveness of business analysis. Communication skills are listed as key skills supporting the business analyst in eliciting requirements from business stakeholders and are listed as skills that address how to "understand the audience" as well as "understanding how an audience perceives the business analyst". Reference is also made to oral communication skills facilitating efficient transfer of information, encompassing emotional and other non-verbal cues.

Additional to communication, teamwork is listed as an essential skill contributing to business analysis success. Conflict resolution is stressed as beneficial to teamwork. The *BABOK®*

Guide (BABOK, 2009) contends two types of conflict exist, namely emotional and cognitive conflict, and that emotional conflict originates from personal interaction. The *BABOK® Guide* (2009) indicates that cognitive conflict requires the team to evaluate the assumptions, observations and expectations of the team members. It does not, however, provide any indication of how to address emotional conflict.

4.6.5 Gaps in the Project Management Body of Knowledge

The *PMBOK® Guide* (PMBOK, 2013) provides guidelines for managing individual projects. It defines project management-related concepts, describes the project management life cycle and its related processes, as well as the project life cycle. The *PMBOK® Guide (2013)* comprises the globally recognised standard and guide for the project management profession.

The *PMBOK® Guide* (PMBOK, 2013:60) provides ten knowledge areas, namely, Project Integration Management, Project Scope Management, Project Time Management, Project Quality Management, Project Human Resource Management, Project Communications Management, Project Risk Management, Project Procurement Management and Project Stakeholder Management. Collectively, the knowledge areas contain 47 project-management processes grouped into five project-management process groups. The mapping of the processes to each of the knowledge areas is illustrated in Table 4.12 below.

Table 4.12: PMBOK knowledge areas and processes (PMBOK, 2013:61*)*

Knowledge areas	Project Management Process Groups				
	Initiating	Planning	Executing	Monitoring and controlling	Closing
Integration	Project charter	Project management plan	Manage project	Monitor and control project Change control	Close project
Scope management		Scope management Requirements Define scope WBS		Validate and control scope	
Time management		Schedule Activities Resources		Control schedule	
Cost management		Cost management Estimate costs Budget		Control costs	
Quality management		Quality management	Quality assurance	Control quality	
Human resource		Human resource	Acquire project team		

management		management	Develop project team Manage project team		
Communication management		Plan communication	Execute communication	Monitor and control communication	
Risk management		Risk management Identify risks Risk analysis Risk responses		Control risks	
Procurement management		Procurement management	Conduct procurements	Control procurements	Close procurements
Stakeholder management	Identify stake-holders	Stakeholder management	Manage stakeholder engagement	Control stakeholder engagement	

The *PMBOK® Guide* (PMBOK, 2013:17) contends that knowledge, performance and personal competencies support the effective performance of project management. Personal competencies required are listed as behaviour, attitudes, personality characteristics and leadership. The *PMBOK® Guide* (PMBOK, 2013:17) further argues an effective project manager requires a combination of ethical, interpersonal and conceptual skills. The interpersonal skills regarded as important to the success of the project manager are listed in Table 4.13 below.

Table 4.13: Project manager interpersonal skills (PMBOK, 2013:513)

Interpersonal skills important to the success of the project manager	Definition provided by *PMBOK® Guide*
Leadership	The project manager directs the efforts of the project team towards a common goal and enabling them to work as a team.
Team building	The project manager assists the team to work with each other, the leader, external stakeholders, as well as with the organisation. Teamwork results from good leadership and good team building.
Motivation	The project manager creates an environment to meet project objectives while providing satisfaction in terms of what stakeholders value most.
Communication	The project manager needs to be aware of the communication styles of other parties, cultural nuances and norms, relationships, personalities as well as context. The project managers should identify communication channels and understand what information they need to provide and receive.

	The project manager needs to identify which interpersonal skills will facilitate effective communication with stakeholders.
Influencing	Project managers need to share power and use their interpersonal skills to elicit the cooperation of the team.
Decision-making	Project managers use styles such as command, consultation, consensus and coin flip (random) in the decision-making process.
Political and cultural awareness	Successful project managers use politics and power as well as apply cultural awareness.
Negotiation	Project managers need to confer with parties in order to compromise or reach agreement.
Trust building	Building trust in the project team is essential in effective team leadership. Trust is characterised by cooperation, information sharing and effective problem resolution.
Conflict management	Project managers need to adapt their personal conflict management style to the situation at hand.
Coaching.	The project manager needs to applying coaching in order to develop the project team to higher levels of competency and performance. This involves helping team members recognise their potential through empowerment and development.

The above list of interpersonal skills as provided by The *PMBOK® Guide* (PMBOK, 2013) does not refer to the construct of EI or the ability of the project manager to, amongst others, be aware of emotions or to manage emotions. The 616-page document does, however, contain one reference to the term EI.

The importance of the above listed interpersonal skills is accentuated as part of the *development of the project team* as one of the 47 project management processes. In the summary of this process, interpersonal skills are defined as behavioural competencies such as communication skills, EI, conflict resolution, influence, team building and group facilitation. In the glossary, the term EI is defined as "the capability to identify, assess, and manage the personal emotions of oneself and other people, as well as the collective emotions of groups of people" (PMBOK, 2013:538).

4.6.6 Summary

The above examination of globally recognised standards and guidelines for the business analysis and project management professions showed limited reference to EI of the business analyst and project manager as essential elements to project success.

The *BABOK® Guide* (BABOK, 2009) does not refer to the construct of EI. EI is not mentioned as an underlying competency potentially influencing the effectiveness of business analysis or contributing to potential project success. A gap in the global industry standards and guidelines for business analysis therefore exists with regard to EI as part of the underlying competencies knowledge area.

Although EI is mentioned briefly as part of interpersonal skills of the project manager contributing to project success, it is not elaborated on. The list of interpersonal skills provided in Table 4.13 above regarded by the *PMBOK® Guide* (PMBOK, 2013) as important to the success of the project manager, does not refer to EI, thereby illustrating the gap in the global industry standards and guidelines for the project management profession.

4.7 Gaps in the business case for emotional intelligence

The Consortium for Research on Emotional Intelligence is a not-for-profit research consortium. The consortium consists of the world's leading researchers and scholars committed to the scientific progression of EI in the workplace. The mission of the EI Consortium is to advance research and practice of EI in organisations through the generation and exchange of knowledge. The Consortium currently consists of eight core members and 75 additional members, each of these with a strong record of accomplishment as applied researchers in the field of EI.

The business case for EI (Cherniss, 1999), as published by the Consortium for Research on Emotional Intelligence, contains various examples of research results indicating a relationship between EI competencies and workplace performance. This is complemented by scholars who argue that EI has predictive validity in various areas of occupational performance, including sales performance, academic performance, leadership, and employee engagement (Dulewicz & Higgs, 1998; Goleman, 1998b; Nel, 2001; Bar-On, 2003; Bar-On *et al*., 2006; Mount, 2006; Sala, 2006; Lennick, 2007; Palmer & Gignac, 2012). Scholars argue EI skills are the foundation of performance, and have a significant impact on organisational performance. Examining the published business case for EI (Cherniss, 1999),

resulting from the collaboration of the world's leading EI scholars through the Consortium for Research on Emotional Intelligence, shows no reference to EI and IT professional roles.

