



**FACTORS AFFECTING THE AGILITY AND IMPLEMENTATION OF BUSINESS
PROCESS MANAGEMENT IN A SELECTED FET COLLEGE IN THE WESTERN
CAPE, SOUTH AFRICA**

by

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DECLARATION

I, Fradreck Nyambandi, declare that the contents of this dissertation represent my own unaided work, and that the dissertation 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.

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Date

ABSTRACT

The global business environment has for a number of years been changing progressively faster and as a result, organisations are concentrating on becoming more agile to survive the contemporary business environment. The educational institutions are un-spared from the fast, progressive change. This change is making it difficult for educational institutions to cope with the competitive environment, thereby affecting business agility and the implementation of Business Process Management (BPM).

This study seeks to explore what factors are affecting the agility and implementation of Business Process Management at a Further Education and Training (FET) college. The researcher of this dissertation's view of the world or ontology is that of subjectivism. The research design utilises an interpretivist approach with a qualitative paradigm orientation. Additionally, the study adopts an inductive approach or argument which upholds that true statements, one after the other, can lead to a probable accurate conclusion or theory.

This research uses a case study where data is gathered from key management staff and IT experts at the FET College (FETC), using semi-structured questionnaires by means of interviews. An overview of the findings indicates a lack of resources, lack of conduciveness to the teaching and learning environment, lack of collaboration, outdated curriculum, and resistance to change as factors impeding the FETC's ability to respond to the competitive environment and implementation of Business Process Management. The lack of capabilities, incorrect risk management, culture of change as well as non-alignment of business processes (BPs) with the vision of the FETC, are factors preventing the College from being more agile and creating value for its clients. Furthermore, there is a high misuse of the registration and bursary processes by students. To conclude, the FETC needs to find alternative means besides the main source—government—to source resources. The FETC needs to be more agile and flexible in order to retain clients and remain sustainable in the industry. Furthermore, the FETC needs to improve on its business processes (BPs) and physical security. It is recommended that the FETC manages the correct risks in order to change and remain competitive in the industry. The FET environment necessitates interconnected registration and bursary processes to optimise the use of resources. The registration processes need to be re-engineered in order to facilitate early registration. Security needs to be improved and effective strategic management put in place.

KEY WORDS, CONCEPTS AND DEFINITIONS

Keywords and concepts	Definitions
Business Process Management (BPM)	A management practice which encompasses all activities of identification, definition, analysis, design, execution, monitoring, measurement, and continuous improvement of BPs (Rohloff, 2010b:383).
Business Process (BP)	A standardised set of activities that accomplishes a specific task, for instance, processing a customer's order, delivering the customer's order, service after sales (Haag & Cummings, 2008:26).
Improvement	Making the BP more efficient and effective (Jeston & Nelis, 2006:35)
Management	Arranging people, their skills, motivation, performance measures, rewards, processes, structures, and the system to support a process (Jeston & Nelis, 2006:35),
Efficiency	Performing of an action in the least time, at low-cost, with the fewest errors (more outputs than inputs), that is, doing things right (Haag & Cummings, 2008:503).
Effectiveness	Doing the right thing, being the first in a race in business, thus speed is important (Haag & Cummings, 2008:322)
Agility	The capacity to react to unexpected change in an unpredictable environment and deliver value to customers in a reliable manner. It is also about balancing stability with flexibility, order with chaos, planning with execution, optimisation with exploration, and control with speed ($Or=(detection+flexibility)*reactivity$) (Kuettner, 2012; Grover, Sambamurthy & Barandwaj, 2003; Neunteufel, 2013)
Flexibility	Enables firms to respond to anticipated change within distinct constraints (Kuettner, 2012:345)
Business Process Design	Represents the fusion of information technology and management. Information technology provides the infrastructure and tools which fundamentally change organisations, but management provides the strategic business vision and mission that transforms technology into efficiency, effectiveness, and competitive advantage (Helmke, 2013a:5)
Re-engineering	Refers to rethinking the business environment and redesigning the most important processes, connecting organisational members with people such as customers and suppliers outside the organisation (Smith, Cronje, Brevis & Vrba, 2007:48)
Control	A process where management regulates and correlates action with plans; it is an important guide in the execution of plans, and it measures the performance of the whole organisation (Smith <i>et al.</i> , 2007:386)

Keywords and concepts**Definitions**

Competitive advantage

The ability of an organisation to add value for its customers more than its competitors and thus attain a position of relative advantages (Haag & Cummings, 2008:502)

Objectives

Comprise of business outcomes such as organisational and individual strategic goals (Jeston & Nelis, 2006:35)

LIST OF ABBREVIATIONS

Abbreviation	Word/Phrase/Term in full
ABC	Activity-based Costing
AET	Adult Education and Training
BAM	Business Activity Monitoring
BI	Business Intelligence
BP	Business process
BPC	Business Process Change
BPEL	Business Process Execution Language
BPM	Business Process Management
BPMN	Business Process Model Notation
BPMS	Business Process Management System
BPR	Business Process Re-engineering
BSC	Balanced Score Card
CBC	Consumption Based Costing
cBP	Collaborative Business Process
CI	Continuous Improvement
CRM	Customer Relationship Management
CSF	Critical Success Factors
DHET	Department of Higher Education and Training
DSD	Data Structure Diagrams
EA	Enterprise Architecture
EAI	Enterprise Architecture Integration
EMISA	Enterprise Modelling Information System Architecture
ERP	Enterprise Resource Planning
FET	Further Education and Training
FETC	Further Education and Training College
GET	General Education and Training
HET	Higher Education and Training
IT	Information Technology
KAI	Key Agility Indicators
KPI	Key Performance Indicators
NCV	National Certificate Vocational
RBV	Resource-based View
SBPM	Social Business Process Management
SANDP	South African Development Plan
SETA	Sector Education and Training Authority

Abbreviation	Word/Phrase/Term in full
SCM	Supply Chain Management
SOA	Service-Oriented Architecture
SOM	Semantic Object Model/Modelling
TVET	Technical Vocational Education and Training
UML	Unified Modelling Language
WCED	Western Cape Education Department

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DEDICATION

Praise, Astute, and Anotidaishe, you are my reason for being. Sekuru Fidelis, Regina, and Ruth Chikowo, you have been my pillars of strength. This is what you can deliver.

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CHAPTER ONE: INTRODUCTION AND BACKGROUND

1.1 INTRODUCTION

Many factors affect the agility and implementation of business processes (BPs¹) in organisations. The inability to adapt and the lack of agility in BPs and systems result in the inability to manage the demands of businesses in complex environments. In Chapter One the background to the study, including research gaps, are discussed. The discussion is followed by a presentation of the research problem, research questions and objectives. The chapter ends with a discussion of the research methodology, assumptions, aims, and an eventual summary.

1.2 BACKGROUND

Globalisation, internationalisation, the impact of the brain drain, knowledge economies, new knowledge platforms, and global and regional approaches to quality assurance are affecting and causing an increase in demand for education that are more than the physical or financial capacity (Adam, 2013; Bahr, Gross, Kelly, Slay & Christensen, 2013). Other factors that are causing an increase in demand for education are new generation and learning management systems as well as new technology such as nano- and biotechnology (Adam, 2013). Moreover, businesses are also facing serious concerns such as rapidly changing customer expectations, market demands, legal obligations, and economic, regulatory and technical environments that they need to continuously adapt to. This necessitates utilising opportunities, redesigning BPs, and adopting Enterprise Resource Planning (ERP), Enterprise Architecture (EA) and Social Business Process Management (SBPM) (Lafayette, 2010; Aier, Buck, Gleichauf, Matthes, Christian, Schweda & Winter, 2011; Jansen, 2012; Pourshahid, Amyot, Shamsaei, King, Musschubber & Weiss, 2012).

In the United States, Sub-Saharan and South African communities as well as tertiary institutions are facing rigorous financial support reductions and large enrolments (Bahr *et al.*, 2013; Otto & Musinguzi, 2013). One consequence of high student populations could be high staff–student ratios, which may cause a significant negative impact on student experience and probably high dropout rates (Shah, Lewis & Fitzgerald, 2011).

In Nigeria, higher education institutions are failing to overcome challenges such as the unwillingness to comply with regulations, financial constraints, inappropriate governance structure and culture, poor management of academic activities, poor

¹ Business Processes is shown as BPs and Business Process as BP throughout the dissertation

learning environments, and mismanagement of students' examination records (Alaba, & Arikewuyo, 2012). This resulted in the de-licensing and closure of seven universities in April, 2012 (Alaba & Arikewuyo, 2012).

The research focuses on a public higher education institution, specifically a Further Education and Training College (FETC) with similarities to tertiary institutions such as the importance of public higher education and private institutions economically, socially, technologically, politically and academically as well as the high numbers of enrolment that exist. Some or all of the above environmental complexities are affecting businesses (FETCs). Agility and the ability of speed to the market have become important prerequisites for FETCs in South Africa.

The South African FET system and some higher education institutions are ineffective and have insufficient critical skills, inadequate infrastructure, high competition between the private and public sector, and poor output quality (Van Rensburg, Davis & Cronje, 2010; South African Government, 2015). In addition, graduates find it difficult to secure employment. The South African National Development Plan (SANDP) (South African Government, 2015) highlights that South Africa intends to enrol 1.25 million students at FET colleges, deliver 30 000 artisans per year, and increase enrolments at universities from 950 000 in 2010 to about 1.62 million (a 70% increment) by 2030. More so, it anticipates to increase qualified doctoral staff in the higher education sector from 34% to over 75% by 2030 (thus, increasing doctoral graduates from 1 430 in 2010 to well above 5 000 per year). The large numbers are despite under-maintained and ineffective public services as well as inadequate and poorly located infrastructure. Additionally, it is also negatively affected by the shortage of qualified and experienced staff (South African Government, 2015).

Organisations interact with their environment and as the environment changes, organisations must adapt to these changes. Adaptation is one of the significant system characteristics that enable organisations to survive in dynamic environments (Smith *et al.* 2007). Organisations must also assess how redesigning their BPs can improve the organisation's potential for success and survival (Fernández-Ropero, Pérez-Castillo, Caballero & Piattini, 2012).

According to Horney, Passmore and O'Shea (2010), leadership agility is a necessity at the point in time of complexity, volatility, uncertainty and ambiguity of the environment. Kuettner (2012) suggests techniques such as ERP, BPM, Leadership Agility, Enterprise Modelling Information System Architecture (EMISA), Semantic

Object Modelling (SOM) and Service-Oriented Architecture (SOA) to manage competitive environments. According to Sommerville (2011:534), SOA refers to “an approach to software engineering where reusable, standardized services are the fundamental building blocks for an application system”.

SOA can also be denoted as “an approach to structuring a software system as a set of separate, stateless services. These may be provided by multiple providers and may be distributed. Typically, a transaction where a service is called does something and then returns a result” (Sommerville, 2011:502).

In a survey of 150 USA organisations in 2010, Luftman and Ben-Zvi (2011) identified that business agility and speed to the market were ranked second of the top five management concerns, while BPR was placed fifth. According to Nijssen and Paauwe (2012), organisational agility needs more research because organisations are affected by the competitive environment in one way or the other. Nijssen and Paauwe (2012) recommend explorative case studies to ensure the extraction of diverse information with regard to the organisational practices as dynamism impacts on the organisations. Van der Aalst (2013) argues that BPM has reached a maturity level, is accepted by academics, conferences and business stakeholders, and is an appropriate phenomenon in this competitive environment. Van der Aalst (2013) stresses that there are six significant areas which need research within BPM. The six issues consist of process modelling language, process flexibility, process mining, process model analysis, and process enactment analysis. Jeston and Nelis (2014:165) state that BPM “is more relevant than ever before and will assist in enabling management to achieve a competitive advantage in a turbulent environment”.

1.3 PROBLEM STATEMENT

The competitive environment affects the importance of business agility and speed to the market (Horney, Passmore & O’Shea, 2010; Luftman & Ben-Zvi, 2011). The inability to overcome and adapt to the competitive environment results in failure to achieve and maintain a continuous and sustainable increase in productivity (Ko, 2009; Alaba & Arikewuyo, 2012). This inability to adapt and the lack of agility in BPs and systems result in the inability to manage the demands of business in a complex educational environment.

1.3.1 Research questions (RQs) and sub-research questions (SRQs)

The research questions (RQs) and sub-research questions (SRQs) posed in an endeavour to answer the problem under investigation, are indicated in Table 1.1.

Table 1.1: Research questions, sub-research questions, methods and objectives

(RQs) and (SRQs)		Research methods	Objectives
RQ1	What are the factors that affect the agility of BPs and systems in a complex educational environment?	Case study Semi-structured questionnaire	Identify the factors that affect the agility of BPs and systems in a complex educational environment.
SRQ 1.1	What are the key agility indicators (KAIs) and critical success factors (CSFs) for FETCs to be agile in order to service their clients?	Case study Semi-structured questionnaire	Determine the key agility indicators (KAIs) and critical success factors (CSFs) for FETCs to be agile in order to service their clients.
SRQ 1.2	What are the risks of a competitive environment such as wherein FETCs operate on the perceived important 'business agility'.	Case study Semi-structured questionnaire	Ascertain the risks of a competitive environment such as within the FETCs on the perceived important 'business agility and speed to the market'.
RQ2	How can the agility of BPs and systems be improved to respond to the changing requirements in a complex educational environment?	Semi-structured questionnaires by means of interviews	Determine how the agility of BPs and systems can be improved to respond to the changing requirements in a complex educational environment.
SRQ 2.1	How does a competitive environment impact on the perceived importance of 'business agility and speed to the market'?	Semi-structured questionnaires by means of interviews	Discover how a competitive environment affects the perceived importance of 'business agility and speed to market'.
SRQ 2.2	How can FETCs manage the changing and competitive environment in order to execute the mandate government bestowed on them?	Semi-structured questionnaires by means of interviews	Establish how FETCs can manage the changing and competitive environment in order to execute the mandate government bestowed on them.

1.4 RESEARCH AIMS

The aims of the research are to explore and explain the factors affecting the agility and implementation of BPM at False Bay College in the Western Cape, South Africa. The study intends to discover new knowledge on the implementation of BPM in an unstable environment. Additionally, it aims to let the researcher understand and explain the risks involved in agility and the implementation of BPM in a competitive environment.

The research aspires to identify and obtain information on how to manage risks, BPM implementation, and methods to use in order to be more agile in a changing environment.

1.5 RESEARCH ASSUMPTIONS

This study recognises the following five assumptions:

- i) The BPM systems at the FET College are not properly implemented
- ii) The BPs are failing to adapt in a changing environment at the FET College
- iii) The FET College's BPs are inefficient and ineffective
- iv) Since the researcher of this study works at the FET College and selected the subjective ontology, playing a part in the research outcome was unavoidable
- v) The FET College has the capacity to adapt and change its BPs

1.6 RESEARCH METHODOLOGY

The research design follows an interpretivist approach with an interpretive paradigm orientation. A case study investigates a particular individual, group, program, entity or event (case) in depth for a defined period of time (Leedy & Ormrod, 2010). Yin (2009) expresses that case studies are used when the related performance cannot be controlled (in this study, factors affecting the agility and implementation of BPM in a volatile, uncertain, complex and ambiguous environment). Case studies provide a basis for scientific solutions.

The study is undertaken as a cross-sectional study. A cross-sectional study gathers data once or over days, weeks or months, while a longitudinal study does so over years in order to answer research questions (Saunders, Lewis & Thornhill, 2009).

This study employed a mixed analysis method (mixing qualitative and quantitative analysis). According to Trauth (2001), the qualitative analysis method selection is determined by the research problem (qualitative is for 'what?' and 'how?'), frequent use of the interpretive epistemological perspective, and the uncertainty surrounding the issue at hand (agility of BPs in the dynamic, unpredictable environment). The qualitative analysis method applies a variety of descriptive data collected through observation, interviews, or documentary analysis in a specific context. This study used non-probability (convenience or Information-oriented selection) sampling which is based on a 'key informants approach'. Fifteen (15) relevant individuals were non-randomly and purposively selected. The individuals have knowledge of the FETC's strategic, tactical and operational processes and were used as the units of observation.

Data was collected using semi-structured questionnaires by means of interviews. The data was transcribed, validated by the participants, coded, summarised, categorised, and finally a thematic analysis was done on the findings.

1.7 CONTRIBUTION

This research study contributes towards improving the implementation of BPM through the identification, elaboration and providing of recommendations that may be used by the FET College and other higher education institutions.

This research also provides a basis for further research on BPM implementation in the higher education sector in South Africa. The significance of the research is on how proper implementation of BPM could benefit the FET College. This research proposes guidelines (methodical model) for FETCs to utilise when evaluating, re-engineering and implementing their BPs. The motive is to expose the factors that affect the implementation of BPM systems and help in understanding the dynamics involved in the implementation. This research further contributes to the body of knowledge and provides a platform for future research. Furthermore, it highlights possible ways to adapt to the complexities of BPM implementation. This research produces a Master's dissertation concentrating on identifying the factors affecting the agility and implementation of business process management, including how to manage in a dynamic FET environment.

1.8 ETHICS

The term *ethics* refers to a set of moral principles which disapproves, assesses, recommends or interprets laws, human conduct, a group, or a professional body (Smith *et al.*, 2007; David & Resnik, 2011). Smith *et al.* (2007) indicate that ethics can be found at individual, company, association and international levels. Ethics is important because it upholds the aims of research, i.e. knowledge, accountability, mutual respect, trust, fairness, truth, and the prevention of errors. In addition, it helps to build public support for research and advances moral and social values such as social responsibility, human rights, animal welfare, compliance with the law, and health and safety (David & Resnik, 2011).

The following are some of the ethical principles as exercised by the author and that a number of systems concentrate on: honesty, objectivity, reliability, care, respect for intellectual property, privacy and responsible publication (David & Resnik, 2011).

1.9 STRUCTURING OF CHAPTERS

1.9.1 Chapter One: Introduction and background

The first chapter introduces the overview of the research in terms of the background and the introduction to the study. It also specifies the research problem, research question and sub-research questions together with the associated objectives. It illuminates the rationale for undertaking this research, providing details on its

contribution and significance to the research community, Technical College and other higher education institutions in South Africa. It concludes in giving a synopsis of the study.

1.9.2 Chapter Two: Literature review

This chapter elevates the literature exploration. It starts by defining concepts and discussing BPM context, its history, construction of BPM, and critical success factors in the agility and implementation of BPM in an educational environment. Additionally, agility and environmental effects on the organisational performance is expounded on with the review of the literature. Appreciation of the paybacks and concerns linked to the agility and implementation of BPM is also aided by the critical review of the literature. Resource-based View (RBV), Continuous Improvement (CI) and Business Process Re-engineering (BPR) are evaluated. Chapter Two concludes with a synopsis and a proposed theoretical framework.

1.9.3 Chapter Three: Research design and methodology

This chapter concentrates on the research design and methodology. The main underpinning information and the case study settings are presented. Chapter Three reveals the study's research design and methodology and includes discussions on the following areas: i) research design background; ii) the theoretical directions related to BPs and the traditional theories which consist of the positivism, interpretivism and critical realism philosophy methods, strategies and theory development; iii) data collection, data analysis, qualitative research evaluation techniques and the synthesis of data; and iv) ethical concerns and delimitations. The chapter concludes with a brief summary.

1.9.4 Chapter Four: Data analysis and research findings

This chapter gives the significance of the findings. It presents and illustrates the main findings from the 15 interview participants and FET documents (four of the fifteen participants have cross-industry experience and are well versed and familiar with FETC processes), and themes that emerged from the interview findings.

1.9.5 Chapter Five: Discussion

The main objectives of this research are to: i) identify the factors that affect the agility of BPs and systems in a complex educational environment; ii) determine how the agility of BPs and systems can be improved to respond to the changing requirements in a complex educational environment at a FET College in the Western Cape province of South Africa; and iii) integrate and assess the results of

the literature study with the results of the empirical study to respond to the research questions.

In this chapter, the case study is presented to provide the setting in which the study was undertaken as well as the conceptual framework. The research findings are then narrated along the thematic lines that emerged from the data analysis and findings presentations. The findings of the study contribute to existing and current research on factors affecting the agility and implementation of BPM in a dynamic educational environment.

1.9.6 Chapter Six: Conclusion, recommendations and reflection

The chapter integrates the findings of the literature study with the results of the empirical study to respond to the research questions. The chapter also presents the conclusions, recommendations and reflections.

1.10 SUMMARY

Chapter one described the research problem, namely that the inability to adapt and the lack of agility in BPs and systems result in the inability to manage the demands of business in a complex educational environment. The following two main research questions were posed:

RQ1: What are the factors that affect the agility of BPs and systems in a complex educational environment?

RQ2: How can the agility of BPs and systems be improved to respond to the changing requirements in a complex educational environment?

The aims of the research have been stated as exploring and explaining the factors affecting the agility and implementation of BPM at False Bay College in the Western Cape, South Africa. A subjective and interpretivist stance was followed as research philosophy. The research approach was inductive with a case study strategy. Data collection was done by interviews and an interview guideline. Data was summarised and categorised, and a thematic analysis process was followed.

In the next chapter, the significant areas of literature are critically reviewed in order to prepare for chapters Three and Four and have a foundation for the research.

CHAPTER TWO: LITERATURE REVIEW

2.1 OVERVIEW

The aim of the research is to explore and explain the factors affecting the agility and implementation of BPM at False Bay College in the Western Cape, South Africa.

The objective of the study is to identify the factors that affect the agility of BPs and implementation of BPM and to determine how the agility of BPs and systems can be improved to respond to the changing requirements in a complex educational environment.