In addition to examining the abovementioned business case, a review of the literature to date on EI and occupational performance, illustrates the absence of systematic research unpacking the relationship between EI and various IT professional roles. This gap in the literature was highlighted by Joseph et al. (2010:149) in 2010 and still seems to be relevant.

4.8 Gaps in the approaches to enterprise architecture

The review of approaches to enterprise architecture, as well as schools of thought on enterprise architecture, highlights the absence of the human in enterprise architecture tools widely used by business and IT stakeholders to address, amongst others, business – IT alignment. Various taxonomies, frameworks, methodologies and practices are utilised by business and IT stakeholders in an effort to align business and IT strategies. A gap in these approaches to EA however exists. These approaches do not mention any non-technical skills and competencies required of the IT professionals who utilise these EA tools. The human is neglected in the EA literature, with limited guidance provided on which 'human' skills, characteristics or competencies IT professionals such as business analysts, systems analysts and project managers need to advance business – IT alignment. EI is not mentioned at all in any of the reviewed popular approaches to EA.

4.9 Gap analysis of industry and literature expectations

The following section will present results of the comparison of the EI profiles, as provided in Section 4.4, of what the literature and industry expect. It relates to the following sub-research question as presented in Section 1.5:

> *What is the gap between the EI of business analysts, systems analysts and project managers and what the literature and industry expect?*

Participating organisations indicated EI as a highly desirable competency for business analysts, systems analysts and project managers. As indicated in Section 4.5, seven of the 12 categories that emerged from the data correspond to the factors of the Genos EI model. The EI patterns identified from the results of the EI assessment indicate, in terms of average EI scores, that the majority of business analysts, systems analysts and project managers are low in EI.

As discussed in Section 4.6, none of the reviewed industry competency models refer to EI. This limited reference to EI competencies indicates that although IT professionals indicate EI is a highly desirable competency, industry competency models do not recognise the contribution of EI in the performance of IT professional roles. This finding is in line with Section 4.6.4 and 4.6.5, showing limited reference to EI in the global standards and guidelines for the business analysis and project management professions.

4.10 Summary

This chapter reported the findings of the study. In this section, the main findings are summarised. There is a misalignment between the competency criteria of organisations when recruiting business analysts, systems analysts and project managers, the EI of these IT professionals, and the industry professional guidelines. The categories that emerged from the data were *experience, communication, emotional self-management, emotional management of others, professionalism, emotional expression, emotional self-awareness, emotional awareness of others, emotional self-control, collaboration, emotional reasoning* and *emotional intelligence*. Eight of these 12 categories, illustrating the competency requirements for business analysts, systems analysts and project managers, are EI in nature. Seven of those, namely *emotional self-management, emotional management of others, emotional expression, emotional self-awareness, emotional awareness of others, emotional self-control* and *emotional reasoning* correspond to the seven factors in the Genos EI model, and one category, namely *emotional intelligence*, was used by interviewees as a collective term for EI-related competencies.

Organisations require their business analysts, systems analysts and project managers to be emotionally intelligent. Assessment of the EI of a sample of business analysts, systems analysts and project managers, however, shows that the majority of these IT professionals have low EI.

Global professional guidelines such as the European e-Competence Framework 2.0, the ETA Competency Model and the Clinger-Cohen Core Competency Model dominantly focus on technical skills and do not refer to EI at all as a requirement for IT professionals. The IIBA as global certification body does not refer to EI in its guidelines. Their *Business Analysis Body of Knowledge*® (BABOK, 2009) ignores the construct of EI.

The *PMBOK® Guide* (PMBOK, 2013), as globally recognised standard and guide for the project management profession, also neglects EI. A list of interpersonal skills regarded as important to the success of a project manager is provided. This list does not formally include EI. In the summary of one of the standard project management processes, which address the development of the project team, EI is mentioned once as behavioural competency forming part of interpersonal skills and is also defined in the glossary.

Experience as a business analyst, systems analyst or project manager and industry knowledge are preferred over formal qualifications and certification as a project manager or business analyst. Most of the participating organisations in this study do not regard certification as a business analyst or project manager as important. For them, certification is not a primary recruitment criterion, and the absence thereof will not influence selection. They value behavioural competencies and EI more than professional certification as a business analyst or project manager. Certification is not viewed as a predictor of performance in the role of a business analyst or project manager.

CHAPTER 5

CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

For decades studies have been done on the phenomenon of business and IT non-alignment. However, after all the efforts by reputable academics and researchers worldwide, the refrain is still the same: “IT does not understand business” and “business does not understand IT”.

This study shows that in most of the research and attempts to narrow the alignment gap between business and IT, the human factor has been neglected. I have attempted to highlight the gaps that exist between various taxonomies, frameworks, methodologies and practices that are utilised by business and IT stakeholders in an attempt to narrow these gaps.

The majority of the EI scores of business analysts, systems analysts and project managers assessed in this study were in the low category as qualitatively interpreted according to Table 4.4. This is an important finding, as it may result in misunderstanding, ineffective relationships, conflict and low-level communication. As IT is viewed as an important change agent within an organisation, the role of communication is all- important.

In evaluating the responses from business analysts, systems analysts and project managers, experience was highlighted as important. Yet, when looking at the experience within the businesses that were part of the research, the employees all had minimal experience. The question then needs to be asked: If experience is so important, why is it that businesses appoint people with less experience in these important roles?

There are many gaps in the global professional guidelines. The European e-Competence Framework 2.0, the ETA competency model, and the Clinger-Cohen Core Competency model dominantly focus on the technical skills required for IT professionals with no explicit statement that EI has value for employing human resources. Business needs clear guidelines towards the specific EI needs of the various positions that need to be filled.

Rather surprising was the finding that certification as a business analyst, systems analyst or project manager, or the possession of educational qualifications, is not an indication that a person will be successful in that role. In general, organisations attach little value to

certification and in many cases it is not seen as best practice to appoint only individuals with the specific certification for a specific task. Experience as a business analyst, systems analyst or project manager and knowledge of the industry was preferred over formal qualifications and certification as a project manager or business analyst.

This chapter provides the conclusions and recommendations of this study. Subsequent to summarising the chapters, the conclusions of this study are provided. This is followed by a reflection on the study. In the *methodological* reflection, I discuss to what extent the research approach influenced the results of the study. In the *substantive* reflection, the results of this study are compared with those of other research in the same area. In the *scientific* reflection, I discuss the contribution of this research to the scientific body of knowledge. This is followed by recommendations for policy and practice, for further research, as well as further developmental work. Subsequently, limitations of the study are discussed. The chapter is concluded with final reflections.