The following areas are reviewed after identifying keywords from the problem statement, research questions and aims of the study. As the review progressed, keywords were added and reviewed. The factors affecting the agility and implementation of BPM being reviewed are: context of the agility and implementation of BPM; history and constructs around BPM; critical success factors in the agility and implementation of BPM in an educational environment; agility and environmental effects on the organisational performance is illuminated with the review of the literature; and an understanding of the benefits and issues related to the agility and implementation of BPM is also facilitated by the critical review of the literature.

RBT, CI and a re-engineering perspective as factors to improve organisational performance are assessed in the literature review. A summary of literature on factors affecting agility and the implementation of BPM as well as a theoretical framework are provided.

To conduct this literature review, the researcher used multiple information sources including dissertations, newspapers, institutions' study guides, professional journals, websites, text books, and institutions publications. These sources were accessed using databases such as Emerald, Google Scholar, ProQuest, Scopus and EBSCOhost. In the review, the researcher attempted to point out and discuss important gaps and exclusions in specific sections of the literature as and when it becomes superficial.

The world is changing through technological improvements and as such, South Africa, FETCs and lecturers need to be equipped to teach students the skills required to succeed in the 21st Century. Students need these skills to adapt to new economic, social, technological, political and environmental spheres as they enter the job market. This calls for collaboration, communication, critical thinking,

creativity, and cross cultural competence within the FET environment and curriculum.

Technical and vocational education as well as adult education has been marginalised, with poor financial backing and a lack of resources. Former FET colleges have a poor public image (this is because they are now called Technical Vocational Education and Training [TVET] Colleges) (Nzimande, 2015). They became institutions that most people went to because they could not get entry into a university. This is a major problem for the country as the vocational programmes offered in the colleges are needed by the economy (Adam, 2013; Nzimande, 2015)

The Department of Higher Education and Training (DHET) was established in 2009, after the President divided the Department of Education into two, thereby forming the Department of Basic Education focusing on school education, and the DHET focusing on Post-School Education and Training (PSET). This strategy was implemented to ensure that the country responds with greater efficiency to the skills shortage, resources problems and higher education challenges (Manana, 2015).

To solve the current skills challenges facing FET, a conference held in Mpumalanga in 2015 was held to review the progress made by FET Colleges regarding 'the year of the artisan', 'the decade of the artisan', college governance and management, and the usage of technology. In addition, the initiative of workplace-based experience (WBE) was introduced in 2009 to give graduates and/or students a chance to experience a real life working environment to assist them in preparing for the world of work. For instance, the Northlink-Transnet-partnership is an example where Transnet is sending its employees to Northlink FET College to learn and acquire skills and qualifications, while Transnet has provided the opportunity to recruit top students for training and employment (Bunyula, 2015).

2.2 CONTEXT OF AGILITY AND IMPLEMENTATION OF BPM

European higher education is facing globalisation, disruptive technologies, internationalisation, high student drop-out rates and longer completion periods for programmes (Christen, Henry, & Eyring, 2012; Adam, 2013). Additionally, the European higher education is stumbling on outdated curriculums, poorly articulated learning pathways, high graduate unemployment rates and high student enrolments. According to van Rensburg, Davis and Cronje (2010) and Adam (2013), South Africa is facing the same challenges. Some of the challenges include inefficiency, inadequate resources, ineffectiveness and resistance to change in the educational system.

Historical change is categorised into revolutionary (for the 21st century in a conceptual age) and evolutionary (for the 18th to 20th century in the agricultural, industrial and information age) change (Stoddard & Jarvenpaa, 1995; Van Rensburg, Davis & Cronje, 2010). Evolutionary change is predictable and can happen slowly with incremental improvements (usually bottom-up stirred), while revolutionary change can be sudden, volatile, discontinuous and complex, and results in radical changes (generally top-down determined). According to Stoddard and Jarvenpaa (1995) as well as Pendleton and Furnham (2012), revolutionary changes created for instance by Hitler, Engles, Lenin, Mandela and Thatcher, generate energy for change through politics and economics. In contrast, theorists of evolutionary changes such as Cuban leaders and Karl Marx's communism (1818-1883) argue that change has to be adapted to people (Burrell & Morgan, 1979; Mostert, Oosthuizen, Smith & van der Vyver, 2002).

Theories such as Taylors' Scientific Management, BPM, ERP, BPR, Supply Chain Management (SCM), Total quality Management (TQM), localisation, Africanisation, Globalisation, and Internationalisation affect the ability of organisations to adapt to change and force them to become more agile (Louw & Venter, 2010; Van Rensburg, Davis & Cronje, 2010; Marjanović & Freeze, 2011; Pendleton & Furnham, 2012). Localisation refers to the shift in economy, from symbiotic connectedness of the global system to discrete national markets as viewed by van Rensburg, Davis and Cronje (2010). In research conducted on three organisational change studies, Stoddard and Jarvenpaa (1995) found that change can result in efficiency, effectiveness or transformation. Thompson and Martin (2010) state that people defend against loss and not change, which can be managed through the following techniques: supporting change; having a clear mission and vision; manage informational, interpersonal and decision making roles; empowering and leading people; and being proactive.

According to Kuettner (2012), change is an important aspect in the social order and drives organisations to acclimatise to their competitive environment with escalating speed. Kuettner (2012) also mentions that business software systems and ERP are components which can manage organisational operations in competitive environments. Business software systems formalise BPs although they constrain agility. ERP enables organisational flexibility and agility. Agility is explained as the capacity to react to unexpected change in an unpredictable environment, and flexibility enables firms to respond to anticipated change within distinct constraints (Grover, Sambamurthy & Barandwaj, 2003; Kuettner, 2012). The competitive business environment necessitates effective BPs to accommodate changes, for

example in new laws and strategy or emerging technologies (Van der Aalst, 2013). Van der Aalst (2013:25) identifies the following three process flexibility forms:

- i) Flexibility by definition (ability to include different execution paths within a process at design time)
- ii) Flexibility by deviation (the ability for a process to swerve at runtime from the original execution path prescribed without altering the process definition itself)
- iii) Flexibility by under-specification (the ability to execute an incomplete process specification)

A momentary change is one which affects the execution of one or more selected process instances. More so, agile business software must adapt to unforeseen change in different proportions such as quantities, velocity, organisational structure, or business processes. Kuettner (2012) explains that business software agility is enabled by functional, architectural and information and technological (IT) capabilities which include human capital and infrastructure. This is illustrated in Figure 2.1, depicting a business software agility framework (Kuettner, 2012:345).

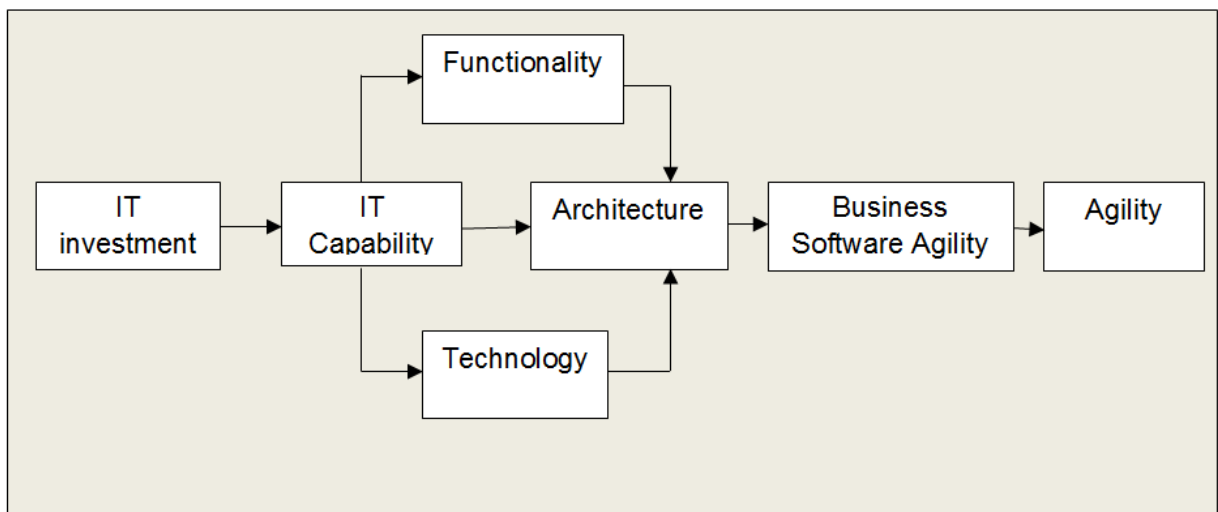


Figure 2.1: Business Software Agility Framework
(Kuettner, 2012:345)

According to Marjanović and Freeze (2011), BPM is a strategy which enables firms to survive in a complex environment. In addition, BPM focuses on value creation, improvement, innovation of a range of processes, functions, and even across organisational margins. The complexity of BPs makes it difficult for many organisations to be able to adapt and achieve desired benefits of BPM such as

having a continuous and sustainable increase in productivity (Davenport, 1993; Jansen, 2012).

Although BPM systems are important, understanding them for their implementation is still a difficult task (Jeston & Nelis, 2006; Rohloff, 2010a; Seethamraju, 2012). Cardoso, Mendlind, Neumann and Reijer (2006) affirm that complexity impacts on the correctness, maintainability and understandability of BP models. BPM systems refer to the distinctive outcomes of improvements in both the business and IT fields (Rohloff, 2010a). The most important influential improvement from the business domain is TQM. Business Process Management System (BPMS) approaches exist within the IT field, some of which include continuous process improvement, workflow management, reference modelling and other standard enterprise applications (Rohloff, 2010a). In addition to Rohloff (2010a), Reiss (2011) outlines the following improvement methods or change management techniques in the current management frameworks: e-business, knowledge management, lean management, agile management, virtualisation and globalisation.

According to Horney, Passmore and O'Shea (2010), leadership agility is a necessity at the point in time of complexity, volatility, uncertainty and ambiguity of the environment. The authors add that these environmental characteristics are regarded by the US Army War College as the 'VUCA (Volatile, Uncertain, Complex and Ambiguous) environment'. Horney, Passmore and O'Shea (2010) further state that leadership agility is about having the capability of the leadership to i) reliably assess, ii) decide with accuracy, caution and acumen, and iii) respond to changes in the business environment. More so, responses are made with focus, speed, flexibility and concern (which are key agility indicators). Horney, Passmore and O'Shea (2010) found that organisational performance is higher for those who anticipate and initiate change than those who do not. In addition, organisational performance is also higher for those who manage and respond to strategic risks than those who do not manage their strategic risks.

Implications of Figure 2.2 are that highly complex organisations combined with a high requirement for change necessitates highly transactional and transformational leaders. In contrast, organisations which are not complex and need fewer changes require low transactional and transformational leaders. Additionally, those organisations with low complexity in need of more changes require high transformational and low transactional leadership. Furthermore, organisations which are highly complex with a lesser degree of change necessitate low transformational and high transactional leadership.

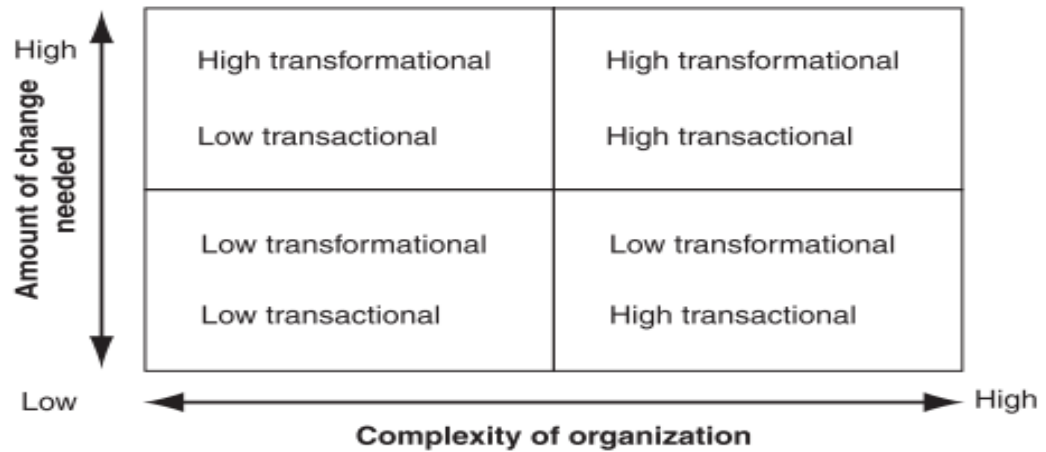


Figure 2.2: The difference between transactional and transformational leadership
(Pendleton & Furnham, 2012:19)

Adam (2013:15) found that the following topics are under debate in educational institutions and need further research:

- Global student mobility (with incentives, barriers, balances and imbalances)
- Global and regional approaches to quality assurance
- Public responsibility for higher education
- Contributions of higher education reforms to enhance graduate employability
- Meaning of globalisation and internationalisation of education

Globalisation refers to the shift in the world economy away from national economies and distinct national markets to an interdependent and interlinked global economic system (Louw & Venter, 2010). Internationalisation refers to policies and programmes adopted by governments and academic systems and subdivisions to deal with or take advantage of globalisation (Adam, 2013). Ukepe (2007) mentions that globalisation results in some of the following problems: low wages, job destruction and losses, casualisation of labour, more expenditure on advertisement and less on workers, restricted labour mobility, protests, child labour, and erosion of labour unions' power and that of industrial democracy.

On the other hand, capitalist globalisation has brought benefits such as openness and free exchange of knowledge, ideas, goods and services through IT and other means.

Change can be revolutionary or evolutionary and affects the ability of regions and organisations to become more agile, continuously improve and sustain productivity, and capitalise on BPM implementation. Furthermore, the alteration of the *status quo* of each organisation or region is indiscriminate. In case study research it is argued

that the competitive environment necessitates assigning effective and appropriate leadership to lead and govern FETCs. Additionally, the volatility, unpredictability, ambiguity and complexity of the environment necessitate the concerted efforts (to maintain sustainable productivity) from both the business domain and IT realm, making it mandatory for practitioners or stakeholders to know the environmental characteristics and how to manage revolutionary change. Furthermore, globalisation and internationalisation have benefits and limitations in the competitive environment and as such, managers must know how to manage opportunities and limitations.

2.3 HISTORY AND CONCEPTS AROUND BPM

The objective of this section is to provide an overall understanding of the notions and knowledge relevant to BPM. BPM refers to “an integrated system for managing and improving organisational performance, through innovations adopted since civilization” (Brocke & Rosemann, 2010:3).

Jeston and Nelis (2014) point to the fact that BPM represents the achievement of an organisation’s objectives through the improvement, management and control of BPs. It is also regarded as “notions, systems and procedures to support the organisational processes” (Weske, 2007:5). There is no clear agreement among academics as to the domain where BPM is originating from. Ko (2009) argues that BPM evolved from the business realm. It began as TQM to BPR to BPM, which evolved into BPMS. Ko (2009) states that originally organisations used to manually operate transactions, and the revolutionary need for electronic transactions brought about BPM to manage the dynamic environment. The BPM illustration (Figure 2.3) by Ravesteyn and Batenburg (2010:10) evolved from a combination of the business and IT domains. Van der Aalst (2013) argues that BPM originated from workflow management (WFM) (a system which concentrates on activities automation and depends on software to manage, control and support operational processes). Van der Aalst (2013) adds that BPM has a broader scope i.e. from process automation and process analysis to operations management and the organisation of work. The BPMS also includes outcomes of improvements in both the business and IT fields (Ravesteyn & Batenburg, 2010). Ko (2009) points out that BPMSs form the second largest integrative software market segment.

Ravesteyn and Batenburg (2010) indicate that there are a variety of evolutionary systems following BPMSs, namely the TQM, BPR, WFM and ERP which are software systems focusing primarily on internal operations of an organisation, the integration of functional and cross-functional BPs, and supporting multiple

languages and currencies (Ravesteyn & Batenburg, 2010; Helmke, 2013b; Van der Aalst, 2013).

TQM is a management philosophy driven by competition and the need for continuous process improvement, learning and delivering value to customers (Smith *et al.*, 2007). Smith *et al.* (2007) describe TQM as the management of quality involving all stakeholders in an organisation and delivering quality to the customers. Literature on BPR indicates that it is still a much debated topic among academics (Davenport, 1990; Zellner, 2012; Helmke, 2013b). BPR refers to re-evaluating what the institution is all about, supposing that the processes in operation are irrelevant and broken, and that there should be new processes. It becomes successful if external factors make it unavoidable and if it is backed by top managers, focusing on what customers value and involving everyone (Jeston & Nelis, 2006). Hammer and Champy (1993) regard BPR as the ultimate reconsideration and drastic remodelling of BPs to achieve vivid improvements in significant performance measurement areas such as budget, amenities, value and agility. Murphy and Simon (2002) explain that Enterprise Architecture Integration (EAI) facilitates an association, improved customer access, customer service, and/or satisfaction on a single integrated IT system. EAI is an integration of IT architecture with business architecture, according to de Vries and van Rensburg (2008).

Figure 2.3 shows the BPMS as a result of the long prevailing business and IT innovation and operation process improvements. The figure reveals BPMSs (new application systems) as a result of long prevailing business and IT innovation and operation process improvements. It reveals that BPM enables the flexibility and adaptability of processes and information systems. In addition, it shows that BPM is not a new phenomenon (Ravesteyn & Batenburg, 2010:10).

The view put forward by Ravesteyn and Batenburg (2010) is that the critical success factors (CSFs) in the implementation of the BPMS enable organisations to improve on services and data quality. Furthermore, the main dimensions of BPMS projects are management and organisation as well as architecture and IT integration. Helmke (2013a) illustrates the origins of BPM in the 1980s from TQM through optimisation of special functions, as shown in Figure 2.4.

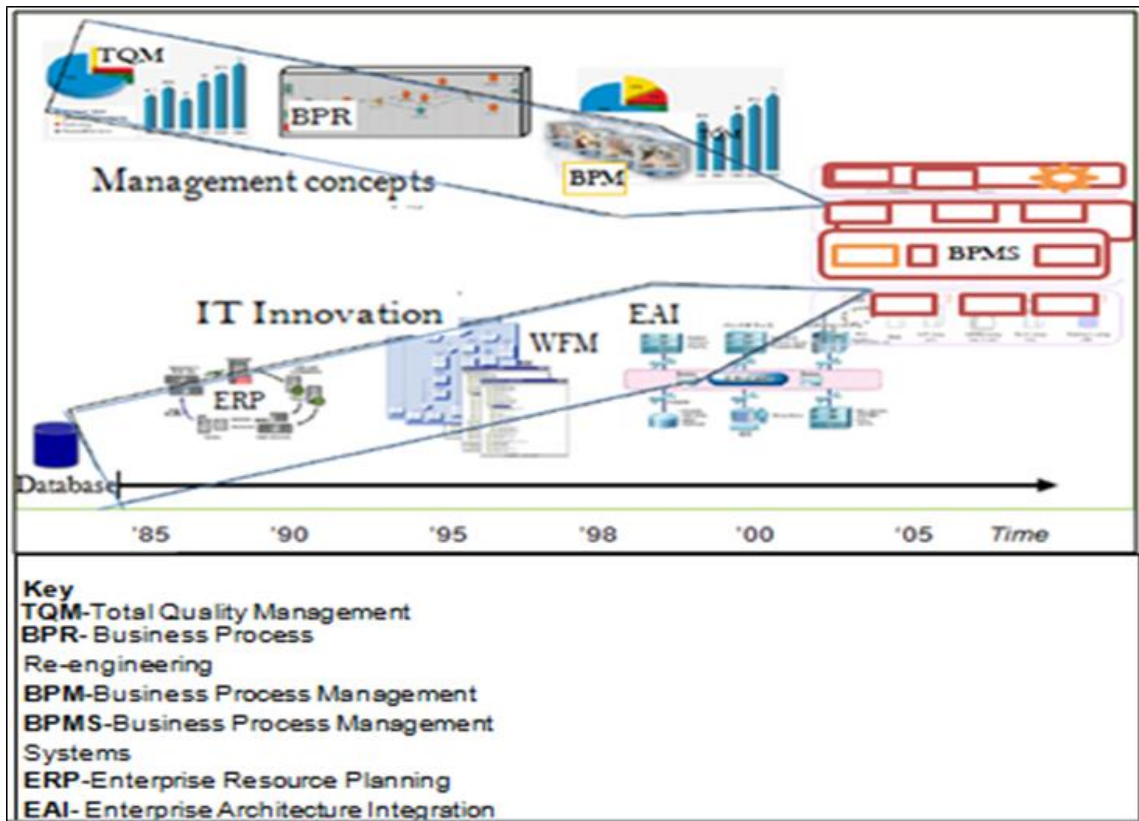


Figure 2.3: Historical graphical map to BPMS
(Ravesteyn & Batenburg, 2010:10)

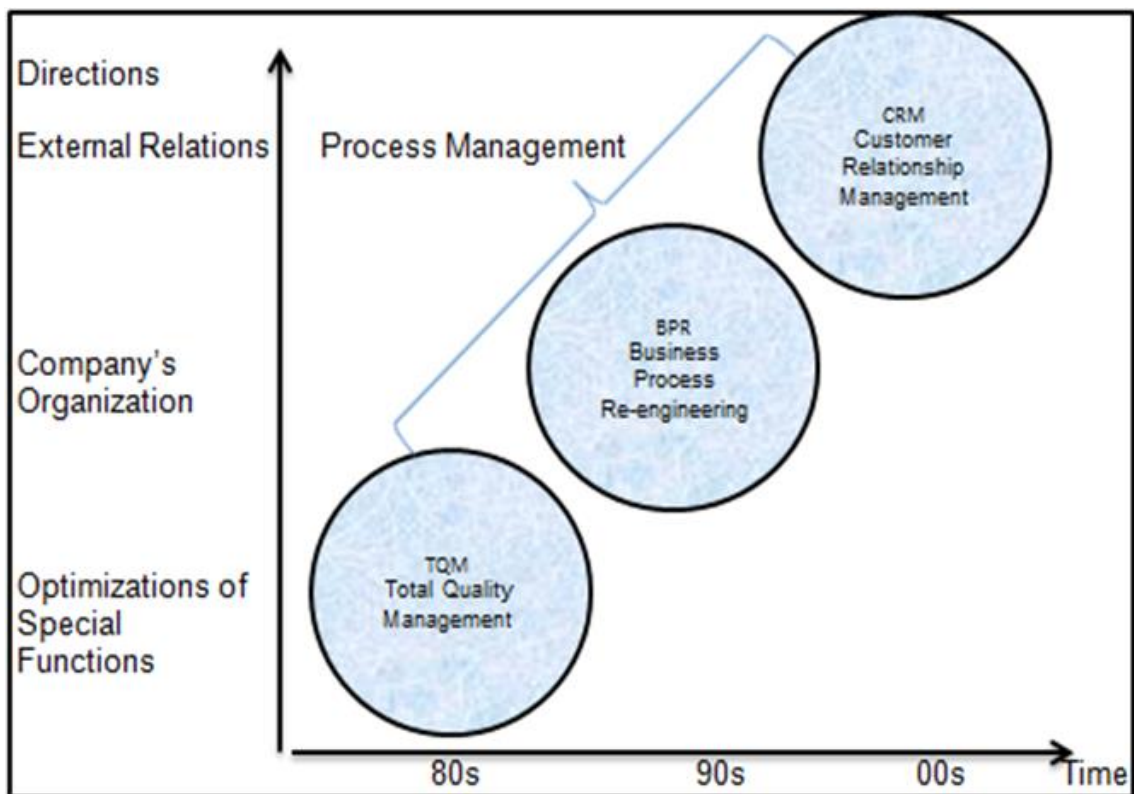


Figure 2.4: The development of BPM
(Helmke, 2013a:10)

Figure 2.4 illustrates the origins of BPM (in the 1980s) from TQM through the optimisation of special functions. BPR was dominant in the 1990s and recognised organisational processes as broken, needing re-designing. Customer relationship management (CRM) prevailed in the 20th century and was externally oriented. A combination of all these resulted in BPM. Helmke's (2013a) stance does not explicitly illustrate the significance of the IT realm in the development of BPM.