5.2 Chapter summary

In Chapter 1, the concept of business – IT alignment as well as its impact on organisational performance was introduced. EA, as one of the popular disciplines used by IT to address business – IT alignment, was investigated. During my career thus far I have observed that emotional competence and emotionally intelligent behaviour in the IS workplace is in many cases not on the agenda of IS managers. Above average analytical and mathematical abilities are qualities highly in demand in the systems development life cycle (SDLC), since they are perceived to be the core of a promising and flourishing career in IS development. My experience is corroborated by Joseph et al. (2010), who argue that when companies hire IT professionals, their focus is often on the "hard" skills needed to perform their duties. This leads to the following problem statement of this study:

"The role of emotional intelligence of information systems professionals in the non-achievement of business aims is unclear."

Through this study I attempted to propose that technical competence and certification as IS professionals should not be the only requirements when recruiting or promoting IS professionals in an effort to improve business – IT alignment. The purpose of the study was to establish what EI competencies are required for the roles of the business analyst, systems analyst and project manager as a contributing factor for improving business needs' delivery

by IT. An in-depth multiple case study was effected in order to explore the skills and competence requirements IS managers use as guidelines when recruiting these IT professionals. The purpose included investigating the accreditation requirements of IS industry bodies, for example, PMI and IIBA, as well as industry IS competency models. These results were compared with the EI patterns found in business analysts, systems analysts and project managers, as well as with the requirements of IS managers during the recruitment process.

The aim of this research was therefore to investigate what patterns emerge in terms of the EI of the above IS professionals. These patterns were used to identify which main clusters of EI competencies potentially are needed for improved functioning in these roles, thereby leading to improved business – IT alignment.

The following research questions were posed to find answers to the problem facing the IT industry:

- What is the EI profile of business analysts, systems analysts and project managers?
- How do EI competencies complement the functions of business analysts, systems analysts and project managers?
- Why do EI competencies influence successful functioning in business analyst, systems analyst and project manager roles?
- How does the literature define successful functioning in business analyst, systems analyst and project manager roles?

- What is the gap between the EI of business analysts, systems analysts and project managers, and what the literature and industry expect?
- What could be included in the EI profiles of and certification requirements for business analysts, systems analysts and project managers?

In Chapter 2, influential strategic alignment models available to assist business and IT executives in improving alignment between business and IT strategies were reviewed. The most well-known and popular approaches to EA generally in use were investigated. The concept of EI was introduced, and an overview of the historical development of intelligence and origins of EI was provided. Approaches to EI were provided and the business case for EI was reviewed. I discussed industry competency models and frameworks, and reviewed standards for the business analysis and project management professions. In the conclusion to Chapter 2, I presented the conceptual framework of this study for understanding the role of

EI in bridging the business – IT alignment gap. The conceptual framework, as presented in Figure 5.1 below, consists of the following components:

- The Genos EI Model as developed by Gignac (2005).
- The EI profiles of practising business analysts, systems analysts and project managers.
- The views of 20 research participants on competencies influencing successful functioning in business analysts, systems analysts and project managers.
- Competency guidelines from the IIBA and PMI for business analyst and project manager roles as published in BABOK and PMBOK.
- The role of the human in business – IT alignment as documented in The Zachman Framework for EA, TOGAF, FEA and GEAF.

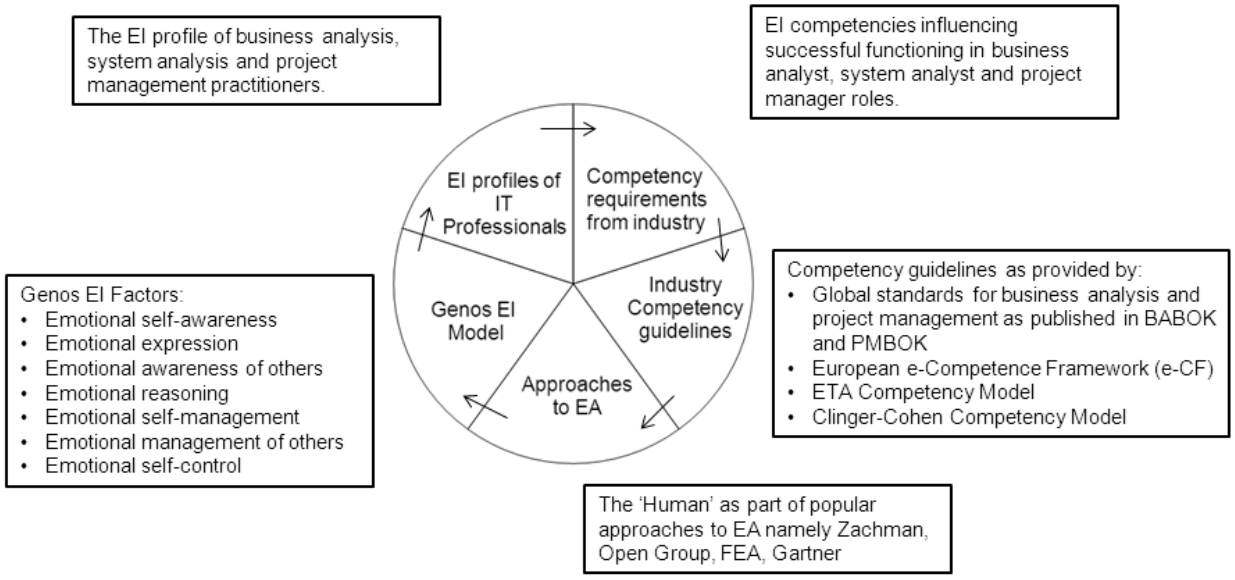

Figure 5.1: Conceptual framework

Chapter 3 provided an overview of research philosophy followed by the research approach. The choice of research paradigm was discussed and the research purpose was explained. The research design and data collection process were discussed. The sampling strategy, sample size and details of selected participants and participating organisations were provided. The qualitative data collection methods, used in this study, were discussed. Subsequently, the quantitative data collection method was explained. The chapter concluded with a discussion of the ethical procedures of this study.

Qualitative data were collected utilising semi-structured interviews. The interviewees were 20 IT managers responsible for the management of business analysts, systems analysts and project managers in information systems development organisations based in the Western Cape Province in South Africa. The sample included line managers responsible for managing a project management office, Chief Operating Officers and Chief Information Officers.

Quantitative data were collected by means of a psychometric instrument. The sample of business analysts, systems analysts and project managers was purposively nominated by their managers because of their particular functional roles. Sixteen business analysts, 22 systems analysts and 31 project managers completed the *Genos EI inventory*.

In Chapter 4, the findings of this study were presented. Twelve categories materialised from the data, illustrating the participating organisations' competency requirements for business analysts, systems analysts and project managers. These categories were experience, communication, emotional self-management, emotional management of others, professionalism, emotional expression, emotional self-awareness, emotional awareness of others, emotional self-control, collaboration, emotional reasoning and emotional intelligence.

5.3 Conclusions

With reference to the conceptual framework for understanding the role of EI in bridging the business – IT alignment gap, the following section provides the conclusion of this study. This study highlighted that emotional competence and emotionally intelligent behaviour in the IS workplace are on the agenda of the IS managers that participated in this study. Above average analytical and mathematical ability are qualities still highly in demand in the systems SDLC. They are, however, not the only constituents perceived to be essential to a promising and flourishing career in IS development. In terms of the problem statement of this study, it is concluded that EI of IS professionals does play a role in the non-delivery of business needs by the IT department, especially that of the business analyst, systems analyst and project manager. In my experience, and as argued by Joseph et al. (2010), when IS development organisations hire IT professionals, they often focus on the "hard" skills needed to perform their duties. It is enlightening that this seems to be changing. Indications are that EI is becoming highly in demand in the SDLC, specifically for business analysts, systems analysts and project managers.

5.3.1 EI profiles of IS professionals

The majority of business analysts, systems analysts and project managers assessed in this study have low EI. In terms of average EI scores of business analysts, the majority are in the low category. None of the participating business analysts were found to be high or above in any of the factors of the Genos EI model.

In terms of emotional self-awareness (ESA), 16 business analysts (50%) were in the low category. Eleven (69%) were low in emotional expression. Twelve (75%) were low in emotional awareness of others. Twelve (75%) scored low in emotional reasoning. Eleven (69%) scored low in emotional self-management. Twelve (75%) were low in emotional management of others. In terms of emotional self-control, 8 (50%) scored in the low category.

None of the systems analysts are high or above in any of the seven Genos EI factors. The majority of the systems analysts are low in average EI. In terms of emotional self-awareness (ESA), 8 (36%) were in the low category and 14 (64%) in the average category. Fifteen (69%) were low and 7 (31%) average in emotional expression (EE). Thirteen (59%) were low and 9 (41%) average in emotional awareness of others (EAO). Twelve (75%) were low and 4 (25%) average in emotional reasoning (ER). Sixteen (72%) were low and 6 (28%) average in emotional self-management (ESM). Seventeen (77%) were low and 5 (23%) average in emotional management of others (EMO). In terms of emotional self-control (ESC), 15 (68%) were in the low category and 7 (32%) in the average category.

As in the case of systems analysts, the majority of the project managers are in the low category. In terms of emotional self-awareness (ESA), 7 project managers (23%) were in the low category and 24 (77%) in the average category. Eighteen (58%) were low and 13 (42%) average in emotional expression (EE). Fifteen (48%) scored low and 16 (52%) average in emotional awareness of others (EAO). Fifteen (48%) were low and 16 (52%) average in emotional reasoning (ER). Twenty (65%) scored low and 11 (35%) average in emotional self-management (ESM). Fifteen (48%) scored low and 16 (52%) average in emotional management of others (EMO). In terms of emotional self-control (ESC), 16 (52%) were in the low category and 15 (48%) scored average.

There is a disconnect between the expectations of the industry, business analysts, systems analysts and project managers and governing bodies in respect of EI of these IT professionals. The organisations that participated in this study expect EI as a key competency of business analysts, systems analysts and project managers. Despite this

requirement, EI is neglected by governing bodies such as the IIBA and PMI. The same applies to global professional guidelines for IT professionals in the form of industry competency frameworks.

Interpersonal skills as non-technical skills were regarded as important in the 1990s (Leitheiser, 1992). This was reconfirmed in 2006 (Banerjee & Lin, 2006). This research confirms the findings of the abovementioned scholars. What are, however, regarded as important in this study by the industry for business analysts, systems analysts and project managers, are not only interpersonal skills, but specific emotional intelligence competencies, namely emotional self-awareness, emotional awareness of others, emotional expression, emotional reasoning, emotional self-management, emotional self-control and emotional management of others. The data categories referred to the most that crystallised from the data were experience, communication, emotional self-management, emotional management of others, professional and emotional expression. The final list of 12 categories is presented in Table 4.3. Seven of the 12 final categories correspond to the 7 factors of the Genos EI model as presented in Table 2.14.

Participants in this study believed EI competencies influence successful functioning in business analyst, systems analyst and project manager roles. Organisations that participated in this research require their IT professionals to successfully manage emotions at work. This includes adjustment to negative emotional states and maintaining a positive disposition while at work. IT professionals need to be able to move on from an emotional setback and not dwell on the situation. They are also required to show a passion for what they are doing and have an optimistic outlook on life. They are also required to be assertive in expressing their emotions.

IT professionals are required to be able to manage successfully the emotions of others in the project environment. This includes motivating their fellow project members as well as managing the emotions of others by creating a positive working environment. This also involves assisting colleagues to solve issues that are causing distress in the organisation, as well as in the project environment. Being emotionally competent emerged as a requirement for project managers and business analysts. This involves acting appropriately in each situation. This is the core of EI and involves applying emotional self-management and self-control, as well as appropriate expression of emotions in daily interaction with colleagues and clients.

Appropriate expression of emotion is a key requirement in the project environment. Business analysts, systems analysts and project managers are required to express their emotions at the right time to the right people. This includes verbal or non-verbal communication, or a combination of both. Business analysts, systems analysts and project managers are also required to be emotionally self-aware. They require the ability to be aware of and understand their emotions. This involves understanding what they are feeling and why, as well as how their emotions may motivate or affect their thoughts and behaviours. It is recognised that it is not possible for IT professionals to leave their emotions at the door when entering the IS workplace. They need to manage their emotions in such a way that they work together to achieve the project goals.

Emotional awareness of others in their project environment is viewed as a desirable competency for business analysts and systems analysts, as well as for project managers. They need to be able to recognise emotions expressed by others in the IS workplace, either verbally or non-verbally. Essential to the awareness of the emotional state of others, business analysts, systems analysts, and project managers need to be empathetic, be team players, as well as be able to build and maintain relationships with project stakeholders. In addition to emotional awareness of others, emotional self-control is essential. Business analysts, systems analysts, and project managers need to have the ability to control their emotions in the IS workplace. Emotional reasoning is also seen as an essential ingredient for success in the role of the business analyst, systems analyst and project manager.

The interviewees in this study view EI of IS professionals as an essential element to deliver the business IS needs. Business – IT alignment will remain a challenge for IS development organisations if the development of the EI of business analysts, systems analysts and project managers does is not prioritised on the IS management agenda.

Although the EI of IS professionals is viewed as important, none of the 20 organisations make use of a psychometric test to assess the EI of candidates during the recruitment process. EI is assessed informally in conversation with candidates during the interview process. Formal EI assessment of business analyst, systems analyst and project managers during the recruitment process will assist IS development organisations to bridge the business – IT alignment gap, in recruiting candidates better suited to deliver on business IS needs.