Jurisch, Palka, Wolf and Krcmar (2014) mention that the elements of BPM and business process change (BPC) are categorised into revolutionary and evolutionary processes. Evolutionary change is slow and produces incremental change while revolutionary is unpredictable and sudden, and produces considerable changes (usually top-down) (Stoddard & Jarvenpaa, 1995; Van Rensburg, Davis & Cronje, 2010). Van der Aalst (2013) mentions that BPM consist of four key activities: i) modelling (constructing a process model for analysis or performance representation purposes); ii) execution (utilising a process model to drive and support existing circumstances); iii) analysing (evaluating a process using a process model); iv) managing all other activities related to process models. Jurisch *et al.* (2014) illustrate the elements of BPM in Figure 2.5.

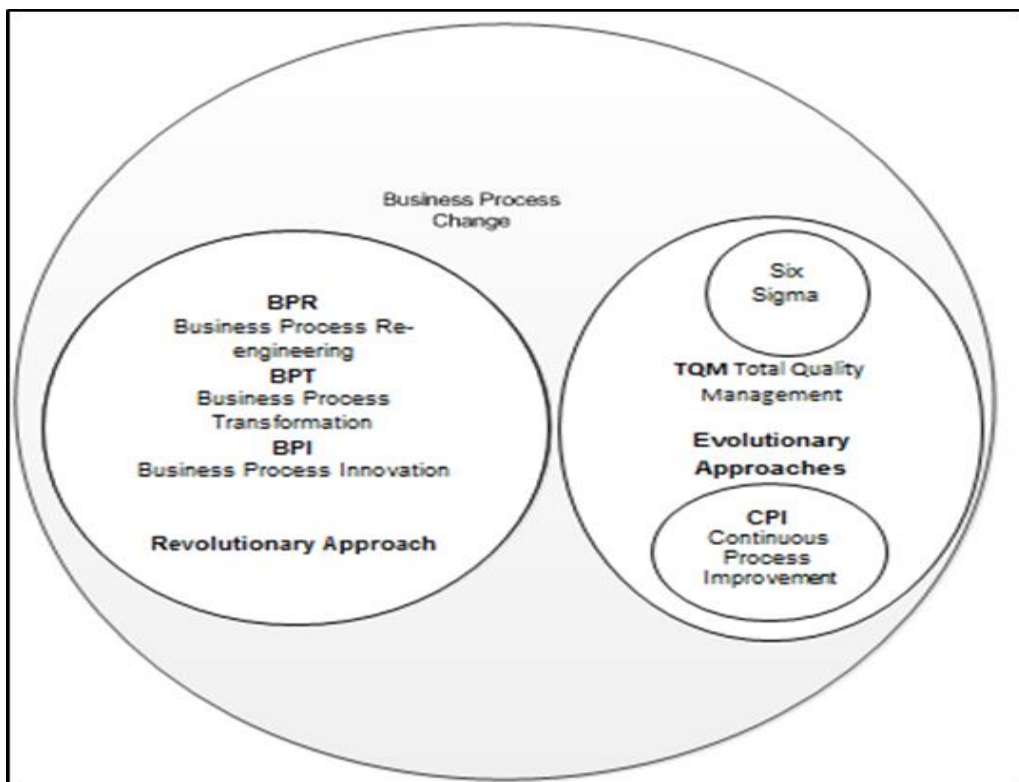


Figure 2.5: The revolutionary and evolutionary elements of BPM
(Jurisch *et al.*, 2014:50)

The revolutionary elements include BPI, BPR and BPT, while evolutionary aspects consist of TQM, Six Sigma and CIP (Figure 2.5).

Six Sigma denotes a popular and effective quality control tool which organisations can use to set performance metrics, a methodology, a management system or standard, and eliminate errors (Smith *et al.*, 2007:44). Sigma refers to a deviation where the Six Sigma defect rate is six standard deviations above the mean rate and is obtained when an organisation produces a mere 3.4 *defects per one million opportunities* (DPMO) (Smith *et al.*, 2007).

2.4 BUSINESS PROCESS

Haag and Cummings (2008:26) refer to BP as “a standardized set of activities that accomplishes a specific task, for instance processing a customer’s order, delivering the customer order, service after sale and so on”.

Li and Chang (2014) identify input, resources, structure, activities, output, customer and value as elements of a BP. Li and Chang (2014) also concur with Alde (2013) on categories of BP elements namely objectives, process-owner, resources (which include people, technology, methods and information systems), customer requirements, and results for the customer.

According to Weske (2007:5), BP consists of “a set of activities that are performed in coordination in an organisational and technical environment to achieve a business goal”.

Each BP is enacted by a single organisation, but it may interact with BPs performed by other organisations. To improve organisational objectives, efficiency and effectiveness, organisations need to assess how redesigning their BPs can improve the organisation’s potential for success and survival (Fernández-Ropero *et al.*, 2012). The above definitions have a limitation in that they do not highlight the weaknesses (shown by the word gap) of BP as well as the elements earmarked by the word system on the ensuing definition. The researcher of this dissertation defines BP as a consolidated system that indicates how to fulfil stakeholders’ expectations and identify product or service gaps.

Gritzalis, Stavrou, Kandias and Stegiopoulos (2014) mention that BP is designed to be operated either manually or computer-based (e.g. ERP). Additionally, one or more functional units can operate BPs. Gritzalis *et al.* (2014) point out that even though BP modelling is customer-oriented and increases flexibility and competitiveness, it does not emphasise the necessary built-in security of BPs.

Security also considers access control, online monitoring, process participant factor, and use of modelling language such as Unified Modelling Language (UML) and Business Process Management Notation (BPMN) (which are symbols or diagram language which reveal the business process flows.) (Alde, 2013, Gritzalis *et al.*, 2014).

Gritzalis *et al.* (2014) recommend that in order to enhance security, BPs must include the following security requirements: user authorisation and authentication, supervise processes execution (BP auditing), and confidentiality and data integrity which ensure that a corrupted BP does not lose data. Gritzalis *et al.* (2014) also applaud security enhancement through designing secure processes which use BPMN, operation and economic risk assessment, monitoring the employees, organisation and BPs, and monitoring the staff through social media and alerts.

Ko (2009) categories BPs into two main clusters: private BPs which can be at strategic, tactical or operational level and deal with internal operations, and public BPs, also called collaborative BPs (cBPs), which deal with external organisations and are becoming more important due to globalisation, increase in demand for goods and services, and the need for speed to the market as well as agility and competition.

BPMN enables the organisation to have abstract BP communication activities (Weske, 2007). Weske (2007) explains that collaborative BPs consist of two or more public processes which are combined to describe the behaviour of all participants involved in a business-to-business (B2B) collaboration. Additionally, only activities that demonstrate communication behaviour are presented.

Van der Aalst (2013) found that processes can be classified into the following three groups:

- i) Human-centric or person-to-person (P2P) where people interact with each other, for example project managers
- ii) Person-to-application (P2A) in which transactions involve people only or applications only without human inputs, for instance on workflow management (WFM)
- iii) Application-to-application (A2A) where software systems interact on their own, as on websites. A website is a collection of related web pages and associated items such as documents and pictures, stored on a web server (a computer which delivers requested web pages to your computer and can store multiple web sites) (Shelly, Cashman & Vermaat, 2008)

Ko (2009) highlights that BPM takes place on three main levels and elaborates on responsibilities which consist of the implementation level where projects are meant to develop resources for processes, the business level where process redesign projects are conducted, and the enterprise level where strategies and process management planning takes place. Ko (2009) as well as Lux, Hess and Herterich (2013) demonstrate that BPs can run at two levels; but Ko (2009) goes a step further and combines these two (business and strategic) levels.

At strategic level, Lux, Hess and Herterich (2013) specify that layer 0 describes the enterprise process of the highest abstraction where *entity BP*, *BP owners* and *BP likely candidate* for optimisation are represented. Lux, Hess and Herterich (2013) add that this is the level where the graphical representation of core processes and support BPs takes place as well as the inclusion of key performance indicators (KPI). The level concentrates on delivering value to customers.

Layer 1 covers the structure and a variety of process variants. More so, layer 1 should include KPIs which are linked to goals and monitored by a balanced score card (BSC), process flow diagrams (PFDs) and a process structure diagram (PSD). Layer 2 concentrates on modelling BP with data flow diagrams (DFD). Layer 3 details BP with content, roles, risks and resources, and layer 4 focuses on detailing items on layer 3 in a document container (Figure 2.6).

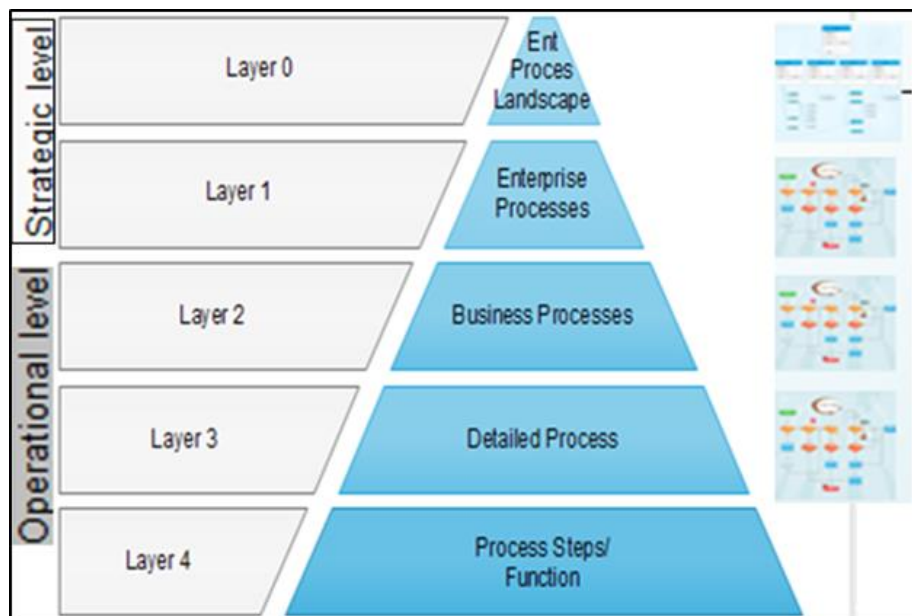


Figure 2.6: BP at operational and strategic management levels
(Lux, Hess and Herterich, 2013:351)

The BSC entails a system intended to measure customer satisfaction and any other organisational activities, including financial measurements. The rationale underlying the BSC is that organisations should not use a single financial indicator to measure business performance.

According to Smith *et al.* (2007:100), the BSC groups several indicators into four interlinked perspectives, which are:

- i) Financial perspective which measures operating income, returns on capital employed and economic value added
- ii) Customer perspective which assesses how they are satisfied and their retention
- iii) Internal perspective deals with efficiency, effectiveness, output and quality
- iv) Innovation and learning perspective concentrate on staff retention and their capabilities

Kaplan and Norton (1992) point out that the operational measures drive financial performance. The focus of the BSC is on the whole organisation, that is, integration, BPR and customer service initiatives (Kaplan & Norton, 1992). The BSC firstly highlights financial aspects where ordinary and traditional measurements are taken and include risk assessment and cost benefit assessment. Secondly, it demonstrates customer centricity where the focus is on satisfying the client by analysing leading and covering indicators. Thirdly, the BSC looks at business and support processes conforming to customer requirements and objectives alignment. Finally, the BSC covers learning and growth where training needs and corporate cultural attitudes are defined (Louw & Venter, 2010).

Ko (2009) also categorises BPs according to their purpose or function. The three main categories are:

- i) Core BPs which generate income
- ii) Management BPs which assess efficiency, compliance and other issues
- iii) Support BPs which provide backing in order to fulfil organisational objectives and do not generate revenue

Rohloff (2010b) illustrates BPs in the form of levels as indicated in Figure 2.7. Rohloff (2010b) clarifies that levels 0 and 1 concentrate on modelling, planning, execution and enabling. This is also the step where van der Aalst (2013) refers to the redesign or design of BPs (Figure 2.8). Van der Aalst's (2013) implementation and 'run and adjust' phase corresponds to Ko's (2009:3) business and

implementation levels and also to Lux, Hess and Herterich's (2013) levels 2 to 4 (where level 2 concentrates on modelling BP with DFDs, layer 3 details BP with the content, roles, risks, and resources, while layer 4 focuses on detailing level 3 (Rohloff, 2010b; Lux, Hess & Herterich, 2013; Van der Aalst, 2013).

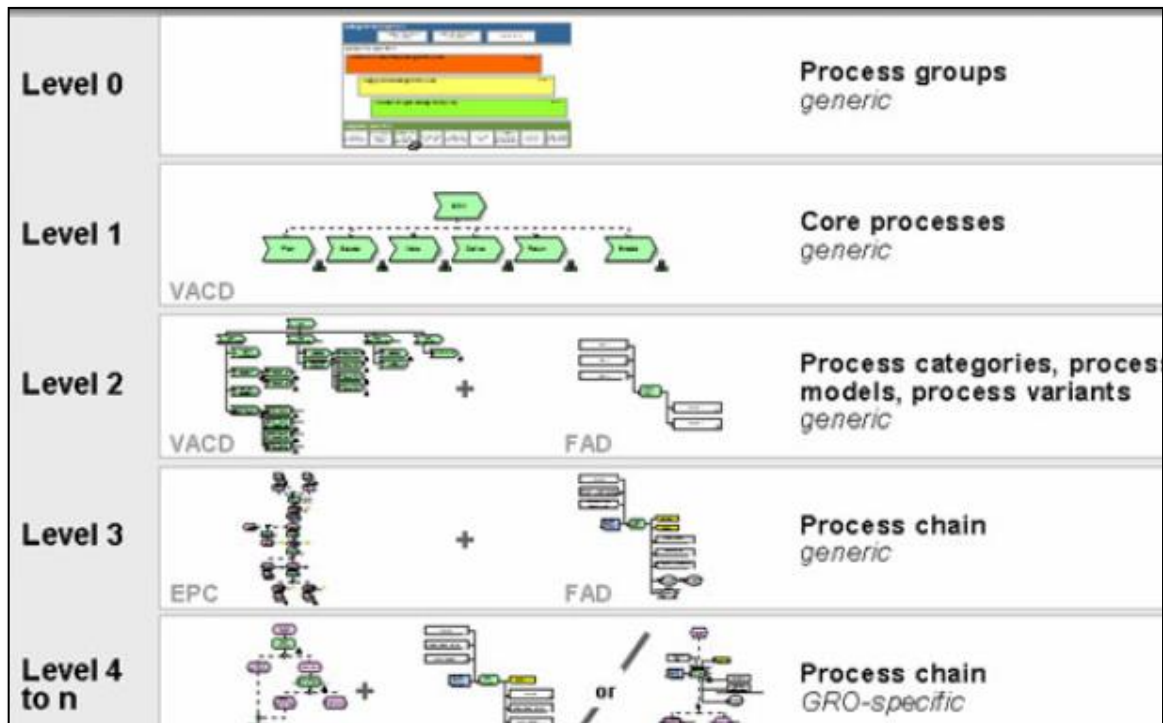


Figure 2.7: Level concept and process models
(Rohloff, 2010b:6)

Grover, Sambamurthy and Barandwaj (2003) and Rohloff (2010b) highlight the necessity of the following aspects of BPs:

- Improvement goal
- Definition by goals, mission and strategy
- Cost and benefit identification in modelling (value)

Figure 2.8 demonstrates the three steps of the BPM life cycle which starts with the designing of a process model, followed by its implementation, and finally ends with a run-and-adjust phase.

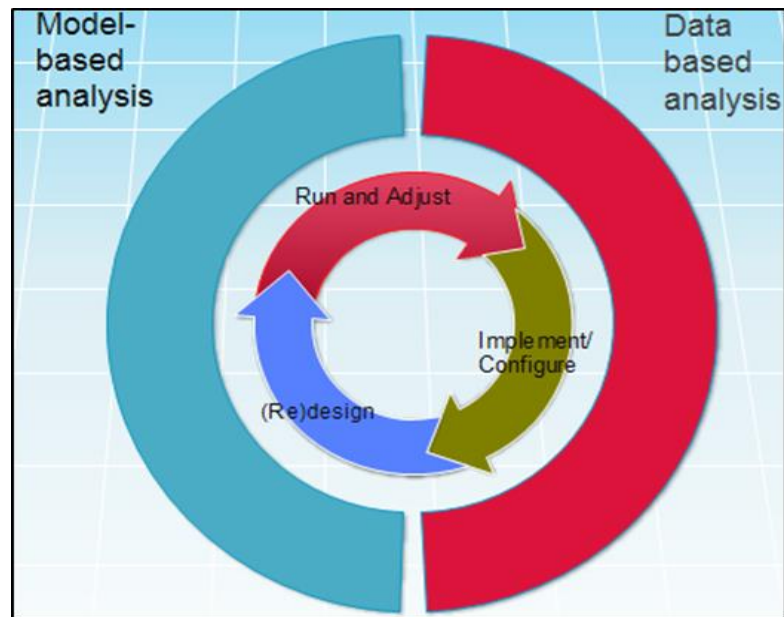


Figure 2.8: BPM life cycle
(Van der Aalst, 2013:5)

According to van der Aalst (2013), Figure 2.9 illustrates the three steps of the BPM life cycle. The BPM cycle starts with the designing of a process model, followed by its implementation, and ends with a run-and-adjust phase where processes are controlled when necessary. Van der Aalst (2013) proposes a cycle perspective to BP in contrast to Ko (2009) who uses a level perspective to BP. According to Ko (2009:13), the level perspective to BPs consists of the process design stage where as-is BPs are electronically modelled into BPMSs, system configuration where BPMSs are configured together with the underlying system infrastructure (for example, synchronisation of roles and organisational charts), process enactment where electronically modelled BPs are set up in the BPMSs, and diagnosis where the analysis and monitoring of BPM by an analyst takes place to identify and improve on bottlenecks and potential fraudulent gaps in the BPs.

Rohloff (2010a) points to the fact that from an operational point of view, the main objectives of BPM are to enhance efficiency and effectiveness, having defined processes, measuring BP performance and improving the BPs. It is also about defining performance objectives for processes centred on benchmarking results or strategic goals arising from corporate creativities and performing key re-engineering accomplishments on processes to close prevailing performance or cost gaps.

2.5 FACTORS AFFECTING THE AGILITY AND IMPLEMENTATION OF BPM

Agility is explained as the capacity to react to unexpected change in an unpredictable environment and deliver value to customers in a reliable manner.

Agility is also about balancing stability with flexibility, order with chaos, planning with execution, optimisation with exploration, and control with speed (Or= (detection+flexibility)*reactivity) (Grover, Sambamurthy & Barandwaj, 2003; Kuettner, 2012; Neunteufel, 2013).

The informational aspect of agility concentrates on warehousing, i.e. internal and external movements of used information in the enterprise measured by the ability to collect, share and exploit structured data. Information agility can also be measured by organisational accuracy, exhaustiveness, non-redundancy, utility, reliability, security, integrity, actuality, publicity and accessibility. Furthermore, information represents a fundamental factor for organisations to maintain sustainability (Imache, Izza & Ahmed-Nacer, 2012).

The resource dimension focuses on the use of organisational resources, for instance people, IT resources and organisational infrastructures. These can be measured by their utility, requirement, consumption, dependability, connectivity and flexibility (Imache, Izza & Ahmed-Nacer, 2012).

Lastly, the environmental aspect of agility deals with the external factors of the business such as collaboration, protocols, global constraints and market response. It can be measured by the ability of the enterprise's reactivity, detection, accuracy, proactivity, products customisation, services improvement, utilisation of opportunities and delivering value to customers (Imache, Izza & Ahmed-Nacer, 2012).

According to Lu and Ramamurthy (2011) and Axelsson (2012), the following factors are key to business agility: cooperate foresight, core competences or capabilities, people, who can enable staff to have skills and knowledge as well as impeding them to perform tasks, organisational structure and factors, IT, collaboration, culture of change and alignment of operations.

Smith *et al.* (2007) and Nijssen and Paauwe (2012) concur that less hierarchical (flat) and formal authority, routine activities, systematisation and formal structures are appropriate for these complex and unstable environments and are essential for organisations which are more agile. Figure 2.9 shows some of the key agility factors.

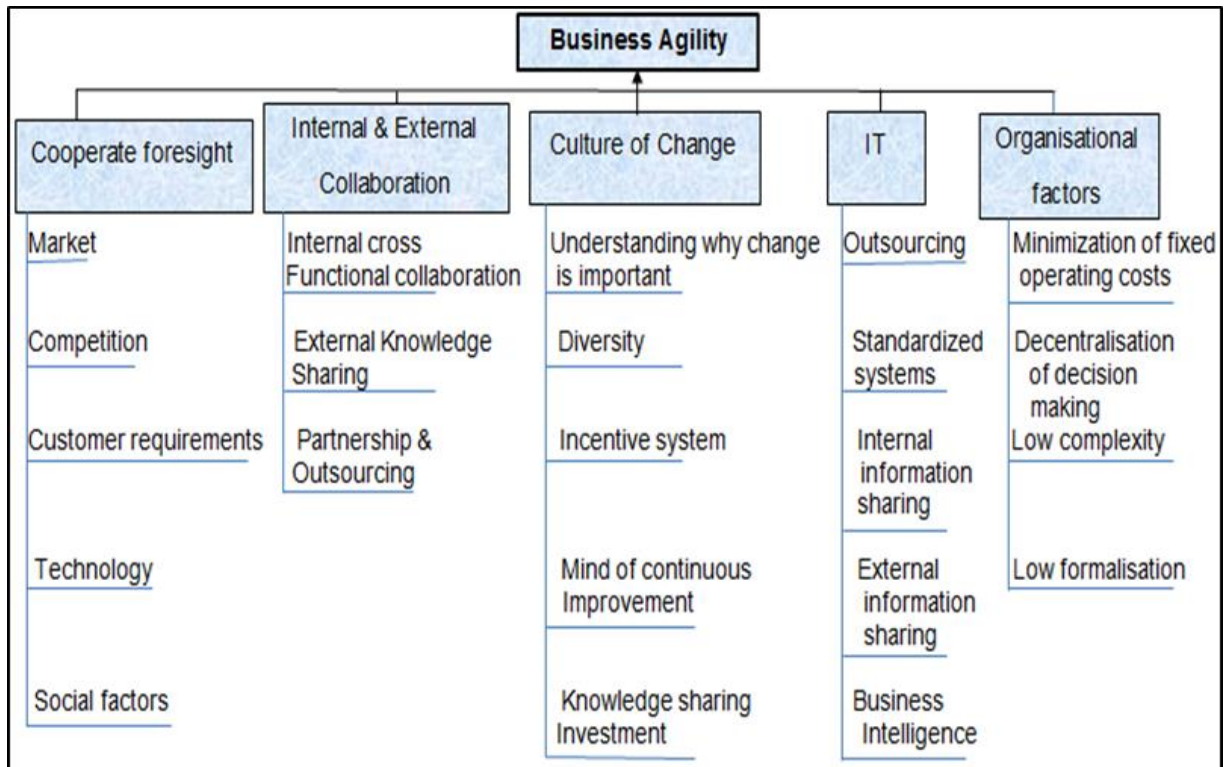


Figure 2.9: The Business Agility Model
(Axelsson, 2012:38)

Jurisch *et al.* (2014) point out that capability are methods (revolutionary or evolutionary), techniques and practices employed by organisations aimed at change, improving the management of IT, and BPs which can improve process performance or hinder it. Examples include IT capabilities and BPM capabilities which manage revolutionary or evolutionary change.

The CSFs in BPM implementation include strategic alignment, governance, methods, information technology, people and culture. CSFs are used by organisations to succeed with BPM implementation (Rosemann & Brocke, 2010). Louw and Venter (2010) identify the following external environmental factors which affect businesses: economics, politics indicating existing, suspended or unannounced laws under which the organisation operates, and social, ecological and international factors. Continuous environmental scanning enables organisations to be more agile and identify possible opportunities and threats (Louw & Venter, 2010).

Strategic alignment refers to the close relationship between organisational main concerns and BPs for performance improvement (Louw & Venter, 2010). To add to this, governance looks at decision-making, reward processes and accountability in terms of roles and responsibilities for business, enterprise and implementation levels

of BPM. Governance also considers setting standards, process compliance, assigning roles, ownership and responsibilities, and having process performance metrics.

Van Rensburg, Davis and Cronje (2010) indicate the following as important aspects of cooperate governance: preventing corruption and bad business practices, attracting investors, upholding societal value, national development, and preventing disasters such as the Fidentia crisis in South Africa where the wealth of shareholders was wiped out through unscrupulous governance and organisational mismanagement.

IT, which supports, sustains and grows businesses, is mainly focused on process analysis, strategic management, operational control, innovation, implementation and support benefits, and process modelling support.

Jurisch *et al.* (2014) report that IT, change management capabilities (agility) and process management capabilities are some of the most important elements affecting BPM and process performance. Technology has been a basic strength in many service innovations taken for granted aspects such as automated voice mail, interactive voice response systems, internet-based services and various smart services as well as customer services and employee effectiveness (Bitner, Zeithaml & Gremler, 2010). However, IT is viewed to have weaknesses in that technology-based life reduces quality work life, socialisation, privacy and confidentiality—not always the best to service customers. Another weakness is the uncertainty of big IT investments by most organisations (Bitner, Zeithaml & Gremler, 2010). As indicated by Grover, Sambamurthy and Barandwaj (2003), IT provides a significant role in customer, partner and operations agility. In addition, Grover, Sambamurthy and Barandwaj (2003) mention that technology is vital in virtualisation, which provides a complementary presence to the brick and mortar firms, product development, customer services and integration of BPs. IT enables collaboration with other organisations, for instance in supply chain. Virtual corporations reduce the need for more labour supply as more purchases are done electronically (Grover, Sambamurthy & Barandwaj, 2003).

Haag and Cummings (2008:404) illustrate how technology can affect organisations and people by changing the internet (through services-as-a-product, Wi-Fi and nanotechnology), cell phones, biometrics, chip implants, and factory-to-business-to-consumer (f2b2c). The term 'f2b2c' refers to consumers receiving personalised products through internet communication and shipment from the factory

(manufacturers) by means of face and speech recognition software (Haag & Cummings, 2008).

Mircea and Andreescu (2011) state that cloud computing is a vital aspect in competitive environments with increasing financial challenges and can be implemented through public or private clouds. Public cloud computing is accessed through subscription and does not allow customisation and control as it is owned by a service provider. In contrast, private clouds allow customisation and control as it is owned by a private institution such as a FETC.

Mircea and Andreescu (2011:3) point to the following benefits of cloud computing:

- Access to applications from anywhere
- 24 hours access to infrastructure and content
- Open to the business environment and advanced research
- Protection of the environment by using green technologies
- Increased openness for students to new technologies
- Offline usage with further integration opportunities

Cloud computing assists higher educational institutions and colleges to cut down IT costs (by decreasing the need for licenses and software upgrading) (Mircea & Andreescu, 2011). It also assist In data centres, security, maintenance, scalability, efficiency, innovation, interoperability, and providing virtual labs to improve IT resources for research. Although cloud computing is useful, it is not excluded from limitations and risks. Some of these limitations and risks are: i) that not all applications run in 'the cloud'; ii) speed/lack of speed; iii) the internet can affect work methods; and iv) data protection, security and accounts management can be challenging (Mircea & Andreescu, 2011:3).

However, these risks and limitations can be reduced and eliminated by data encryption, firewalls, using passwords, chip cards, burglar bars, backup strategies, fire and water sensors, and building data centres on high ground (Damsgaard & Karlsbjerg, 2010; Mircea & Andreescu, 2011). Risk can also be treated (through being anticipative, reactive or flexible) or managed through reduction (by having buffers), protection, transfers and financing (Aloini, Dulmin & Mininno, 2007).

Technology such as grid computing (building big computers from smaller ones and connect them wirelessly or through open source) is noted in neutralising traditional sources of competitive advantage such as size, location and resources (Ukepe, 2007; Louw & Venter, 2010). Furthermore, it is also prominent in removing barriers

to entry, changing modes of customer contact, and eliminating discriminatory stereotypes such as gender, ethnicity and age. Furthermore, it increases productivity, profitability and cost reduction, and improves service delivery (Ukepe, 2007; Louw & Venter, 2010). All these benefits and limitations highlight how IT can improve FET agility and the implementation of BPM in this competitive environment.

Methods are sets of tools and techniques that support BPM, while people execute processes, front run organisations, possess capabilities, manage knowledge and are part of the human capital (Rosemann & Brocke, 2010). Furthermore, culture refers to the values, beliefs and creation of an environment which facilitates BPM implementation (Rosemann & Brocke, 2010). CSFs in BPM implementation are shown in Figure 2.10.

Van Rensburg, Davis and Cronje (2010) found that the demonstration of a social conscience as part of organisational culture includes providing social responsibilities, enhancing the environment and workplace, promoting diversity and employee wellbeing, and considering ethics. This is manifested by organisational ethical codes, ways of performing tasks and setting of objectives and values. It can hinder productivity, affect thinking and feelings, and be a source of competitive advantage (Van Rensburg, Davis & Cronje, 2010). Cultural homogenisation (which means adopting a dominant culture) affects background, ethnic and religious groups (Ukepe, 2007). This in turn affects behaviour, decisions, thinking and feelings around the world. Louw and Venter (2010) state that culture forms a firm bond among members and should be aligned with strategy. For example, a power club is ruled by a central power source such as an owner or president, and is most often found in small or entrepreneurial organisations where less bureaucracy, policies and procedures, and trust and personal communications are important characteristics (Kane-Urrabazo, 2006; Van Rensburg, Davis & Cronje, 2010). Role culture (with more bureaucracy, policies and procedures which control the organisation and employee operations based on job descriptions) is not flexible and more appropriate for public firms (Kane-Urrabazo, 2006; Rensburg, Davis & Cronje, 2010).

As one of the elements of the CSFs in BPM implementation, people implement, lead organisations, possess expertise, process knowledge and are part of the human capital (Rosemann & Brocke, 2010). As indicated by Pendleton and Furnham (2012), in the pre-20th century around 380 BC, on leadership, Plato argued that the best leaders are individuals with the most knowledge. The best leaders were the academics and kings, and the traits that made them effective encompassed wisdom, truthfulness, justice, gentleness and a love of learning. In the 20th century, vitally

important traits include environmental change management, individual and organisational needs assessment, collaboration, management and leadership.

Factors						Capability Areas
Strategic Alignment	Governance	Methods	Information Technology	People	Culture	
Process Improvement Planning	Process Management Decision Making	Process Design & Modelling	Process Design & Modelling	Process Skills & Expertise	Responsiveness to Process Change	
Strategy & Process Capability Linkage	Process Roles and Responsibilities	Process Implementation & Execution	Process Implementation & Execution	Process Management Knowledge	Process Values & Beliefs	
Enterprise Process Architecture	Process Metrics & Performance Linkage	Process Monitoring & Control	Process Monitoring & Control	Process Education	Process Attitudes & Behaviors	
Process Measures	Process Related Standards	Process Improvement & Innovation	Process Improvement & Innovation	Process Collaboration	Leadership Attention to Process	
Process Customers & Stakeholders	Process Management Compliance	Process Program & Project Management	Process Program & Project Management	Process Management Leaders	Process Management Social Networks	

Figure 2.10: Critical success factors in BPM implementation
(Rosemann & Brocke, 2010:112)

Figure 2.10 shows the capability areas and factors affecting BPM implementation. Factors shown are IT, people, culture, methods, governance and strategic alignment.

According to Laal (2011:547), colleges and universities have significant opportunities to become more effective and link knowledge management practices to support their strategy, which can lead to research and exponential improvements in sharing explicit and tacit knowledge. If done effectively, it can lead to better decision-making capabilities, reduced 'product' development cycle time, improved academic and administrative services, and cost reductions (Laal, 2011).

A problem highlighted by Lämmel and Cleve (2013b) in organisational knowledge management is how tacit knowledge hidden in all and sundry's mind is changed into explicit knowledge to be shared in the organisation. Explicit knowledge refers to knowledge that can be written, expressed, seen, read, mapped and shared among the organisational staff, while implicit (tacit) knowledge is hidden in people's minds (Laal, 2011; Lämmel & Cleve, 2013b) Knowledge is one of a company's most important assets although it is difficult to hire the right employees who possess the right knowledge to match the situation (Metasonic, 2014). Nijssen and Paauwe

(2012) illustrate that organisational agility is enhanced by a scalable work force (one consisting of workforce fluidity and workforce alignment). The authors also mention that workforce fluidity refers to the ability to possess workers with diverse skills, competence-based training, collaboration skills, flexibility and unrestricted workmanship. Additionally, workforce alignment refers to the ability to plan for workforce requirement, educating them about common organisational vision and letting them be creative.

According to Nijssen and Paauwe (2012), agile organisations are formed by fast organisational learning which in turn emanates from knowledge creation and knowledge alignment. Nijssen and Paauwe (2012) explain knowledge creation as experimenting, simulating, documenting and sharing knowledge, discussing and reflecting it. To add more, knowledge alignment includes collecting information at the right time when needed as well as constantly monitoring it. Knowledge management consists of decision support, business rule systems, data storage, knowledge presentation and the ability to use these (Lämmel & Cleve, 2013b). Knowledge as a factor of production can be extracted through data mining, socialisation, internalisation, externalisation or a combination of these. Socialisation refers to the transformation of knowledge from tacit to tacit. With internalisation, explicit knowledge is transformed to tacit, while externalisation enables transformation from tacit to explicit knowledge (Lämmel & Cleve, 2013b). Figure 2.11 shows some of the constituents of knowledge management from literature.

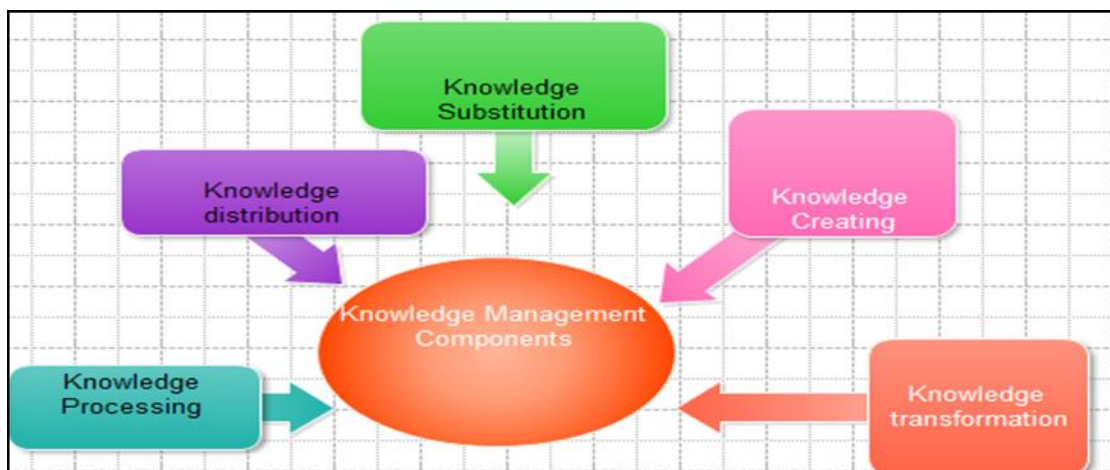


Figure 2.11: Knowledge management components

Figure 2.11 demonstrates some of the components of knowledge management from literature, comprising of knowledge distribution which can be enhanced by the internet, IT capabilities among the staff, knowledge processing, substitution, creation

and transformation (which is translating knowledge into another form) (Laal, 2011; Lämmel & Cleve, 2013b).

Lämmel and Cleve (2013b) mention that knowledge can be represented in decision tables, business rules or decision trees, and provide benefits as well as limitations to organisations. The authors add that rule-based knowledge representation enables organisations to react faster and be proactive when the business environment changes. This is called business agility. The rule-based knowledge representation helps organisations to test rule-based scenarios at a lower cost and decision making. Furthermore, it allows incremental revenue opportunities stemming from greater product, pricing and service flexibility. Rule-based knowledge offers great value to customers; this means providing satisfaction, quality and reasonable price. Rule-based knowledge alleviates the process of compliance to regulatory bodies such as municipalities or the South African government—an instance is on the bursary application rules as well as the promotion rules at the FETC—and business re-engineering although it causes discomfort for businesses which are not ready to accept the IT revolution and its limitations (Lämmel & Cleve, 2013a). Rule-based knowledge representation enables organisations to react faster and be proactive when the business environment changes (Mircea & Andreescu, 2009).

Business rules can be the encoded knowledge of business practices or a set of conditions required to be satisfied by the valid data. Rule sets are categorised into two categories, namely *range check* and *domain check*. Range check refers to the rule that is applied to numeric data only, including the date. Range checks ensure that valid data fall within the range of values specified. Examples of range checks include:

- Age must be between 18 and 35 years, inclusive
- Joining date must be lesser than or equal to the current date

Domain checks state that the data must be equal to one of the values specified. Examples of domain checks include:

- Blood Group must be equal to any one of the following values listed: “A+”, “A-”, “B+”, “B-”, “AB+”, “AB-”, “O+”, “O-”
- Marital Status must be equal to “Single”, “Married”, “Divorced”, or “Other” (Mircea & Andreescu, 2009)

Global downturn brings challenges in the current business environment, as such, every organisation must consider sustainability and improvement as it operates.

Business Intelligence (BI) is one of the factors offering support in getting beyond predicaments. If properly developed and implemented, BI can lead to developments in decision making and “doing the right thing” as well as “doing things right” (Mircea & Andreescu, 2009).

2.6 EFFECT OF THE COMPETITIVE ENVIRONMENT

Grover, Sambamurthy and Barandwaj (2003) report that in competitive environments, organisational performance and agility are affected in the sense that the more unpredictable the environment becomes the vaguer decision making processes become. Unexpected market change can compel firms to revise their business strategies (Grover, Sambamurthy & Barandwaj, 2003). As mentioned by Tallon and Pinsonneault (2011), organisations are frequently strained to change their strategies and operational tactics because of environmental changes and unpredictability.

In unstable settings, it is more risky failing to respond to these settings although there is a chance that performance will improve if firms react quicker than competitors (Tallon & Pinsonneault, 2011). Agility is less needed in a placid environment as there is not much to achieve in terms of better performance from agility or from being slow to respond (Pendleton & Furnham, 2012). In contrast, organisations in competitive environments need agility in order to increase their performance because of a higher degree of market ambiguity (Grover, Sambamurthy & Barandwaj, 2003).

Louw and Venter (2010) argue that internal growth strategies are used when firms intend to exploit competence and knowledge, tap into new markets, or lower costs. Examples of options relating to internal growth strategies are consolidation, market development, product development and innovation. Firms can also choose an external growth strategy if faced with volatile markets, or if they intend to spread risk, escape competition and utilise opportunities (Louw & Venter, 2010). Examples of external growth strategies are integrations (forward and backward), acquisition and mergers. Organisations faced with survival, a situation where there is no future, being on the brink of closure, recession, non-competitiveness, inefficiency or a failed merger can resort to turnaround strategies. Lastly, corporate combination strategies are exercised if an organisation wants to earn on foreign markets, gain knowledge expertise and reduce research costs. Examples of corporate combination strategies include joint ventures, strategic alliances and licensing agreements (Louw & Venter, 2010). Furthermore, globalisation also affects strategy, for instance, growth strategy requires high salaries or a stock option, or rapidly growing firms can use lump sum

bonus equity for key positions, efficiency rewards and cash can be implemented on maturity, while the declining firms can use cost saving stock plans (Ukepe, 2007).

The business of buying and selling or bartering commodities to satisfy mankind's needs has at all times been part of society (Visser, 2011). Moreover, survival in the economic environment is changing and more depending on trading, which in turn relies on customers and their purchasing power (Haag & Cummings, 2008). Shelly, Cashman and Vermaat (2008) and Visser (2011) uphold that the evolution of the internet, also referred as *the Net*, has increased the revolution of marketing, e-marketing (marketing online), e-commerce, access to global information, instant communication, e-mail as well as other internet services. These highlight the need for speed to the market in a competitive environment.

2.7 ORGANISATIONAL AGILITY AND PERFORMANCE

Tallon and Pinsonneault (2011) indicate revenue and profitability increase, cost avoidance and superior market growth as expected agility advantages.