5.3.2 EI and global professional guidelines

There are many gaps in the global professional guidelines. The European e-Competence Framework 2.0, the ETA competency model, and the Clinger-Cohen Core Competency model dominantly focus on technical skills required for IT professionals, with no explicit statement that EI has value. There is reference to personality characteristics and skills that also form part of certain EI models. It appears as if research since the mid-1990s suggesting EI impacts occupational performance has been ignored in these global professional guidelines. There is no mention of EI and there is no evidence that these guidelines recognise EI as a contributing factor to the performance of IT professionals. The fact that global professional guidelines, specifically aimed at guidance for equipping IS professionals with suitable skills and competencies to deliver on business IS needs, ignore EI, does not bode well for improved business – IT alignment. It is concluded that the European e-Competence Framework 2.0, the ETA competency model, and the Clinger-Cohen Core Competency model are incomplete, and as long as EI is ignored, the IS development industry will not utilise the full intended benefit of these global professional guidelines.

5.3.3 EI and certification

Certification as a business analyst, systems analyst or project manager, or the possession of educational qualifications, is not an indication that a person will be successful in that role. Participants in this study are of the opinion that certification merely indicates that the business analyst, systems analyst or project manager has knowledge of the theory, standards and best practices in the relevant discipline. Based on the findings in this study, it is concluded that IS development organisations do not regard certification as important for success. Certification and educational qualifications are not part of the primary recruitment criteria and therefore do not influence selection. Behavioural competencies and EI are of greater importance than certification or educational qualifications.

The *Guide to the Business Analysis Body of Knowledge*® (BABOK, 2009) ignores the construct of EI. No mention is made of EI as a contributing factor to the effectiveness of a business analyst. The *PMBOK*® *Guide* (PMBOK, 2013) is the only global guideline that refers to EI. It views EI as a behavioural competency as part of interpersonal skills. There is, however, no further indication in the *PMBOK*® *Guide* (2013) of which components of EI are required for effective project management. I am not convinced that this is a formal and focused recognition by the PMI of the potential contribution of EI to successful project management. It is concluded that the IIBA and PMI regard knowledge of business analysis

and project management processes as more important for successful functioning than specific behavioural and EI competencies of business analysts and project managers. Since certification and educational qualifications are not part of the primary recruitment criteria of business analysts, systems analysts and project managers, and therefore do not influence selection, it is concluded that there is a disconnect between the IIBA and PMI, and the IS industry employing business analysts, systems analysts and project managers. Certification bodies are not focusing on all the required ingredients needed to build a competent IS resource pipeline. As long as certification bodies ignore EI as part of certification requirements, business – IT alignment will be further negatively impacted by not equipping business analysts, systems analysts and project managers with the required EI competencies to complement the knowledge of relevant processes.

5.3.4 Experience

Experience as a business analyst, systems analyst or project manager, and knowledge of the industry they are functioning in, were preferred over formal qualifications and certification as a project manager or business analyst. This involves a track record of functioning in these roles as well as having business knowledge of the industry and knowledge of the systems used by the organisation. There is limited focus on recruiting entry-level business analysts, systems analysts and project managers, owing to the cost, agility and time pressures. IS development organisations do not necessarily have the funds available to spend on training entry-level IS professionals at the cost of further delaying the delivery of IS needs of business and negatively impacting business – IT alignment.

Experienced business analysts, systems analysts and project managers are in high demand. It is concluded that business – IT alignment will be further negatively impacted if IS development organisations do not focus on building a pipeline of business analysts, systems analysts and project managers. Experienced IS professionals will continually be recruited by competitors. Strategically, this gap needs to be filled by recruiting entry-level candidates and formally focusing not only on teaching them technical skills and knowledge of relevant processes, but also giving them formal coaching and mentoring them to develop EI.

5.3.5 Communication

Communication skills were found to be highly desirable for business analysts and systems analysts, as well as for project managers. The communication category includes being

approachable and having listening skills. Business analysts and systems analysts, as well as project managers, should be able to communicate effectively in written and oral form at all levels in the organisation. Clear expression to ensure a thorough understanding of what they are saying is a key requirement. As the war for IS talent continues, it is concluded that the best communicators will be in high demand. Staff turnover could potentially lead to an IS workforce with fewer communication abilities, thereby driving business and IT further apart. A lack of focus on coaching and mentoring business analysts, systems analysts, as well as project managers to effectively communicate with business representatives, could potentially lead to wasted IS development effort and delay in delivery of IS needs in expected timelines. This could lead to business users of IS being frustrated and disillusioned with IS delivery, negatively impacting business – IT alignment.

5.3.6 Professionalism and collaboration

Business analysts, systems analysts and project managers are expected to be professional in their dealings with project stakeholders. This includes behaviour, excellent standards of work, and appearance. They are expected to speak well, concern themselves with the facts, and not become emotional in their communication. In terms of excellence, IT professionals are expected to deliver high-quality work and not neglect their standard of project delivery. Participants in this study associate the appearance of business analysts, systems analysts and project managers with professionalism in the IS workplace. IT professionals need to be presentable. How they portray themselves is critical. Business analysts, systems analysts and project managers should ensure they portray a business-like appearance and should dress and operate in deference to their clients. Professionalism as a contributor to business – IT alignment should not be ignored. Collaboration is desirable for business analysts and systems analysts, as well as for project managers. Being a team player and able to work and play well with all project stakeholders is essential to improving business – IT alignment.

5.3.7 EI gaps in approaches to EA

The human is absent in approaches to EA used by business and IT stakeholders to address business – IT alignment. A gap exists in the various EA taxonomies, frameworks, methodologies and practices utilised by business and IT stakeholders to improve business – IT alignment. As long as non-technical skills and competencies required of the IS professionals utilising these EA tools are ignored, business – IT alignment will remain a

challenge and the tools such as SAM (Henderson & Venkatraman, 1990, 1993) and the Reich and Benbasat alignment model (Reich & Benbasat, 2000) developed by EA practitioners to improve alignment will not optimally fulfil their purpose. I conclude that the continued absence of the emotionally intelligent human in approaches to EA will contribute to partial business – IT alignment but will not solve the current business – IT challenges. Based on the findings of this study, I conclude that experienced, professional, emotionally intelligent IS professionals that are able to effectively communicate and collaborate with business are needed to align business and IT strategies.

5.4 Reflections on the research

This section discusses what can be learned from this research. Firstly, a methodological reflection is provided. This is followed by a substantive reflection relating the findings of this study to other research in the same area. The section is concluded with a reflection of what this study has contributed to the scientific body of knowledge.

5.4.1 Methodological reflection

Since the aim of this research study was not to generalise to the population but rather to deliver a descriptive analysis and deep understanding of the role played by the EI of IS professionals in the non-delivery of business needs to inform other research, I am of the opinion that the interpretivist, subjective, qualitative research paradigm was highly suitable. This assisted in focusing on the human in IS and especially the role in bridging the business – IT alignment gap during the SDLC. With reference to Burrell and Morgan (1979), the subjective ontological stance and the focus in the *radical humanist* and *interpretivist* paradigms were suitable for exploring the role of EI of business analysts, systems analysts and project managers in business – IT alignment.