Van der Aalst (2013) maintains that agility gives firms the option to respond to change and engage in actions that can work against market risk and ambiguity. Agile firms are perceived to have a broad collection of market-response options to a variety of clients.

Examples of market response options include flexible IT infrastructure, multi-expert teams, a flexible organisational structure, or standby resources to enable the firm to be innovative and enthusiastically react to new market opportunities as they arise. In addition, some organisations store unused databases at separate locations and keep reserve manpower for their website problems.

According Grover, Sambamurthy and Barandwaj (2003), firms are more probably to obtain higher profits, decreased costs and a bigger market share in future if they are able to manage changes in product demand, an increase in innovation speed, or penetrations into new markets. Grover, Sambamurthy and Barandwaj (2003) present the following three types of agility:

- i) Customer agility which seeks to satisfy customers more than competitors through ideas and innovations they contribute
- ii) Partnering agility which enables firms to create a network to secure its resource needs
- iii) Operational agility which involves the ability of firms to function with speed and accuracy, economically, and utilise opportunities

Tallon and Pinsonneault (2011) found that organisation performance increases if agility is improved in highly competitive environments. Furthermore, the more placid and less agile, the lower are the performance (as shown in Figure 2.12).

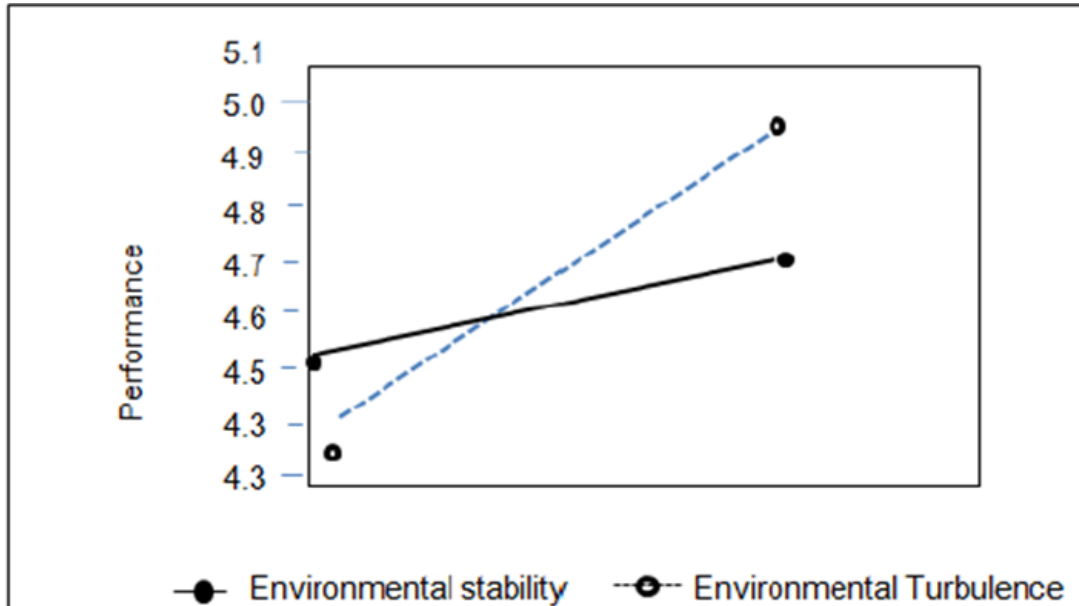


Figure 2.12: Graphical illustration of the interaction effects of environmental unpredictability on agility and firm performance
(Tallon & Pinsonneault, 2011:478)

Figure 2.12 represents a graphical design of the interaction effects of environmental unpredictability on agility and firm performance. It demonstrates that the more stable and lower the agility, the lower the performance. In contrast, more environmental turbulence and higher agility leads to higher performance (Tallon & Pinsonneault, 2011). The agility of organisations to manage complex and changing environments is important for their survival. Without such agility, organisations will become irrelevant and obsolete in the future.

2.7.1 Benefits and limitations of Business Process Management

Hammer (2010:7) identifies the following benefits of BPM: i) establishing high-performing processes can lower operational costs, speed up processes and increase accuracy and quality; ii) improvement on flexibility, customer satisfaction and service; iii) activities or processes which do not provide quality and satisfaction, are eliminated; iv) businesses are enabled to fulfil promises within their capacity, to identify processes which meet/do not meet customer needs, and to respond better to revolutionary strategies such as globalisation and e-business; and v) integration

to ERP brings changes, unlike conservative organisations which wait until it is revealed in their financial statements.

Hammer (2010:8) reports that thousands of organisations, large and small, private and public, are benefiting from BPM, for example:

- A consumer goods manufacturer manufactures and delivers goods to its distribution centres; inventory was reduced by 25% while out-of-stock situations declined by 50%
- A computer designer developed a new product development process which reduced time to market by 75%, reduced development costs by 45%, and increased customer satisfaction with new products by 25%
- A capital goods manufacturer increased by 500% the accuracy of the availability dates on new products that it gave to customers and reduced its supply chain costs by up to 50%
- A health insurer created a new process for engaging with its customers and reduced costs by hundreds of millions of dollars while improving customer satisfaction

Jeston and Nelis (2006) insist that BPM enables organisations to be process-centric, more agile, transparent and efficient. The result is that organisations align individual departmental strategies and reduce the implementation time of proposed BPs. Rohloff (2010b:386) states that BPM, based on the Siemens Process Framework, results in the following paybacks which were pursued with the process improvements:

- Harmonising and improving local, regional and headquarter process innovation creativities
- A common reference outline for supporting and managing all process related projects in the business units and regions created by inventiveness and innovation
- Delivering standard service levels to the global clients
- Presenting a uniform appearance to customers and business partners through Siemens-wide standardised process implementation
- Providing standard service levels to the global customers
- Enabling best practice sharing across all business units and regions
- Providing opportunity for shared services and an improved lean IT landscape through process standardisation
- Facilitating best practice involvement across all business units and regions

Ko (2009:13) argues that the modelling and analysis of the processes in a business, or even across businesses, can bring about instant problem identification and is an important tool for the simulation of efficiencies of certain processes. Some of the prominent benefits of analysing and modelling BPs are as follows: increased ability to identify bottlenecks, increased identification of potential areas of optimisation, increased visibility and knowledge of the company's activities, reduced lead-times, better definition of duties and roles in the company, and a good tool for fraud prevention, auditing and assessment of regulation compliance.

Although BPM is beneficial to organisations, it also holds limitations. Toyota identified the following non-value adding wastes of BPM: over-production, waiting, unnecessary transportation or movement, excess inventory, defects and unused employee creativity (Ko, 2009:3).

One of the key scholars in the field, van der Aalst (2013), states that the formal language in process modelling (such as petri-nets and algebra), is clear and allows for the assessment of processes unlike conceptual language (such as event-driven process chains and BPMN which lacks execution facts) and execution language (such as data structure and forms which provide only a sketch idea of the required performance). The conceptual and execution languages necessitate the use of Business Process Execution Language (BPEL) (symbols used which provide an execution guide and do not encapsulate during BP design). More research needs to be done on the topic (Van der Aalst, 2013). Gritzalis *et al.* (2014) contend that BPMN and Unified Modelling Language (UML) are vital aspects for security enhancement in BPM (at modelling and BP design). As indicated by Rosser (2008) and Jansen (2012), the benefits of BPM for business people are questionable. The complexity of BPM in presenting and documenting its requirements and the business process models makes it difficult for many organisations to achieve the desired benefits of BPs such as the ease of implementation of new or re-engineered BPs.

Helmke (2013a:21) illustrates the effects of BP complexity and argues that complexity means higher costs. Helmke (2013a:21) annotates the effects (Figures 2.13 & 2.14) as "the number of assembly parts increase, controllability and quality decrease". In addition, "run time, unit costs, and overheads increase as well as a decrease in profits, loss of flexibility while cutting back jobs".

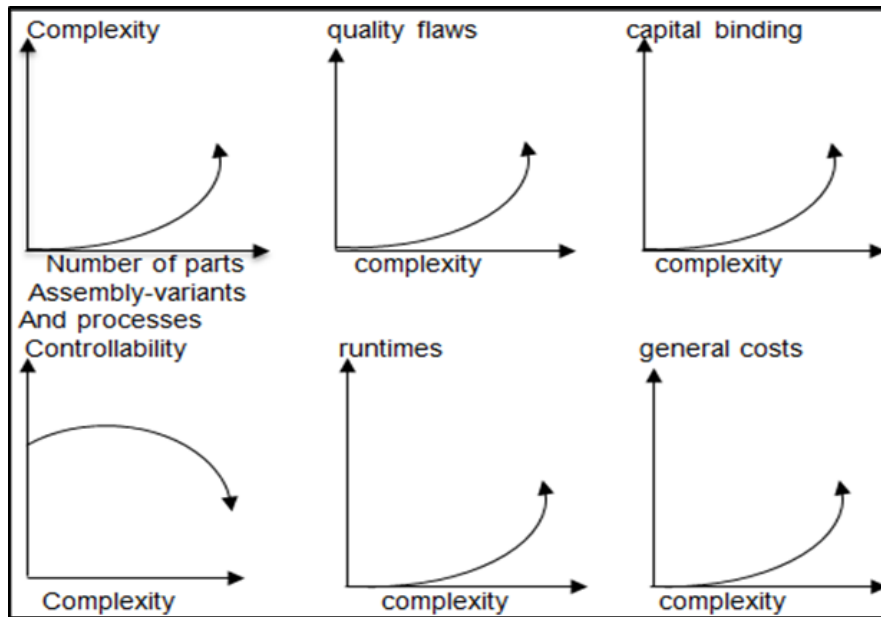


Figure 2.13: Effects of BP complexity
(Helmke, 2013a:20)

According to Helmke (2013a:20), the consequences of business complexity include “run time increase, number of repetitive activities decrease, security decrease and demand per part decrease”.

The effects and consequences of business complexity demonstrated in Figures 2.13 and 2.14 are that “the number of assembly parts increase, controllability, safety, parts demand and quality decrease, while run time, complexity, quality defects, capital necessity and general costs increase” (Helmke, 2013a:20).

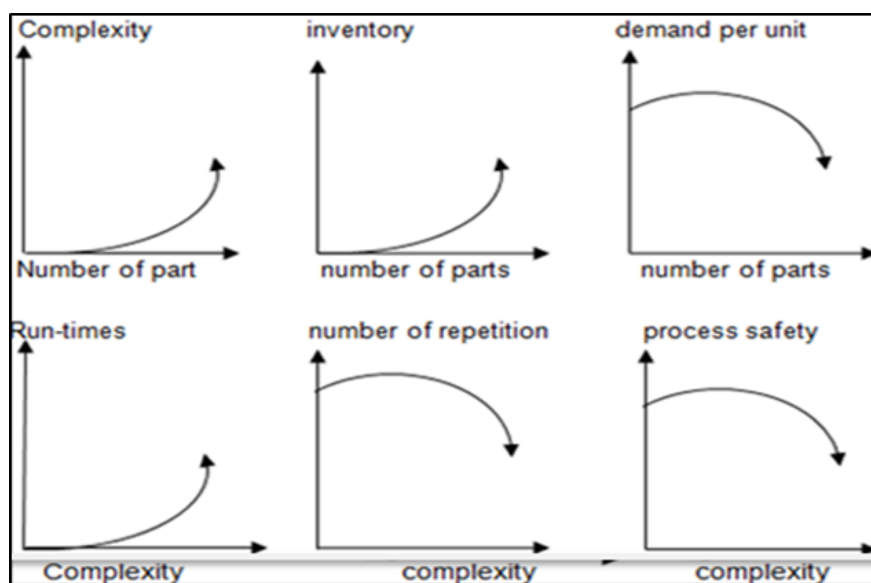


Figure 2.14: Consequences of BP complexity
(Helmke, 2013a:20)

Table 2.1 summarises the literature review done on the factors affecting the agility and implementation of BPM at an organisation. The table shows the authors, research methods, arguments or findings, and standpoints on agility and BPM implementation in organisations. The majority of scholars indicate that agility and BPM have a positive effect on organisations. A few reveal that agility and neutralises (counter act on the positive effects) and inhibits (constraint) agility and BPM implementation in organisations.

Table 2.1: Summary of factors affecting FETC agility and implementation of BPM

Literature citation and contribution	Method	Main argument/finding	Standpoint on agility and BPM		
			Positive Effect	Inhibit	Neutralise
Axelsson (2012)	Survey	Collaborative processes, IT organisational and sub-processes are some of the most important factors affecting agility.	✓	✓	✓
Rosemann and Brocke (2010)	Case study	Six core elements affecting BPM are strategic alignment, governance, methods, information technology, people, and culture.	✓		
Lu and Ramamurthy (2011)	Survey	Factors affecting agility include cooperate foresight, capabilities, people and processes, organisational structure, positive IT and agility relation, collaboration, corporate foresight, culture of change and alignment.	✓		
Jurisch <i>et al.</i> (2014)	Case survey	Project management, change management and IT have a positive effect on process change (BPM capabilities) and process performance.	✓	✓	✓
Seethamraju (2012)	Analysis and review of literature and secondary data	Processes still misunderstood, left unmanaged since industrial age; people, IS, in knowledge management (KM), strategy, sustainability must be assessed.	✓	✓	
Gritzalis <i>et al.</i> (2014)	Psychometric evaluation from social media analysis	Modelling part of BPM should consider BP security at design/modelling phase through BPMN and risk management.	✓	✓	
Mircea and Andreescu (2011)	Data analysis and review of literature	Although cloud computing help higher education institutions in this competitive environment, with financial difficulties complemented by BPM its pros and cons are inherent.	✓		✓

Literature citation and contribution	Method	Main argument/finding	Standpoint on agility and BPM		
			Positive Effect	Inhibit	Neutralise
Van der Aalst (2013)	Survey	Process modelling is fundamental in configuring IS, analysing, understanding, improving processes. Managerial and technological effects improve productivity, cost savings, and run-time cutbacks.	✓		

2.8 GENERAL INFORMATION ON THEORIES RELATED TO AGILITY AND BPM

2.8.1 Resource-Based View (RBV) Model

Van Rensburg, Davis and Cronje (2010) point out that the Resource-Based View (RBV) is a model which posits that organisational competitiveness is from its resources consisting of skills, capabilities, its tangible and intangible assets, and not the industry structure or market position. However, organisations differ in fundamental ways because each organisation possesses a unique set of resources, so its source of competitiveness will differ.

Although the RBV model is important in evaluating BPM systems, its weakness is that it focuses on private institutions and competitive capabilities, which do not apply to a public sector scenario such as FETCs where service provision is the main focus, not profit making and competition. Van Rensburg, Davis and Cronje (2010) note that the RBV theory is used to justify the performance and competitive capability relationship of the organisation but without any empirical test. Moreover, since BPM systems are universal, differences in needed resources become very difficult to identify. For the above reasons, BPM is more appropriate for this research study which is being conducted at a public institution.

2.8.2 Continuous Improvement

Continuous Improvement (CI) is a collection of influential systems that produce extensive, high quality productivity and improvements in a variety of organisations (Zangwill & Kantor, 1998). According to Zangwill and Kantor (1998), managers require scientific improvement methods to improve the performance of production and service firms. In addition to CI, Zangwill and Kantor (1998) mention that Learning Curve (LC) (a graphical presentation which assesses experience curve and progress function) forecasts and monitors how fast future costs will drop as more units are produced. LC uses a quantitative approach, for instance cost, quality

or cycle time of producing a product), while CI identifies what improvements to make and how to do it better and faster. Additionally, LC and CI provide a means to realise and monitor improvements although there is no scientific theory that exists to direct its application or to scientifically improve the notions of CI. Zangwill and Kantor (1998) add that LC and CI lack a quantitative theory and this inhibits development and application.

Bessant, Caffyn and Gallagher (2001) argue that CI is of considerable strategic importance, although its management is often misunderstood because of confusion surrounding the term itself. Bessant, Caffyn and Gallagher (2001) uphold that CI refers not only to the results but also to the process through which these results can be achieved. Bessant, Caffyn and Gallagher (2001) argue that managing CI effectively depends upon seeing it not as a dual concept or a short-term activity but as the development and combination of a set of key interactive procedures within an organisation. The authors maintain that the rudimentary understanding of CI added to the experience of frustration, and the failure of many CI platforms began in the 1980s as part of TQM.

2.8.3 Re-engineering theory

Hammer and Champy (1993) regard re-engineering as the ultimate reconsideration and drastic remodelling of BPs to achieve vivid improvements in significant performance measurement areas such as budget, services, value and agility. As stated by Li and Chang (2014:50), BPR comprises of four fundamental ideas which considers the following aspects: understanding the main concerns, redesigning the process, having new credible BPs, and concentrating on the most critical processes.

Zare, Habibi and Molavi (2014) and Li and Chang (2014) point out that re-engineering process are mainly used for improving, providing parallel processes, automating and integrating human resources, and enhancing a competitive advantage. Zare, Habibi and Molavi (2014) uphold that it also enables innovation and redefinition of values in public institutions in this volatile environment (even though it is also considered to be essential for private educational institutions). Swanson and Chermack (2013:10) indicate that BPR needs “planning, knowledge, expertise, analysis and synthesis for successful implementation”.

The author of this dissertation defines BPR as the process which enables an organisation to transform its functions, events, capabilities and resources to improve efficiency and effectiveness. Swanson and Chermack (2013:11) point out that Hammer and Champy (1993), proponents of BPR, promised success from BPR, not

considering implementation requirements to organisations which failed after utilising it. Swanson and Chermack (2013:11) indicate some of the limitations caused by BPR as confusion, interruptions, bitterness and unnecessary BP optimisation which cause crises and retrenchments. As stated by the authors, BPR failure is evidenced by the fact that Hammer (2010) admitted there are errors in his theory at an interview while Champy apologised in an article called '*Across the Board*'.

Zare, Habibi and Molavi (2014) state that the philosophies and methods used for re-engineering on a daily basis attract strategists, experts and academics. Furthermore, Zare, Habibi and Molavi (2014) as well as Li and Chang (2014) postulate a question on the significance of re-engineering in public institutions and encourage its application initially on the human resources department (to ensure having the correct skills, to improve functions such as equipment purchasing departments, and to reduce executive costs), costly BPs, unhealthy and inefficient BPs, cultural change, and service quality. Li and Chang (2014) indicate that on equipment acquisition, BPR reduces the costs of equipment development and production. More so, it improves efficiency, accuracy, information sharing, productivity, quality control, producing schedules and performance improvement, and reduces the degree of bureaucracy, breaking the constraint of the old rules and encouraging creativity of stakeholders. Zare, Habibi and Molavi (2014) are of the opinion that automation should take place after eliminating old rules and regulations, and enabling business structures and processes to be in compliance with technological advances, population changes and commercial goals. Quality, innovation and services are regarded as more important than costs, growth and supervision (Zare, Habibi and Molavi, 2014).

2.8.4 Theoretical framework from literature

In seeking to explore and understand the factors affecting the agility and implementation of BPM in a dynamic educational environment, the research addresses the research questions as shown in the brief theoretical framework in Figure 2.15.

Figure 2.15 illustrates the interconnected theoretical framework from literature and reflects the factors affecting the agility and implementation of BP management.

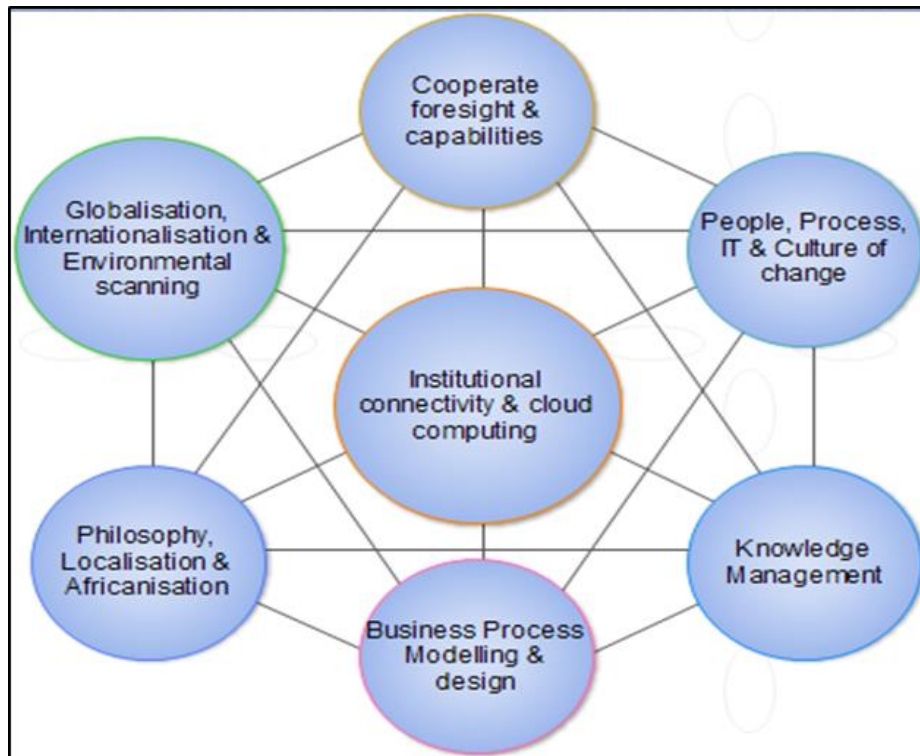


Figure 2.15: The proposed theoretical framework

2.9 CONCLUSION

In conclusion, several academics concur on the effectiveness of BPR as it is applied in public and private institutions (Van Rensburg, Davis & Cronje, 2010; Swanson and Chermack, 2013; Zare, Habibi & Molavi, 2014). Advocates of BPR point to it as a vital aspect in improving efficiency and reducing bureaucracy, innovation, effectiveness and value although it causes job losses, misunderstandings, interruptions and organisational catastrophes.