In terms of research approach, the choice of an inductive approach was fit for purpose in understanding the context in which phenomena are taking place, as well as developing an understanding of the role played by the EI of IS professionals in the non-delivery of business needs by the IT department. The exploratory purpose of this study enabled me to gain a deeper understanding of the EI competencies needed by the business analyst, systems analyst and project manager to contribute to improved business – IT alignment. Considering the gap in literature in terms of documented research on the role of EI in the occupational performance of IS professionals, this exploratory study produced, in my opinion, new insights

in terms of the role of EI of IS professionals in delivering the IS needs of business (McMillan & Schumacher, 2010:53).

The mixed methods research design that was followed, combining quantitative data with qualitative data, definitely added depth and detail to my findings (Swanson & Holton, 1997:93). In my opinion, the mixed method design enhanced the credibility of the study (McMillan & Schumacher, 2010). Qualitative data collected during the interviews with IS managers were complemented by quantitative data from the EI assessment of IS professionals to provide a more comprehensive interpretation. Mixed methods were also found suitable for challenging the results from both methods (McMillan & Schumacher, 2010:405; Perry, 2012).

Qualitative data collection during interviews with IS managers was a time-consuming process. The interviews were conducted over a five-month period. The main reason for this extended period was the availability of IS managers as well as the willingness of IS development organisations to contribute to research in IS. This is a definite area of concern since there were organisations that rejected the invitation to participate since *'there was nothing in it for them'.*

Quantitative data collection was a challenge from a cost perspective. Most of the authoritative psychometric instruments to assess EI were found to be commercialised in South Africa. My experience was that very few instrument providers were willing to provide an EI instrument for research purposes for free or at an affordable cost. Despite limited EI research in the IS field, the prospect of providing EI research data of IS professionals for norming purposes, did not persuade instrument providers to allow the use of their instruments at affordable cost. I am highly grateful to Genos International for recognising the potential of this research study and subsequently supplying the Genos EI instrument for free.

5.4.2 Substantive reflection

The literature review established that specific mention of EI in the literature of strategic alignment, as well as of EA, is absent. No reference could be found to EI as a suggested element potentially contributing to business – IT alignment. At the time of writing this scientific reflection, the business case for EI as published by the global consortium of EI scholars still does not refer to the impact of EI on the occupational performance of IS professionals. Joseph et al. (2010:149) argue that despite the increasing importance of soft

skills, limited systematic research has conceptualised such skills for IS professionals. This study confirms that the gap in the literature still exists, and contributes to filling this lacuna.

5.4.3 Scientific reflection

This study suggests that experience and technical skills are the *sine qua non* for the business analyst, systems analyst and project manager. Knowledge of the processes as documented in the *PMBOK® Guide* (PMBOK, 2013) and the *Guide to the Business Analysis Body of Knowledge®* (BABOK, 2009) is essential. Certification as a business analyst, systems analyst or project manager is not essential. Knowledge and technical skills, however, are not enough for successful business – IT alignment. Knowledge and technical skills have become an entry-level requirement for business analysts, systems analysts and project managers in the SDLC. I contend that business analysts, systems analysts and project managers should acquire a wider set of non-technical emotional and alignment skills.

I propose a taxonomy of IT alignment intelligence for business analysts, systems analysts and project managers comprising five dimensions, namely, experience, communication, emotional intelligence (The Genos EI model), professionalism and collaboration. This taxonomy is illustrated in Figure 5.2 below.

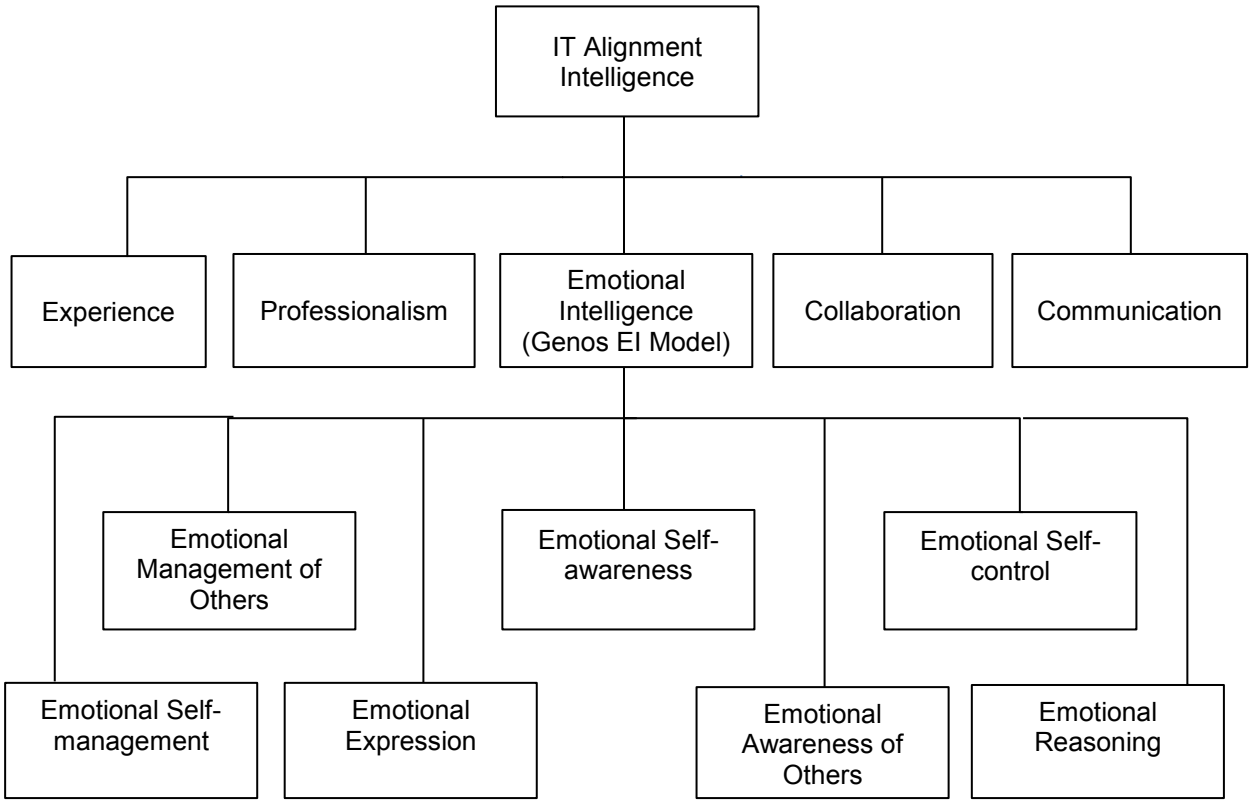

Figure 5.2: Taxonomy of IT alignment intelligence

This study contributes to the scientific body of knowledge by firstly introducing a new term to the literature, namely, “IT alignment intelligence”. At the time of writing this scientific reflection, no such term could be found in the literature. Secondly, the taxonomy of IT alignment intelligence is a unique and new contribution to the literature. This study suggests the above dimensions of IT alignment intelligence influence successful functioning in business analyst, systems analyst and project manager roles. More so, the components of the taxonomy are suggested key competencies required by business analysts, systems analysts and project managers to contribute to improved business – IT alignment. With reference to the problem statement, this study suggests that the EI of the business analyst, systems analyst and project manager does play a role in the delivery of business IT needs and contributes to improved business – IT alignment.

5.5 Recommendations

The following section provides recommendations for policy and practice as well as recommendations for further research.

5.5.1 Recommendations for policy and practice

The recommendations that I submit for policy and practice are focused on raising awareness in the IS industry of the impact of EI on occupational performance in general, as well as the need for emotionally intelligent IS professionals, specifically business analysts, systems analysts and project managers to contribute to business – IT alignment.

5.5.1.1 Amendments to the e-CF

The e-CF, as discussed in Section 2.10.2, is designed for use by ICT users, ICT supply companies, ICT practitioners, ICT managers, HR departments, the public sector, and educational and social partners across the European Union. I recommend that the e-CF be amended to refer to specific IT professional roles that play a role in each of the 36 e-competences. Subsequently, I recommend that each for e-competence, where there is interaction between business and IT/IS stakeholders, EI should be included as part of the competency requirements for specifically the business analyst, systems analyst and project manager. The recommended e-competence areas that need adjustment to include EI are as follows:

- A.1. IS and Business Strategy Alignment
- A.3. Business Plan Development
- A.4. Product or Project Planning
- A.5. Design Architecture
- A.6. Application Design
- B.1. Design and Development
- C.1. User Support
- C.2. Change Support
- C.3. Service Delivery
- C.4. Problem Management
- D.7. Sales Management
- D.8. Contract Management
- D.9. Personnel Development
- E.2. Project and Portfolio Management
- E.4. Relationship Management
- E.5. Process Improvement
- E.6. ICT Quality Management
- E.7. Business Change Management
- E.9. IT Governance

5.5.1.2 Amendments to the ETA competency model

The ETA competency model, as common language between educators and the IT industry, aims to assist academic institutions with the update of curricula, the IT industry with recruiting of IT professionals, and individuals with preparation for IT job opportunities. The model is also intended for use by academic institutions, government and the IT industry in building a pipeline of IT talent towards increased IT industry competitiveness.

I recommend that the personal effectiveness competency tier of the ETA competency model as presented in Table 2.16 be expanded to include EI as a competency needed by IT professionals. This will hopefully encourage academic institutions to include the awareness and development of EI in their curricula for training and development of the IT pipeline of resources. Hopefully this will also contribute to increased awareness of the contribution of EI to the IT industry by IT managers, and lead to EI development programmes for their business analysts, systems analysts and project managers.

5.5.1.3 Amendments to the Clinger-Cohen Core Competencies

Increased reliance on IT led to the development of the Clinger-Cohen Act of 1996. In collaboration with government, academia and the private sector, a set of core IT competencies were developed. The US federal CIOs are accountable to ensure that the core competencies are present and developed in their IT organisations to ensure the effective management and utilisation of IT. The core competencies are also used by the private sector as well as academia to recruit and develop IT talent.

I recommend that the Clinger-Cohen Core Competencies as listed in Table 2.17 be amended to specifically include EI as part of the leadership and management competency area. In terms of detail competencies, I recommend the inclusion of EI in the skills sets of IT managers such as the CIO as well as IT professionals (detailed competency area 2.1), specifically the business analyst, systems analyst and project manager as key role players in driving business – IT alignment. I also recommend the inclusion of the assessment of the EI of IT professionals as part of detailed competency area 2.2, which provides for competency testing in the form of standards, certification, and performance assessment. I also recommend the inclusion of EI assessment of IT professionals as part of detailed competency area 2.6, which provides for practices for the attraction and retention of qualified IT professionals.

5.5.1.4 Update of curricula

Higher education institutions in the field if IT/IS such as universities of technology, as well as training providers focusing on business analysis, systems analysis and project management, should focus not only on technical skills but the domains of the taxonomy of IS alignment intelligence as well when developing the supply pipeline of business analysts, systems analysts and project managers to address the delivery of business IS needs. As recommended by Banerjee and Lin (2006), I also recommend that higher education institutions should review the content of IS programmes at regular intervals to ensure that the pipeline being built fulfils the specific skills demanded by the industry as illustrated in the findings of this study and the taxonomy of IS alignment intelligence. I recommend, however, that higher education institutions in the field if IT/IS not only focus on technical skills, but specifically focus on addressing the demand for emotionally intelligent business analysts, systems analysts and project managers as illustrated in this study. This could be done by teaching IS students the theoretical background of EI, including its impact on occupational

performance. This could contribute to students becoming emotionally self-aware, as well as able to develop emotional awareness in others.

5.5.1.5 Amendments to the *BABOK® Guide*

The various knowledge areas in the *BABOK® Guide* (BABOK, 2009) are supported by underlying competencies for effective business analysis as illustrated in Table 4.11. These underlying competencies are defined as the skills, knowledge and personal qualities that support the effective performance of business analysis (BABOK, 2009:141). I recommend that EI be formally included as an underlying competency in the *BABOK® Guide* (BABOK, 2009). For the corresponding behaviours, characteristics, knowledge and personal qualities I recommend that each of the seven factors of the Genos EI model, namely emotional self-awareness, emotional expression, emotional awareness of others, emotional reasoning, emotional self-management, emotional management of others and emotional self-control should be included. Additional to the inclusion of EI in the *BABOK® Guide* (BABOK, 2009), I recommend that knowledge of EI and its importance be assessed as part of the CBAP certification requirements of the IIBA.

5.5.1.6 Amendments to the *PMBOK® Guide*

Section 4.6.5 illustrated the almost complete absence of EI from the *PMBOK® Guide* (PMBOK, 2013:17). Interpersonal skills are mentioned as part of the project management process development of the project team. In the summary of this process, EI is included as a behavioural competency inherent to interpersonal skills. I recommend that the PMI formally include EI as part of their list of interpersonal skills regarded as important to the success of the project manager. I recommend that knowledge of EI and its importance for project management be assessed as part of the PMP certification requirements of the PMI.

5.5.1.7 Expansion of the business case for EI

Section 2.9 discussed the absence of research on the relationship between EI and IS occupational performance in the business case for EI as published by the Emotional Intelligence Consortium (Cherniss, 1999). It is recommended that the research findings of this study be included in the above business cases to contribute to building the case for EI in IS development organisations, specifically in terms of the competency requirements of the business analyst, systems analyst and project manager.