In this chapter, a literature review and analysis provided an appropriate foundation on which this research was designed. It also illustrated and described the context of the agility and implementation of BPM, history constructs regarding BPM, critical success factors in the agility and implementation of BPM in an educational environment, benefits and issues related to the agility and implementation of BPM, and the proposed theoretical framework. Agility and environmental effects on the organisational performance were illuminated with the review of the literature.

The next chapter discusses the study's research design, theoretical directions related to BP and the traditional philosophies, data collection, analysis and ethical considerations.

CHAPTER THREE: RESEARCH DESIGN AND METHODOLOGY

3.1 INTRODUCTION

The previous chapter presented the literature review to provide a foundation on which this research is designed. The aim of the research is to explore and understand the factors affecting the agility and implementation of BPM at False Bay College in the Western Cape, South Africa. The objective of the study is to identify the factors that affect the agility of BPs and systems in a complex educational environment and determine how the agility of BPs and systems can be improved to respond to the changing requirements in a complex educational environment at a FET College in the Western Cape, South Africa.

This chapter discusses the study's research design and methodology followed to conduct the fieldwork and includes discussions on the following areas: research design background; theoretical directions related to BP and the philosophies which consist of the positivism, interpretivism and critical realism philosophical approaches and strategies, including theory development; data collection, data analysis, qualitative/quantitative research evaluations techniques and the synthesis of data; ethical concerns; and delimitations of the study. The chapter culminates with a brief summary.

3.2 RESEARCH DESIGN BACKGROUND

Academic research is meant to increase the scientific knowledge (consisting of propositions, assumptions, axioms, postulates, values and commitments) (Mouton, 1996). Furthermore, there are three 'worlds of knowledge' namely the everyday world, the world of science and the world of meta-science. The everyday world of the ordinary man's life (world one) consist of entities such as people, organisations (FETCs) and problems such as how to be more agile and implement BPM in a dynamic environment being investigated by the author. These are part of everyday life found in world one in the case of this study.

The world of science (world two) consists of a variety of disciplines (for example humanities), the body of knowledge (for example concepts, theories and definitions - BPM, ERP, BP), and methods to do research (Mouton, 1996). Mouton (1996) explains that world two assesses the research process (problem statement, design, methodology and conclusion).

The research problem indicated in this study (i.e. *inability to adapt and the lack of agility in BPs and systems result in the inability to manage the demands of business in a complex educational environment*) as well as methods to understand, explain

and solve the factors affecting the agility and implementation of BPM in a selected FETC, are highlighted (Van Rensburg, Davis & Cronje, 2010; Adam, 2013; South African Government, 2015).

The third world of knowledge is called the world of meta-science where peer review of research takes place and where the study is positioned within one of the customary philosophies (positivism, interpretivism—which is used by this study—and critical realism). The world of meta-science also explains why this study used a qualitative as an alternative to a quantitative research method as well as the reason why it is using the interpretivism philosophy.

3.3 RESEARCH METHOD

Saunders, Lewis and Thornhill (2009) indicate that epistemology gives an explanation of what represents acceptable knowledge or truth in a specific field of study. Its three main branches are *positivism*, *realism* and *interpretivism*. Positivism explains that one does research in the natural scientists' world and conclusions are law-like generalisations, while realism clarifies that the truth or objects seen have an existence dissociated from the mind.

The epistemological perspective adopted by this study is interpretivism. Interpretivism supports the stance that human beings are not the same as they take part in social events (Saunders, Lewis & Thornhill, 2009). In a study on information exchanges among individuals employing group support systems technology (communication), Trauth (2001) found that the positivist stance enables one to see that people talk but cannot explain what and why they talk ('behind the scenes' facts). As such, interpretivism stands to close this gap. This necessitates researchers to distinguish between researching people (who act and interpret their actions or who act as stated by their/someone's deductions), and researching objects such as machines and buildings.

The two academic customary sources of interpretivism are *phenomenology* which refers to the technique humans use to interpret the world around them, and *symbolic interactionism* which explains that humans are always in a continuous process of interpreting the actions of others with whom they interact with, leading to the adjustment of their meaning and their actions.

One reason for having adopted an interpretivist approach for this study is that according to Saunders, Lewis and Thornhill (2009), it is appropriate for business and management research in complex business situations and for businesses which are unique. The researcher's values (researcher's life experiences in this study) are

referred to as axiology (Johnson & Onwuegbuzie, 2004; Saunders, Lewis & Thornhill, 2009). This research adopted an interpretivist approach as the research aims are to subjectively explore, understand and explain the research information in order to answer the research questions.

Other related studies such as the research of Rosemann and Brocke (2010) used a case study on their identification of the six core elements affecting BPM. The authors established the instruments that have mainly been used as interpretive. The emphasis on the subjectivity of an interpretive approach gave credibility to recommendations made to the relevant stakeholders (Johnson & Onwuegbuzie, 2004; Saunders, Lewis & Thornhill, 2009). This research study also followed the principles of interpretive research (Table 3.1) as portrayed by Klein and Myers (1999). These principles are interdependent in the sense that principle four (4) directly affects principles six (6) and seven (7), which finally affect principle two (2), while principle six (6) also directly affects principle seven (7).

Table 3.1: Application of interpretive research principles to this study (Klein & Myers, 1999:72)

Principle	Explanation	Application in this study
1. The fundamental principle of the hermeneutic circle	This code recommends that all human understanding is achieved by iterating between considering the interdependent meaning of parts and the whole that they form. This principle of human understanding is fundamental to all the other principles.	Iteration between the researcher and the organisational stakeholders as well as the questionnaires of the global context enabled an understanding of the benefits of BPM as well as factors affecting agility and BPM.
2. The principle of contextualisation	Involves critical consideration of the social and historical circumstances of the research setting, so that the targeted audience can see how the current state of affairs under investigation surfaced.	Interview with the Campus Head and other participants, and a study of appropriate records related to BPM provide a rich representation of the factors affecting the agility and implementation of BPM as well as literature analysis.
3. The principle of interaction between the researchers and the subjects	Entails critical reflection on how the research materials (or data) were socially constructed through the interaction between the researchers and participants.	The interviews with the participants provided room for follow-up questions from both the interviewer and the participant. This setup assists in supporting correct assumptions and dismissing wrong ones that affect interpretations.
4. The principle of abstraction and generalisations	Requires connecting the idea revealed by the data findings through the application of principles one (1) and two (2) to theoretical, general concepts that describe the nature of human understanding and social action.	Presentation of interpretive research principles provides an adequate platform that links the theoretical underpinning philosophy to the reality of the findings of the empirical work.

Principle	Explanation	Application in this study
5. The principle of dialogical reasoning	Requires sensitivity to possible contradictions between the theoretical preconceptions guiding the research design and actual findings (the story that the data tell) with subsequent cycles of revision.	Conclusions reflect the expected possibility and also the unexpected. One example is the origins of BPM and BP perspectives.
6. The principle of multiple interpretations	Requires understanding of possible differences in interpretations among the participants as are naturally expressed in multiple narratives or stories of the same sequence of events being studied. Similar to multiple witness accounts even if all tell it as they saw it.	The researcher did not use statistics as the basis for findings but the value of each idea in the evidence from the various participants as well as literature analysis.
7. The principle of suspicion	Requires tolerance to possible biases and systematic misrepresentations in the accounts collected from the participants.	The informants and interested stakeholders in BPM provide an account of perfect fit for analysis.

3.4 RESEARCH APPROACH

The study adopted an inductive approach or argument which upholds that authentic ensuing statements and can only lead to a probable accurate conclusion or theory. It is also where theory is built from observation of a practical reality so as to invent a theory, aiming to focus from a particular perceptive of an apparent fact to a general understanding of the issue at hand (Mouton, 1996; Collis & Hussey, 2009). On the other hand, deductive approaches seek to test a theory and aim to focus from a general understanding to a specific case at hand.

3.5 RESEARCH STRATEGY

As stated by Mouton (1996:107), a research design or strategy is “the set of guidelines and instructions to be followed in addressing the research problem”. Creswell (2007:10), Saunders, Lewis and Thornhill (2009) and Yin (2009:8) identify the following as research strategies: case study, investigative journalism, action, critical enquiry, surveys, experiments, action research, grounded theory, and history and archival research.

This study adopted a case study strategy which involves investigating a particular individual, group, program, entity or event (case) in depth for a defined period of time (Leedy & Ormrod, 2010).

Yin (2009) expresses the view that a case study is a practical investigation that explores a contemporary observable fact in depth and within its real life

circumstance in particular when the confines between phenomenon and background are not clearly set out. Yin (2009) adds that case studies are used when the related performance cannot be controlled (in which case factors and case studies are used to provide the basis for scientific solutions). Thomas (2003), Yin (2009) and Leedy and Ormrod (2010) concur on their definition by emphasising that the foci (individuals, groups, organisations, events and concerns) must be indicated. However, only Yin among these scholars is clearly highlighting the significance of the contemporary phenomenon by mentioning it.

The reason for using a case study for this research is because of the researcher's intention to explore and understand factors affecting the agility and implementation of BPM at a FETC. One advantage of using a case study according to Thomas (2003) and Yin (2009) is that it allows one to use a variety of factors to come up with distinctive make-up of the organisation (in this case a FETC) being studied. Additionally, case studies can respond to questions such as 'why?', 'how?', 'so?' and 'as what?' Moreover, case studies deal with functional connections, necessitating the mapping of data collected over time (thus, not absolute incidences) and are more explanatory although it decreases the utility when mappings are too long and unreadable (Saunders, Lewis & Thornhill, 2009; Yin, 2009). Case studies enable the researcher to benefit from previous theories and propositions in data collection and analysis (Thomas, 2003). Flyvbjerg (2006) draws attention to the main misunderstandings surrounding case studies, which makes society look down upon them. Some of the misunderstandings are that case studies are useful at the initial stage of the entire research process and in generating hypotheses, while other methods are used for hypothesis testing and theory building. Case studies are also misunderstood as being there to confirm the researchers' predetermined notion of the case being studied. A further misunderstanding is the belief that one cannot generalise on a single case study. To counter the misunderstanding, Yin (2009) states that one should not mistake using case study to teach or conducting research using case studies until one has learnt about its strengths and weaknesses. Commencement with research should be avoided until the researcher has thoroughly studied the strengths and weaknesses of case studies. These counter guidelines are needed because there are researchers who do not scientifically follow the required research processes. Yin (2009) argues that the scientific research is not solely experiments and hypothesis testing, but the use of case studies is also important to collect data which are unlikely to be collected using other research methods. Thomas (2003) points out that conclusions made in one case study can be different from the conclusions in

another case study, causing doubt on the first case study. This aspect limits the effectiveness of case studies. Furthermore, case study data collection and analysis is time consuming (Mouton, 1996). To alleviate this problem, Yin (2009:9) proposed the following five case study research design components: research questions, claims, units of analysis, a connection between data and proposition, and a scheme for analysing the findings. Some of the solutions put forward by Yin (2009), i.e. field involvement, literature analysis, use of real figures and comparisons avert the case study validity threats.

There are three conditions which motivate a researcher to use case studies: the research questions; the extent of control the investigator has over social events; and the degree of emphasis on prevailing as opposed to historical events (Yin, 2009). The idea to use a case study is also annotated by Yin (2009:8) in Figure 3.1 which shows the relevant situation for different research methods. The illustration supports the choice based on the three conditions which motivate a researcher to use studies.

Method	1_Form of Research Questions	2_Requires control of behavioral events?	3_Focuses on contemporary events?
Experiment	How, Why?	yes	yes
Survey	Who, what, where, how many, how much	no	yes
archival analysis	Who, what, where, how many, how much	no	yes/no
History	how, why?	no	no
case study	how, why?	no	yes

Figure 3.1: Applicable conditions for diverse research techniques
(Yin, 2009:8)

In Figure 3.1, Yin (2009) suggests that the questions in the second column are meant for exploratory studies using any research method to develop a hypothesis and suggestions for further research. Furthermore, the 'how many?' or 'how much?' questions are suitable for archival or survey research where researchers need to investigate or enquire on ways societies deal with issues and predict these issues statistically. In addition, the 'how?' and 'why?' questions are explanatory and appropriate for case studies, histories and experiments as they trace events over time rather than investigating on regularities and occurrences. The researcher made use of 'what?' questions, appropriate for any research technique, and 'how?' questions, which Yin (2009) recommends in case studies (Figure 3.1).

The study has been undertaken as a cross-sectional study which gathers data just once or over days, weeks or months, while a longitudinal study does so over years in order to answer research questions (Saunders, Lewis & Thornhill, 2009).

3.6 DATA COLLECTION TECHNIQUES

3.6.1 Semi-structured questionnaires

For this research, semi-structured questionnaires were used to collect data by means of interviews. A variety of literature has been analysed, which increases the dependability of the research outcome. Additionally, to avoid deviating behaviour or reluctance to participate in an interview, the researcher used interview participants after having a 'small talk' with them to establish a connection and assure anonymity of their responses and observations at the FETC (Mouton, 1996). Watkins (2012) explains that a questionnaire is an instrument that aids a researcher to gather huge quantities of data to provide confirmation for the relevance of findings in a research process. More so, it is used for assessments at a later stage of the research process. During semi-structured interviews, the interviewee is initially asked precise questions or areas, and broad questions later (Cooper & Schindler, 2006). Saunders, Lewis and Thornhill (2009) mention observation, documentary analysis and experiments as primary data collection methods.

Secondary data sources such as websites, text books and journal articles were used for data collection when primary data were difficult to acquire, more time consuming and costly to collect. Additionally, secondary data sources function as background to the research, complement it, shed light on other viewpoints and assist the researcher to concentrate on the analysis and interpretation of the research findings (Baxter, Hugues & Tigent, 2006).

The units of analysis for this study have been identified as the FET College staff members.

3.6.2 Sampling

Probability sampling is where units' selection for analysis is known (Wellman, Kruger & Mitchell, 2005). An example of systematic sampling is a list of the names of all population members written on a piece of paper, and one name is picked after every third name on the list. An example of stratified sampling is where a sample of a population with two genders is engaged by indiscriminately choosing a specific number of people from each gender to form a representative sample size.

This study used non-random, purposively selected sampling (convenience or information-oriented selection) based on a 'key informants approach'. Fifteen (15) relevant individuals, some with knowledge of the FETC's strategic, tactical and operational process implementation, were used as units of observation. Flyvbjerg (2006) highlights the two main selection strategies for the selection of samples and cases as random and information-oriented selection (in use for this study and shown on Table 3.2).

Table 3.2: Strategies for the selection of samples and cases
(Flyvbjerg, 2006:230)

Type of selection	Purpose and application to this study
A. Random selection	Not used in this study.
1. Random sample	A subsection of a statistical population in which each member of the subsection has an equal likelihood of being chose and should be unbiased.
2. Stratified sample	Is drawn from a number of separate segments of the population, rather than at random from the whole population, in order for the sample to be representative.
B: Information-oriented selection (key informants used by this study)	To exploit the effectiveness of information from for instance initially selected staff members who know BPs at the FET College and refer others for selection. Circumstances are selected based on information provided.
1. Extreme/deviant cases	To obtain facts on strange circumstances that may be problematic or mainly good in a more closely defined sense, especially in BPs.
2. Maximum variation cases	To attain information about significant case patterns and consequence (e.g. three to four cases that are very different on one aspect such as time, form of establishment, situation).
3. Critical cases	To obtain information that enables consistent interpretation of the type of agility in processes at FETCs.
4. Model cases	To develop a representation or establish a theory for the realm that the case is concerned with. In this case, a theory applicable to all FETCs.

3.7 DATA ANALYSIS

The data analysis for this study was based on summarising, categorising and the application of thematic analysis. Data analysis refers to the “resolution of a complex whole into its parts” (Mouton, 1996:161). There are two key analytical methods used by researchers although some may use a combination of the two called mixed methods. Mixed methods research “mixes or combines quantitative and qualitative research techniques, methods, approaches, concepts, or language into a single study” (Johnson & Onwuegbuzie, 2004:17). Mixed methods research also attempts to validate the use of multiple methodologies in answering research questions, rather than restricting or constraining researchers’ choices (it rejects dogmatism). “It is inclusive, pluralistic, and complementary and it suggests that researchers take a heterogeneous approach to method selection and the thinking about and conduct of research” (Johnson & Onwuegbuzie, 2004:21).

A quantitative analysis method uses various statistical and mathematical techniques (univariate, bivariate and inferential statistics) to analyse data and concentrates on particular characteristics in the data set (Mouton, 1996). Ultimately, findings are related to a hypothesis to interpret the data. This study employed a mixed analysis method. As stated by Trauth (2001), the qualitative analysis method selection is determined by the research problem (qualitative is for ‘what?’ and ‘how?’), frequent use of the interpretivist epistemological perspective, and the uncertainty surrounding the issue at hand (agility of BPs in a dynamic, unpredictable environment).

A qualitative analysis method applies a variety of descriptive data collected through observation, interviews or documentary analysis in a specific context. Furthermore, the analysis forms a reconstruction of integral characteristics and understanding people through relating to other people. This is called an insider perspective. The general interpretation is more important than the particular meaning of incidences.

3.8 QUALITATIVE RESEARCH EVALUATION

This study enhances the quality of research outcomes through social science and evaluating the qualitative research process, which include assessment of delimitation and the central idea in the title, qualitative problems of the study in the problem statement, referencing, the difference between preliminary and tentative literature review, data collection and analysis (Creswell, 2012:287).

Yin (2009) identifies construct validity, internal validity, external validity and reliability/dependability as design tests to assess the quality of qualitative research designs. Construct validity refers to the development of sound evidence to

demonstrate that the concept or construct measure matches the proposed purpose or phenomenon being studied (Creswell, 2012). Internal validity seeks to assess if findings are credible from the researcher's standpoint, while external validity means defining the realm to which a study's finding(s) can be generalised. Reliability/dependability means operations of a study should be the same, replicable, stable and free from errors (Creswell, 2012). Case study tactics for design tests are indicated by Creswell (2007) and Yin (2009) in Table 3.3.

Table 3.3: Case study tactics for design tests
(Creswell, 2007; Yin, 2009)

Tests	Case study tactics	Research phase
Construct validity	i) Use traceable multiple sources of evidence such as memos, emails, books, documents and journals. ii) Establish a traceable variety of evidence from key informants such as lecturers and managers at the FETC for this study.	Data collection Data collection
Internal validity	Do pattern matching, explanations construction, address opposing explanations, appendices, and use logic representations.	Data analysis and literature analysis
External validity	Use theory in single-case studies, replication logic in multiple-case studies.	Research design depends on research credibility
Reliability	Use case study protocols being used by this research; the researcher received the consent letter from FETC for data collection and has produced a proposal in which ways are revealed on how to deal with ethics issues and case study database, including documents from the FETC.	Data collection
Consistency with philosophies, focus, perspective, and strategy	Use interpretivism for case studies, subjective, focus from case at FET College to other colleges and use inductive approach for qualitative studies.	Research design

Data was collected by means of interviews using semi-structured questionnaires. The interviews were transcribed and given to the participants to validate the correctness of the transcriptions. Once received, the data was coded using key words and sentences. The key words were then summarised and categorised. From the categorisation and data, findings were derived. The findings were closely linked to the interview questions, which were linked to the research questions and problem statement. From the findings, themes and a conceptual framework were developed and are discussed in Chapter Five.

3.9 ETHICAL CONSIDERATIONS

Ethics is defined as a set of moral doctrines or a guiding philosophy to the conduct of a human being, a group or a professional body (Smith *et al.*, 2007; David & Resnik, 2011). As pointed out by David and Resnik (2011), ethics are “norms for conduct that distinguish between acceptable and unacceptable behaviour” and can be used to disapprove, assess, recommend or interpret laws. Ethics can also be investigated as a technique, practice or stance for deciding how to proceed and evaluate complex problems and concerns in specific disciplines such as economics, philosophy, theology or law (David & Resnik, 2011). To distinguish ethics from laws, David and Resnik (2011) state that laws are enforceable and generally traditional moral standards although some can be legal but unethical or illegal but ethical. Smith *et al.* (2007) point out that although ethics can be directed by laws and morals, it is also directed by free will and can be found on individual, company, association and international levels. Ethics is important for the following reasons: i) it upholds the aims of research, i.e. knowledge, truth, and the prevention of errors; ii) it upholds values that are vital to concerted efforts such as trust, accountability, mutual respect and fairness; iii) researchers can be held accountable to the community; and iv) it assists in building public support for research and advances moral and social values such as social responsibility, human rights and animal welfare, compliance to the law, and health and safety (David & Resnik, 2011).

The following are some of the ethical principles that various systems concentrate on and which are exercised by the researcher: honesty, objectivity (avoiding bias), openness, integrity, caution and respect for intellectual property, confidentiality and responsible publication, respect for colleagues and participants, social responsibility, non-discrimination, competence, legality and care (David & Resnik, 2011).

The origins of ethics are related to the trial of the Nazi medical doctors who, during World War II, exposed prisoners to freezing temperatures, injecting typhus, ophthalmic and other toxic substances into their blood and claiming it was all for the sake of research (Rice, 2008). During those times there were no ethical principles related to research and rights for human subjects. This resulted in the inscription of ethics, currently called the Nuremberg Codes which are found worldwide (Rice, 2008). According to Rice (2008), the Belmont report describes the three essential ethical doctrines that are acknowledged as the minimum requirements for ethical human subject research and are also part of the fundamentals of the Nuremberg Code which includes voluntary and informed consent, beneficence, autonomy, and the right to withdrawal devoid of consequence.