5.5.1.8 IT Management awareness

Since organisations that participated in this research stated EI as a key requirement for business analysts, systems analysts and project managers, I recommend that IT management should incorporate Genos EI assessment as part of the recruitment, selection and promotion of business analysts, systems analysts and project managers. Based on the assessment, the impact of a deficiency in any one of the EI factors should be formally evaluated before a business analyst, systems analyst or project manager is selected or promoted. I also recommend that IT/IS organisations include EI development in the training provided to business analysts, systems analysts and project managers. EI should be taught along with aspects such as object orientated analysis and design, business analysis and project management. Emotionally intelligent individuals in the IT/IS organisation should be identified by means of formal EI assessment. These individuals should be utilised to assist business analysts, systems analysts and project managers with EI development by means of formal coaching and mentoring.

As part of the development of EI in the IT/IS organisation, I recommend that business analysts, systems analysts and project managers receive regular performance feedback based on technical and non-technical behavioural performance. As part of performance management, specific EI-related behavioural performance expectations should be incorporated into the key performance areas of business analysts, systems analysts and project managers to ensure that these development areas receive the required focus.

5.5.2 Recommendations for further research

As discussed in Chapter 2, no evidence of systematic research unpacking the relationship between EI and IT/IS professional roles such as the business analyst, systems analyst and project manager could be found in the literature. To address this gap, on-going research is essential. I suggest a quantitative analysis of the impact of EI on the performance of the business analyst, systems analyst and project manager. This should be done by examining large and diverse population samples. This could be done in the form of longitudinal studies utilising programmes such as the business and systems analysis programmes of the Cape Town IT Initiative (CapaCITi1000) or similar. In these programmes, entry-level students are formally trained for six months at a university after which they are placed as business analysts or systems analysts in IT/IS organisations. In collaboration with these sponsoring organisations, the impact of EI on occupational performance of business analysts and

systems analysts can be systematically researched, providing guidelines for these educational programmes.

During the interview process, one IT/IS organisation highlighted their experience that outsourcing development off shore and insourcing skills from countries like India bring cultural diversity challenges. In this context, I recommend further research to assess a potential difference in EI required from South African IT/IS managers to manage IT resources insourced from other countries, versus that required to manage South African IT/IS resources.

Challenges facing generation X IT managers were also highlighted. I recommend that research be conducted to investigate the level of EI required from generation X IT managers to ensure that they get the best from the generation Y IT workforce. This investigation into the impact of EI on IT/IS leadership could potentially contribute to bridging this gap in the literature.

The ability of individuals to successfully function utilising agile versus waterfall IS development methodologies was also raised during one of the interviews. I recommend research to assess if there a potential difference in EI profiles required for business analysts, systems analysts and project managers working in an agile IS environment versus those working in a waterfall environment.

5.6 Summary of recommendations

- IS managers should make use of the taxonomy of IT alignment intelligence as a guideline to recruit, select, develop and train business analysts, systems analysts and project managers.
- The e-CF should be adapted to include EI in each e-competence where there is interaction between business and IT/IS stakeholders.
- The personal effectiveness competency tier of the ETA competency model should be expanded to include EI as a competency requirement for IT professionals.
- The Clinger-Cohen Core Competencies should be amended to include EI as part of the leadership and management competency area.
- Higher education institutions in the field of IT/IS such as universities of technology should use the taxonomy of IT alignment intelligence as guidance when developing the supply pipeline of business analysts, systems analysts and project managers.

- Commercial training providers focusing on business analysis, systems analysis and project management should use the taxonomy of IT alignment intelligence as guidance when training and certifying business analysts, systems analysts and project managers.
- Higher education institutions in the field of IT/IS such as universities of technology and commercial training providers should formally focus on addressing the demand for emotionally intelligent business analysts, systems analysts and project managers.
- EI should be formally included as an underlying competency in the *BABOK® Guide* (BABOK, 2009).
- Knowledge of EI and EI competence should be assessed as part of the CBAP certification requirements of the IIBA.
- EI should be formally included in the *PMBOK® Guide* (PMBOK, 2013) as part of the list of interpersonal skills that the PMI regard as important to the success of the project manager.
- Knowledge of EI and EI competence should be assessed as part of the PMP certification requirements of the PMI.
- These research findings should be included in the business case for EI as published by the Emotional Intelligence Consortium.
- IT management should use the taxonomy for IT alignment intelligence as part of the recruitment, selection and promotion of business analysts, systems analysts and project managers.
- IT management should use the taxonomy for IT alignment intelligence as guidance for staffing project business analyst, systems analyst and project manager roles.
- IT management should formally use a psychometric instrument to assess the EI of business analysts, systems analysts and project managers during recruitment and selection, as well as when establishing a project team.
- Emotionally intelligent individuals in the IT/IS organisation should be identified by means of formal EI assessment. These individuals should be utilised to assist business analysts, systems analysts and project managers with EI development by means of formal coaching and mentoring.
- Specific EI-related behavioural performance expectations should be incorporated into the key performance areas of business analysts, systems analysts and project managers.

5.7 Limitations of the study

This study was limited to 19 organisations developing software in the Western Cape Province, South Africa and generalisation is therefore limited. The EI patterns identified among these 19 organisations were based on 16 business analysts, 22 systems analysts and 31 project managers completing the *Genos EI inventory.* A larger sample would have been ideal to build a more comprehensive EI landscape of business analysts, systems analysts and project managers in participating organisations.

The availability of IS managers for interviews was a challenge. Ideally, a larger sample of interviewees, opposed to the current 20, could provide more insight into the role of EI of IS professionals in the non-delivery of business needs by IS professionals. Although the research sample was relatively small, resonance was achieved. This was evident in the level of saturation obtained.

Another potential limitation of the study is the ability and performance of business analysts, systems analysts and project managers that completed the *Genos EI inventory*. It is not known whether these participants are good or poor performers. The aim was to assess typical performers in the roles of business analysts, systems analysts and project managers. It is assumed that since the participants were still employed at the time of completing the EI assessment, they are typical performers.

This study focused on the role played by the EI of IS professionals in achieving business – IT alignment. No attention was given to the EI of business representatives in achieving business – IT alignment. The EI patterns among business representatives should be determined. If accompanied by the opinions of business on the role played by the EI of business representatives in the non-delivery of business needs, this could create further insights into the business – IT alignment challenge.

The services of an external coder were not acquired as facilitation of inter-rater reliability. This is a limitation as the coding of data was done by the researcher and reviewed by the research supervisors.

A major limitation of this study is that no attention was given to the potential culture-based differences regarding the participants' responses to the questions in the *Genos EI Inventory*. Attention was not given to the composition of a sample consisting of white and black participants.

5.8 Last reflections

This study indicates a growing awareness that technical skills alone are insufficient for improved business – IT alignment. The IS industry shows some recognition of the role of EI in the delivery of business IS needs. It is not possible for IS professionals to leave their emotions at the door when entering the IS development organisation. Business – IT alignment will remain a challenge for IS development organisations as long as the human in IS development is ignored. Business analysts, systems analysts and project managers have to develop an understanding of their own emotions as well as an emotional awareness of others. As part of humanising IS work, the above IT professionals need to learn to manage their emotions. This may encourage business stakeholders to look beyond the typical stereotyping of IT professionals as “IT geeks”.

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