3.9.1 The theory of respect for persons, beneficence and justice

Rice (2008) specifies that respect for persons comprises of individual autonomy, informed consent and beneficence. Individual autonomy explains that every human being has the right to self-governance, and that people such as pregnant woman and children as well as sick, poor or disadvantaged communities who cannot self-govern (also called susceptible group) are entitled to additional protection to prevent exploitation (Rice, 2008). The researcher allowed participants to be autonomous in the research process. Rice (2008) points to the following ethical research needs emanating from the principle of respect for persons: participants must participate with informed consent, accept voluntarily and have the right to withdraw without punishment or ramification when participating in research.

On beneficence, Rice (2008) states that research is meant to capitalise on the advantages and reduce threats to individuals or the society although it is difficult to weigh the rewards and dangers of research. Additionally, a solution to the difficulty as indicated by the Belmont report (a documentation of the ethics in use by most researchers), is that designers need to analyse each benefit against its limitation(s) (Rice, 2008). More so, the notion of justice as indicated by Rice (2008), refers to the spreading of risk transversely to the individuals or society (in this study the FETC key informants and its stakeholders) who are expected to gain from the research and bear the potential risks of the research. Furthermore, it should include those to whom the research relates to.

Mouton (2011) mentions that participants also have the right to privacy and not to be harmed physically, psychologically and emotionally. Mouton (2011) also upholds that participants have the right to refuse being interviewed at night, answer questions for long periods of questioning, or when one is having provisions. The rights also involve confidentiality, informed consent and debriefing (Baxter, Hugues & Tigent, 2006; Leedy & Ormrod, 2010; Mouton, 2011). The participants were not harmed or unreasonably interviewed for long hours.

3.9.2 Confidentiality

Confidentiality refers to keeping company secrets, documents, identity and information and not damaging the company's image (Baxter, Hugues & Tigent, 2006). The letter requesting permission for data collection, together with explanations on privacy, anonymity, and how respondents' information was held, ensured confidentiality. Participants' psychological discomfort, their documents and their responses were kept private. At times, research undesirably invades people's privacy. The researcher therefore must know how to respond since the researcher is

indebted to the participants for their involvement in data collection and analysis. Furthermore, the researcher did not use a videotape recorder, cameras or phones except for a computer (to type and capture the proceedings during interviews and the administration of questionnaires (see Appendix A: 134).

3.9.3 Debriefing, informed consent, counselling, additional information

To keep them at ease, participants at the FET College were told succinctly about the purpose of the research, voluntary involvement, the risks involved, the researchers' details and address, anonymity, confidentiality, and any additional information they may want to know before participating (Leedy & Ormrod, 2010). A letter of consent was obtained from the FETC before data collection. References and counselling was available for likely discomforts (Leedy & Ormrod, 2010). As indicated by Mouton (1996), informed consent can be ensured through obtaining approval for research from the specific institution where one is to collect data (which the researcher acquired), explaining the advantages and threats of the research and thanking the participants.

3.10 DELIMITATIONS

The study focused only on findings extracted from 15 selected participants (at a campus located in a community with a disadvantaged background). Four of the participants are multi-experienced, knowledgeable and acquainted with FET processes at FETCs in Cape Town. This inevitably limits the replication of the study at other FET colleges. This also poses a geographical limitation; however, the outcomes may be useful to education practitioners, novice researchers and the academic community.

3.11 SUMMARY

To summarise, this chapter discussed the study's research design and methodology followed to conduct the fieldwork. It included discussions on the research design background; theoretical guidelines related to BPs and the traditional philosophies which comprise of the positivism, interpretivism and critical realism philosophy approaches, including theory development; data collection, analysis and qualitative/quantitative research evaluation techniques, and synthesis of data, ethical concerns and delimitations.

The participant sample consisted of 15 purposively selected individuals. Semi-structured questionnaires were designed to collect data by means of interviews. Credibility and dependability were explained in the application of the case study. A process analysis enabled the identification of main concepts.

The aim of the research is to explore and explain the factors affecting the agility and implementation of BPM at False Bay College in the Western Cape, South Africa. The objective of the study is to determine why FETCs are failing to adapt to the competitive environment and maintain a continuous and sustainable increase in productivity besides improving the FETC BP system.

In the next chapter, the findings are presented.

CHAPTER FOUR: DATA ANALYSIS AND RESEARCH FINDINGS

4.1 INTRODUCTION

The previous chapter presented the research design, methodology and approach followed to conduct the fieldwork. The aim of the research is to explore and understand the factors affecting the agility and implementation of BPM at False Bay College in the Western Cape, South Africa. The objective of the study is to identify the factors that affect the agility of BPs and systems in a complex educational environment and determine how the agility of BPs and systems can be improved and managed to respond to the changing requirements in a complex educational environment in the Western Cape province of South Africa.

In an attempt to explore and understand the problem, two main research questions are posed:

SRQ1: What are the factors that affect the agility of BPs and systems in a complex educational environment?

SRQ2: How can the agility of BPs and systems be improved to respond to the changing requirements in a complex educational environment.

This chapter presents the research context, case study and locational environment, the main and sub-findings from the 15 purposively selected participants and organisational documents, and themes that emerged from the interview findings.

In South Africa, the National Qualifications Framework (NQF) comprises of the General Education and Training (GET) band, Further Education and Training band (FET)—now called Technical Vocational Education and Training (TVET)—and Higher Education and Training (HET) band. Despite the fact that GET offers the first possible departure point from the official educational system, FET is intended to provide a gateway for transitioning to higher level skills and capabilities to support the combination of education and training. It also boosts learner mobility and development at the critical point between GET and HET and the workplace (DHET, 2011). False Bay FET College, which served as the case study for the research study, employs more than 100 staff members and serves some of the marginalised and economically disadvantaged communities in the Cape Town Metropolis (P1 & P9, Appendix H: 145-159). The FET sector is introduced to the South African education and training industry as part of a drive to provide high-quality education and training that offers a wide range of learning programmes. False Bay College offers accredited programmes (vocational, occupational and skills) in a range of

fields designed for industry to meet the skills shortages in South Africa. False Bay College offers practical career paths such as Engineering, Business, Hospitality, Information Technology, Education Studies, Tourism, and Boat Building. False Bay College is ISO (International Standards Organisation) 9001:2008 certified. The strategic vision of False Bay College (located in Cape Town) is as follows: “To be the most successful, prestigious and respected FET College in South Africa” (False Bay College, 2013).

Cape Town is known as the mother city of South Africa and is the capital of the Western Cape Province. The City of Cape Town falls under the Metropolitan Province of the Western Cape. Cape Town is also a local government managing a population of three and a half (3.5m) million residents (Statistics South Africa, 2011). The national parliament and many government offices are situated in this city. It is a major destination for immigrants and expatriates coming to South Africa, making it one of the most multi-cultural cities in the world. It has an area of 2 461 square kilometres, giving it a relatively lower population density compared to other South African cities (City of Cape Town, 2013). The key interview findings are as follows:

- Finding 1:** Factors impeding the FETC’s ability to respond to the competitive environment and properly implement BPM are: i) lack of the following: financial support, collaboration, specialisation, new and relevant curricula, and resources conducive to the teaching and learning environment; ii) resistance to change; and iii) politics
- Finding 2:** Poor leadership, lack of capabilities, culture and the non-alignment of BPs with the vision of the FETC are factors preventing the College from being agile and creating value for its clients
- Finding 3:** The negative environment and shortage of resources and processes are holding back the optimal functioning of the FETC
- Finding 4:** The redundant, unreliable, unsecure and inaccurate BPs (e.g. registration and examination) hamper productivity of the FETC
- Finding 5:** The FETC needs quality distributable information to be sustainable and successful
- Finding 6:** The decrease in financial support, insecurity, stereotyping, quality of staff and students and competition of similar institutions are threats to the FETC’s ability to respond to environmental changes and survival

Finding 7: The FETC is failing to adapt and retain clients and unwilling or at least slow to change in order to remain competitive in the industry

Finding 8: There is little collaboration within the FETC in terms of resources planning and utilisation, best practices and information sharing

Finding 9: The registration process is ineffective and inefficient

Finding 10: Poverty, politics, unexpected changes in policies, the slow economy, poor service delivery and protest actions are environmental factors affecting the agility of the FETC

Finding 11: i) There is no or little strategic partnership to assist the FETC in fulfilling its mandate; ii) frequent policy changes without notification; iii) lack of sufficient student support on the FETC campus; iv) lack of relevant and enough practical programmes; v) there is a need for recapitalisation of the FETC; vi) there is a high misuse of the registration and bursary processes

Finding 12: The FETC is lacking to manage the registration and other support processes in order to change and remain competitive in the industry

Finding 13: The FETC is failing to manage the correct major risks in order to change and remain competitive in the industry

The following is a discussion of the findings with details supporting and explaining each finding. The researcher outlines the participants' experiences to enable the research audience to 'feel the talk' and understand the reality experienced by the participants. The main focus was to allow participants to speak for themselves. Quotations taken from interview transcripts attempt to portray the viewpoints of participants and capture the richness and complexity of the factors affecting the agility and implementation of BPM.

4.2 SECTION A: INTERVIEWS

4.2.1 Research Question 1 (RQ1)

RQ1: What are the factors that affect the agility of BPs and systems in a complex educational environment?

Interview question 1.1: What are the factors affecting your ability to respond to unexpected changes?

The majority of participants (P) [10 of 15; 67%] are in agreement that financial problems and constraints are factors affecting the College's ability to respond to unforeseen changes (for example P8, P10 & P12, Appendix H: 145-159). As indicated by P12, the increases in number of enrolments coupled by a decrease in financial support from the government, affect agility. Fifty-three percent [8 of 15; 53%] of the participants (for example P1, P2, P9 & P11, Appendix H: 145-159), acknowledged the following factors as affecting agility at the FETC: locational environment of the College where there are high crime rates, access problems or low degree of connectivity, shortage of resources, resistance to change, lack of internal and external collaboration, and the quality of students enrolled at the College. Participant 12 (Appendix H: 150) said:

“There is resistance to change, fear of the unknown, and people do not buy in people with disabilities. There is lack of collaboration/team work and customer services. There are no signs to direct students at the campus. Also, this is a high risk area to the staff and our students. I was attacked, told to get out of my car on my way home this past August (2014) because of strike[s] and I am still recovering as well as receiving counselling. I am here only because I need a job. I have nowhere to go for now. There are social and financial ills affecting the College. Financially this campus will not survive without bursaries because most of our students are coming from one-parent families, child headed families who are poor. The FETC is called a dumping site and this mentality need[s] to be changed”.

Participant 11 (Appendix H: 150) stated that:

“...the time frame for completing the programs is too short and additionally, resources such as [a] simulation room required to complete the syllabus is not there and we can't teach without it. I sit on the floor to teach, I seat under the table and teach because there are no cupboards or shelves and when you tell management they say keep quiet and do your work. I was given a written warning because I requested for a trolley (for carrying students' portfolios)”.

Some participants [5 of 15; 33%] mentioned the lack of team work (internal collaboration) as a factor affecting agility (P1, P8 & P12, Appendix H: 145-159). Participants (for example P4, P9, P12 & P13, Appendix H: 145-159) revealed that resistance to change and old curriculums are factors affecting agility. Only two participants [13%] identified specialisation of duties as a lacking aspect, and quality lecturers and students as well as politics as factors hampering agility (P4 & P7, Appendix H: 145-159). P4 (Appendix H: 146) expressed this as follows: “...attracting skilled workers. Lecturers are doing more administration instead of their main tasks,

having harmonious work relationship with the HR; some students are not ready for tertiary education and the selection process need[s] refinement”.

The factors affecting agility are demonstrated in Figure 4.1.

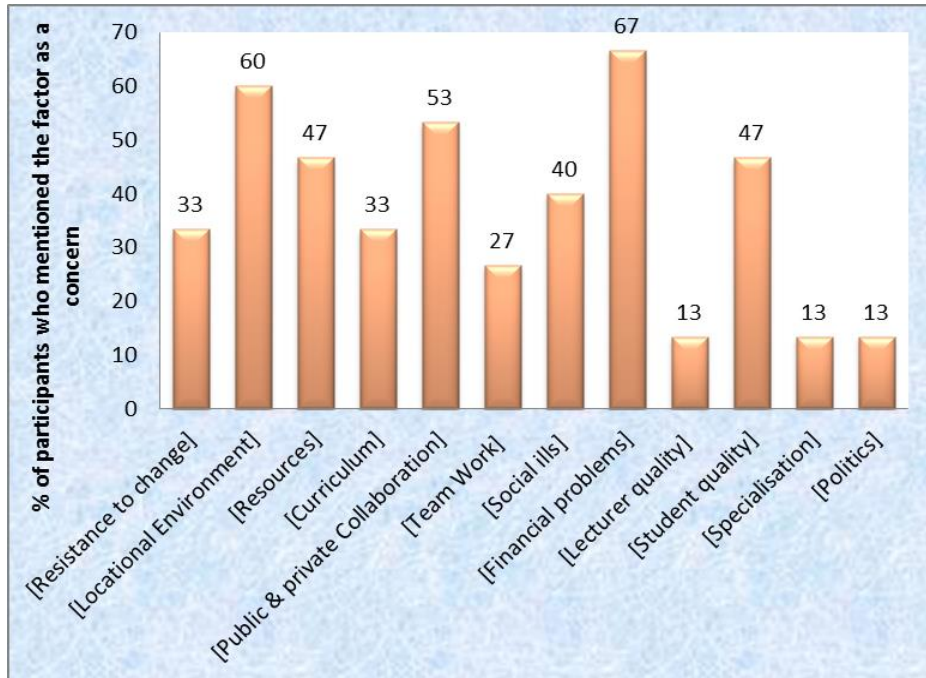


Figure 4.1: Factors affecting agility and the implementation of BPM

Illustrated in Figure 4.1 are the factors affecting agility. The leading factors demonstrated are financial problems, locational environment, collaboration, resources, student and lecturer quality, resistance to change and social problems. Other highlighted factors are team work, politics, specialisation, social misfortunes and old curricula.

Sub-findings as a result are:

- i) The FETC is failing to manage the financial problems, quality of students, human resources and collaboration to be more agile and implement BPM
- ii) The FETC lacks physical connectivity and security in order to be more agile
- iii) The FETC lacks an updated curriculum in order to be more agile

Finding 1: Factors impeding the FETC’s ability to respond to the competitive environment and properly implement BPM are: i) lack of the following: financial support, collaboration, specialisation, new and relevant curricula, and resources conducive to the teaching and learning environment; ii) resistance to change; and iii) politics

Interview question 1.2: *Why are the following factors important in the organisation's ability to meet changes: capabilities, people, process complexity, organisational factors, IT, culture of change, operations alignment, market assessment and competition assessment?*

The majority of participants [13 of 15; 87%] mentioned IT, BPM, performance capabilities and operations alignment as factors needed to enable the College to adapt to the dynamic environment, as said by P1 (Appendix H: 145): "...skills are stagnant to keep up with changes in technology".

P2 supports this view:

"There is a lack of skills to use technology and the College mission is not known to some. Selection of lecturers draws back as lecturers affect the whole system, resources should stream from the top and computer skills hinder lecturers' duties. There is resistance to change as people want to remain in their comfort zones" (P2, Appendix H: 145).

On IT, culture of change and operations alignment, P5 (Appendix H: 147) explained as follows:

"Culture of change is facing resistance, for instance the introduction of the biometric system of clocking in and out, at first it was not appealing and people were asking why we are not clocking manually. Communication and convincing goes hand in hand with management skills. Culture of change in terms of diversity, change can happen but if not managed can hamper progress. Alignment of activities with vision not up to scratch; there is no specialisation as lecturers are doing more administration instead of catching up with core duties of tutorials..."

A smaller number of participants [7 of 15; 46%] mentioned that they assist in communicating the culture of change and facilitate collaboration (P13, Appendix H: 151). As specified by P12 (Appendix H: 150): "...management are even scared to correct an older person who is conducting or invigilating an exam process wrongly because culturally it's off-limits to tell an older person what to do if they are stubborn".

Less than 50% of the participants mentioned the ability to relate to the community, alignment of activities with organisational vision, and the assessment of organisational strengths, weaknesses, opportunities and threats.

On this note, P7 (Appendix H: 148) said:

“We are not working toward our vision so as the way we are implementing plans. We deviate from plans, for instance I want artisans and the department employs a person without the skill which needs to be transferred to students. This ‘chomi’ (friendship) business here should stop, my uncle is working here, and it kills the vision. Assessing the environment enable[s] us to know our stakeholders and relate to the community who can also protect the College when we are not there on Sundays”.

Sub-findings as a result are:

- i) The FETC lacks leadership agility to be more agile and create value for its clients
- ii) The FETC is failing to improve its culture of change and manage its capabilities
- iii) The FETC BPs are not aligned with the vision of the FETC

Finding 2: Poor leadership, lack of capabilities, culture and the non-alignment of BPs with the vision of the FETC are factors preventing the College from being agile and creating value for its clients

4.2.1.1 Sub-Research Question 1.1 (SRQ 1.1)

SRQ 1.1: What are the key agility indicators (KAIs) and critical success factors (CSFs) for FETCs to be agile in order to service their clients?

Interview question 1.1.1: *How are you satisfying your clients’ needs in this constantly changing environment (speed, accuracy and cost control)?*

Three (3) participants [20%] are in agreement that community skills development is vital in the efforts of the FETC to satisfy clients (including P1, Appendix H: 145). Some of the participants, [5 of 15; 33%] and [4 of 15; 27%] respectively, recognise the platform to bursaries and access to university or tertiary as vital aspects to satisfy clients (including P5 & P8, Appendix H: 145-159). As indicated by P10 (Appendix H: 145-159) and others [3 of 15; 20%] respectively, increasing support to students and job placements for students who complete their programs at FETCs are valuable elements to satisfy clients.

Thirteen percent [13%] of the participants (including P13, Appendix H: 145-159) expressed the view that part time, full time and distance learning which accommodates all types of students, will satisfy clients.

P11 (Appendix H: 150) disputes this viewpoint as expressed below:

“We are not satisfying our clients because our 30 to 40 year old ladies are abused, stabbed and raped as they walk to the College, even if the College is getting a lot of money to support them. We can’t offer evening part-time classes because there is no transport for them. Some of my students did not write tests because there was no transport and they could not arrive in time and had to walk ten kilometres because of the new policy no longer offering transport allowance for those staying within 10 kilometre radius. Students are used to reading from books but some lecturers are using projectors and other ways”.

Participant 14 (Appendix H: 151) concentrated on staff absenteeism as well as resistance to change as negative elements towards clients satisfaction, and said: “We are not (satisfying client needs) because some staff are always absent as this affects pass rate and customer services”.

Staff members’ opinion on the contribution of the FETC towards client satisfaction is shown in Figure 4.2.

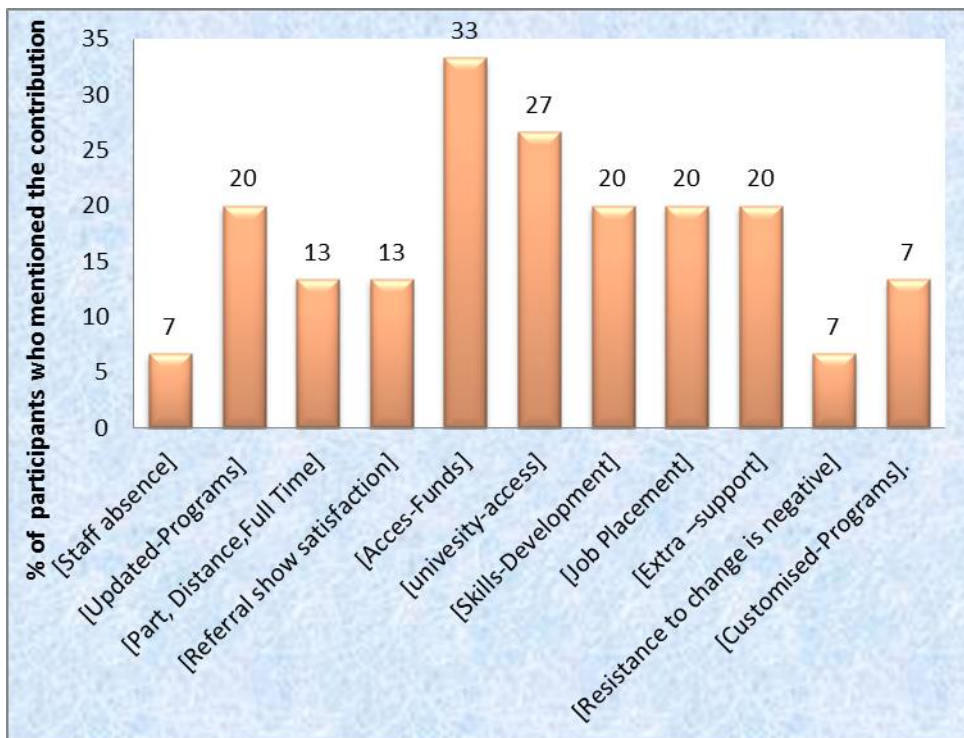


Figure 4.2: Contributions of the FETC towards client satisfaction

The positive and negative platforms being used by the College to satisfy clients are shown in Figure 4.2. It illuminates some of the following dominant tactics being used

by the FETC to enhance its agility: access to financial aid and universities, updated customised training and extra support and job placements (P1, P4 & P5, Appendix H: 145-159). Figure 4.3 also highlights the inability to satisfy clients, as mentioned by P8, P11 and P14 (Appendix H: 145-159) through insecure BPs. This is through staff absence and resistance to change.

Sub-findings as a result are:

- i) The FETC lacks adequate funds and does not provide enough platforms to university education in order to satisfy clients
- ii) The FETC students need extra support, job placements opportunities, skills development, and updated curricula

Finding 3: The negative environment and shortage of resources and processes are holding back the optimal functioning of the FETC

Interview question 1.1.2: *In relation to processes, please explain why the following are important: non-redundancy, reliability, security, productivity, success, and accuracy (KAIs).*

Nine participants [60%] specified that BPs are not secure and do not contribute to successful end results.

P12 elaborated as follows (Appendix H: 150):

“The registration process is not secure because I have seen students getting high PACE (Pre-registration Assessment Centre-a department which does the assessments for the campus) results but could not read or understand English language which is the medium of communication. During the registration process some have to bring their college identity documents, at pace assessments, at first registration. One girl came here seven times because she was told to go and collect separately all her documents until she decided to go and complete matric somewhere else”.

P8 (Appendix H: 148) contributed as follows:

“[The] registration [process is] not reliable because we are sometimes recruiting anyone who passes by. The examination processes have too many cooks who some are untrained and some results are not captured. Administration and lecturers should do their work. We have students whose marks were not captured and he is supposed to come and re-do N6 level again”.

Contrary to P12, P13 stated that “processes are secure, there are stringent processes gone through to check, although we are unable to control fraudulent documents brought by students” (P13, Appendix H: 149).

Three participants pointed out that accurate information saves resources and is useful in decision making (P1, P3 & P4, Appendix H: 145-159). They also mentioned that BP is aligned and that non-duplication does not prevent fraud (P3 & P4, Appendix H: 145-159).

Thirteen percent [13%] of the participants expressed the position that non-duplication of BPs saves resources for the institution (for instance P1, Appendix H: 145-159).

Figure 4.3 shows how processes are valued by the participants.

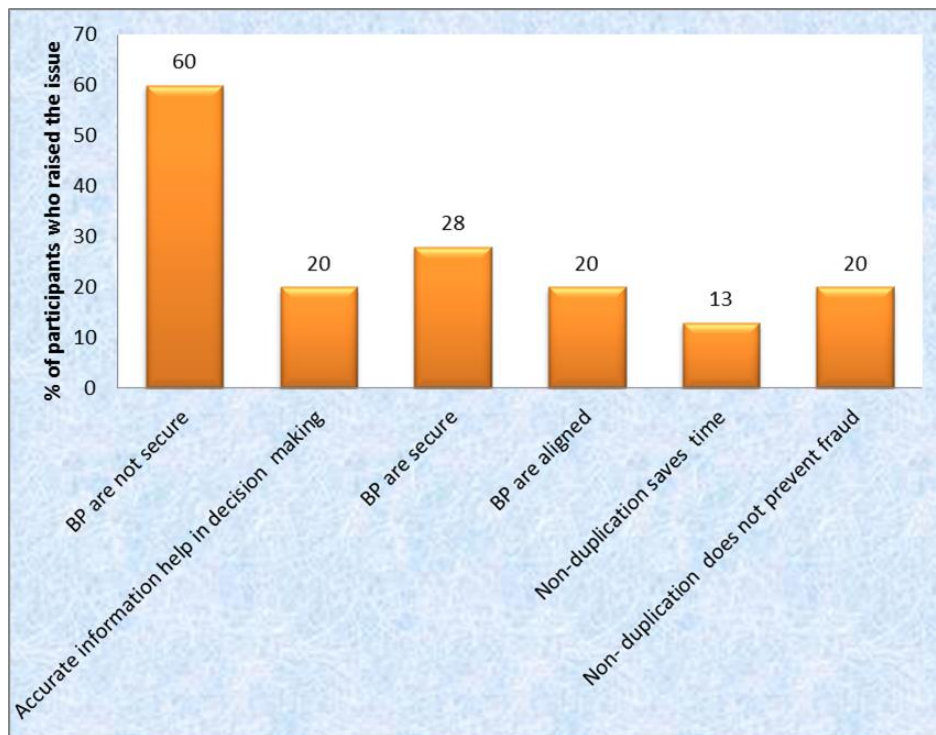


Figure 4.3: Issues related to the FETC processes

Figure 4.3 reveals the participants’ responses in relation to the issues of FETC processes. Three participants [20%] indicated that accurate information saves resources and is useful in decision making. Three participants [20%] also mentioned that BPs are aligned, and the same number pointed out that non-duplication does not prevent fraud. Two participants [13%] expressed the position that non-duplication of BPs saves resources. Twenty-eight percent [28%] of the participants

believe that BPs are secure. Nine participants [60%] pointed out that BPs at the College are not secure.

Sub-findings as a result are:

- i) The FETC BPs are failing to eliminate redundancy and provide accurate and desirable results
- ii) The FETC BPs lack security and alignment with the organisational vision
- iii) BPs at the FETC fail to save resources and are unreliable

Finding 4: The redundant, unreliable, unsecure and inaccurate BPs (e.g. registration and examination) hamper productivity of the FETC

Interview question 1.1.3: *In relation to information, could you elaborate on the importance of information at this FETC (KAIs)?*

Three participants [22%] (for example P12, Appendix H: 145-159) stated that information is important when it comes to sharing best solution methods (internally and externally) to problems and sharing responsibilities. According to P3 (Appendix H: 146), “sharing information means they [staff] can share responsibilities, enabling people to get new ideas and better approaches to problem solving”.

Some participants [14%] cited the ability to keep abreast (up to date) with change as well as maintaining best practice emanating from sourcing information about the best practice (P6, Appendix H: 145-159), in response to the question. P1 is of the opinion that the value of information is elevated when it becomes a tool for assessing competitors in directing clients through signs, and if it is seen as a factor of production (P1, Appendix H: 145-159) (See Figure 4.5).

P1 (Appendix H: 145) explained the value of information as follows: “Information is a factor of production and a resource which results in information management. No organisation or business will survive without information”. One participant [7%] (P15, Appendix H: 145-159) indicated that information distribution is not taking place at the campus because people are afraid of victimisation (See Figure 4.4).

Shown in Figure 4.4 are participants’ contributions in relation to how information is vital in the FETC agility and BPM implementation. Information relevance and value is mainly viewed by participants as the sharing of responsibilities, best practices, remaining up to date, and identifying the best solution methods. Participants also expressed that it is used as a factor of production, a commercial intelligence tool to

direct clients although people are afraid of being victimised for its distribution at the College.

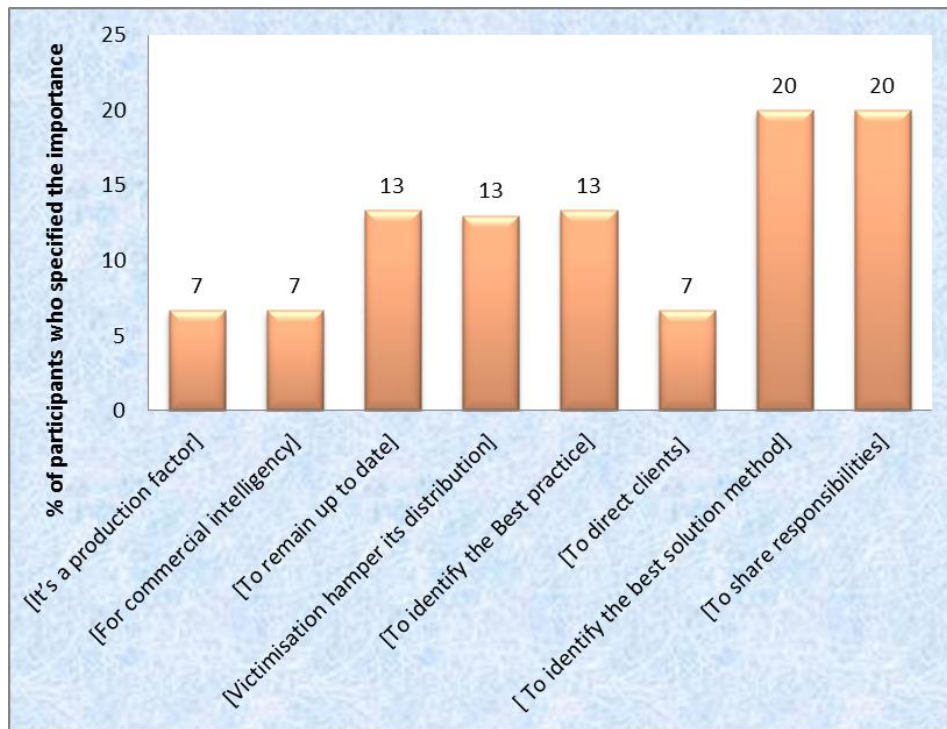


Figure 4.4: The importance of information as a KAI

Sub-findings as a result are:

- i) The FETC BPs lack information for productivity and commercial intelligence
- ii) The FETC is failing to manage its information, distributing it for best practices, and sharing responsibilities

Finding 5: The FETC needs quality distributable information to be sustainable and successful

4.2.1.2 Sub-Research Question 1.2 (SRQ 1.2)

SRQ 1.2: What are the risks of a competitive environment such as wherein FETCs operate on the perceived important 'business agility and speed to the market'?

Interview question 1.2.1: *What risks is your institution exposed to that are hampering its ability to fully respond to change/environment?*

All the participants mentioned that the withdrawal or decrease in financial support and campus security are risks affecting the FETC's agility. Two (2) participants perceive the risks affecting the College as follows: "...losing students who leave to

other colleges to get transport allowance and bursaries. This is happening because for some if you call them they will be at home and will only complain when they do not get the transport allowance” (P13, Appendix H: 158). P11 (Appendix H: 157) said that “we are not keeping lecturers and students because of the environmental security, violence, strike...”, while P7 (Appendix H: 155) indicated: “Crime - fence was stolen, people being robbed at the gate, break-ins, anybody can drive in and we do not have security in place. The security does not search...”

Three participants [20%] pointed to the continuous changes in rules and regulations from the government which do not allow colleges to adjust before implementation. This is causing a loss of students to competitors. One participant (P5, Appendix H: 147), said that “there were too many policies and regulations in a short space of time to synthesise”.

Regarding the new government policy concerning students’ transport allowance, P7 (Appendix H: 148) said that “new policies of students not giving transport money for those within twenty kilometre radius makes them get tired [when they walk long distances] before classes”. P1 (Appendix H: 145) said the following:

“[There is] resistance to change because [the] communication/consultative forum of DHE on policies [is] not in existence... [There is registration] confusion on policies from FETC and the DHE who say anyone who have passed grade 9 can do Engineering and IT. They should leave the political connotations as they say [pre-registration] assessment is meant for selection but rather to help you identify challenges faced by the students”.

P10 and P12 (Appendix H: 145-159) expressed the feeling that enrolling students who are not ready for tertiary education is a risk for the survival of the FETC. As indicated by P2 (Appendix H: 145-159), competition from other organisations and online institutions are risks to the campus agility.

On stereotyping as a risk, participant P9 (Appendix H: 156) indicated the risks to the survival of the FETC and said:

“There is stereotype of FETCs, that those who come here are those who didn’t do well at high school as such we are likely not to get students. The decrease in financial support from the government is causing the student numbers to drop. On security, we are situated in a place where crime is rife and some students have dropped because of crime”.

Thirteen percent [13%] of the participants indicated that competition is a source of risk to the survival and success of the campus. The risks affecting the College’s

ability to respond to environmental changes are illustrated in Figure 4.5. There is a risk of a decrease in financial support as well as physical and BP security. In addition, there is the risk of losing students because of travelling from work and home to the campus as well as the negative stereotyping of FETCs. Furthermore, the recruitment of poor quality staff and students increases the risk for the FETC in the long run. Increasing competition for quality students is also exposing the FETC as it is difficult to compete for good students in the market.

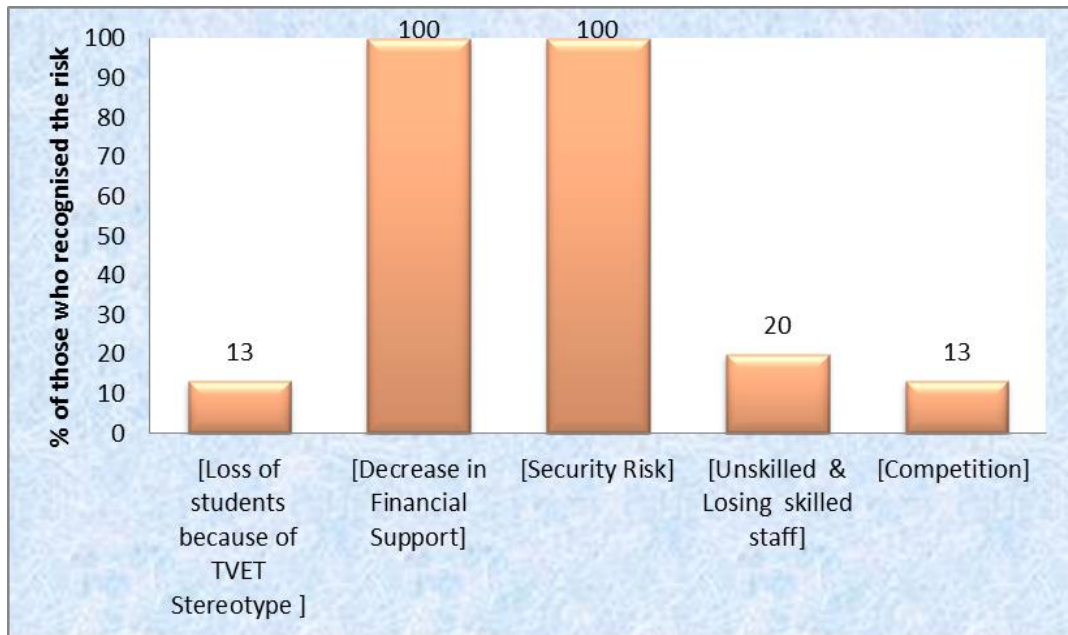


Figure 4.5: Risks posing a threat to the FETC's agility and survival

Figure 4.5 shows some of the risks posing a threat to the campus agility and survival as mentioned by P7 and P9 (Appendix H: 145-159). All participants are of the opinion that security and the decrease in government financial support are major sources of risks to the agility and survival of the campus.

Sub-findings as a result are:

- i) The FETC lacks the capability to increase financial support to students
- ii) The FETC lacks physical and BP security
- iii) The FETC is failing to manage competition and eliminate its stigma
- iv) The FETC is failing to manage its human resources

Finding 6: The decrease in financial support, insecurity, stereotyping, quality of staff and students and competition of similar institutions are threats to the FETC's ability to respond to environmental changes and survival

4.2.2 Research Question 2 (RQ2)

RQ2: How can the agility of BPs and systems be improved to respond to the changing requirements in a complex educational environment?

Interview question 2.1: Please explain how change is important (culture of change) in terms of diversity, environment, ethics, social conscience, and values.

Many participants [9 of 15; 60%] specified that the FETC is failing to adapt to the changing environment, even though it is important in increasing agility, as one participant explains: “There is resistance to change and unless it stops full development will not take place” (P7, Appendix H: 155). P4 (Appendix H: 154). expressed his opinion by saying that “change enable[s] organisations to adapt though we are lacking in some aspects”. Five [33%] participants are of the opinion that there is resistance to change hampering the FETC’s ability to increase client retention, capacity, and change in relation to customer needs as the needs of clients are changing. Two participants [13%] believe that the lack of a culture of change is impeding the FETC’s ability to remain competitive and adapt (P2 & 4, Appendix H: 145-159).

Participant 11 expressed the opinion that the lack of a culture of change affects the ability to be wide thinkers. The following quote confirms the above point: “50% yes are walking the extra mile. People look more to their rights when something changes” (P11, Appendix H: 157).

Figure 4.6 discloses how the lack of culture of change is affecting the FETC in improving agility and implementing BPM. The effects are shown as the inability to adapt, remain competitive, retain clients, and have workforce fluidity (wide thinkers). Workforce fluidity refers to the ability to possess workers with diverse skills, competence based training, collaboration skills, flexibility, and unrestricted workmanship (Nijssen & Paauwe, 2012).

Sub-findings as a result are:

- i) The FETC is failing to adapt
- ii) The FETC is failing to increase its client retention capability
- iii) The FETC is failing to manage the culture of change and improve its competitive advantage

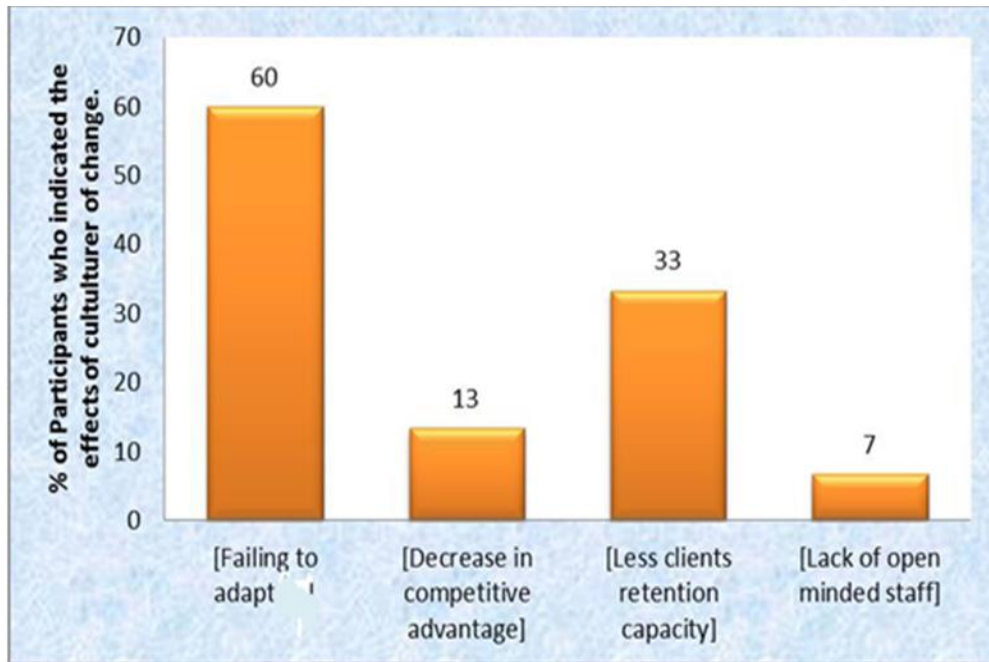


Figure 4.6: How the lack of a culture of change is affecting the FETC

Finding 7: The FETC is failing to adapt and retain clients and unwilling or at least slow to change in order to remain competitive in the industry

Interview question 2.2: *Why are internal and external collaborations important for this FETC?*

Many of the participants [10 of 15; 67%] expressed the importance of private and public collaboration in sharing best practice. Participants such as P2 (Appendix H: 153) commented on the importance of collaboration by saying: “Sharing information is for the betterment of us and the institution. It is also meant to share best practice. Focus groups for moderation and assessment meeting[s] [with the] DHET”. Some participants expressed the importance of collaboration as well as the collaboration pitfalls of the FETC. According to P13 (Appendix H: 158):

“[We are collaborating with the] ICB [Institute of Certified Bookkeepers who are] external examiners for ICB [we are offering], WCED [the Western Cape Education Department], Sector Education and Training Authority (SETAs), focus groups, and the Job Placement Officer who work[s] in collaboration with the industry to find the industry requirements. One retail organisation is upskilling some of our lecturers who will deliver to our students. Pastel is an indirect partner providing us the software for our functionality. Internal collaboration is important for planning and to correct all what we might be doing wrong or for best practices”.

In contrast, P12 (Appendix H: 157) said:

“[We are interacting with] external partners [such as the] Cape Town Association of the Blind on how to support the blind, with nurses and doctors, School of skills, WCED and others. On internal collaboration we are not working as a team which frustrate[s] clients and causes strike. One example is through Head Office, I found out that one student with disability and [a] psychiatric problem was accepted at one of our campus [es] without informing the inclusive education officer or Student Support department. To tell you the truth, that student does not even deserve to be here, the mother said there was no doctor’s certificate to confirm and I can’t chuck out that student because the government has already paid the bursary”.

Participants [9 of 15; 60%] indicated that organisations collaborate to acquire the resources they need. This is reflected by P1 (Appendix H: 153):

“The kids we are teaching are for the industry, so dialogue enables the industry and FETCs to benefit. For instance, 44 students are graduating, mainly the SETA. [There is] this FETC ICDL, the City Council as well as [one local] development forum partnership. The City Council as well as the [local] development forum put funds on the table as we train for the industry which absorb[s] the students”. STRIKE

Five participants [33%] stressed the importance of collaboration in supporting colleges in sharing responsibilities and knowing the skills shortage in industry. P14 (Appendix H: 158) commented on this as follows: “Collaboration with other... colleges in the Western Cape which writes a common paper helps in sharing the workload and ideas”. P6 (Appendix H: 155) blames the lack of a platform within the FETC environment in order to reap the fruits of collaboration and said: “Yes they are, though I have not communicated with others from other colleges for the past 5 years. There is no path and most [of the] time I am always in class and cannot collaborate with external bodies. Conventions are vital or have functions to enhance interaction”.

P1 stated that collaboration improves the value of clients and the organisational image. The following quote supports the above-mentioned finding: “Sharing information helps the clients and improves the image of the campus” (P8, Appendix H: 156).

Figure 4.8 illustrates the value of collaboration as a percentage, as expressed by the participants.

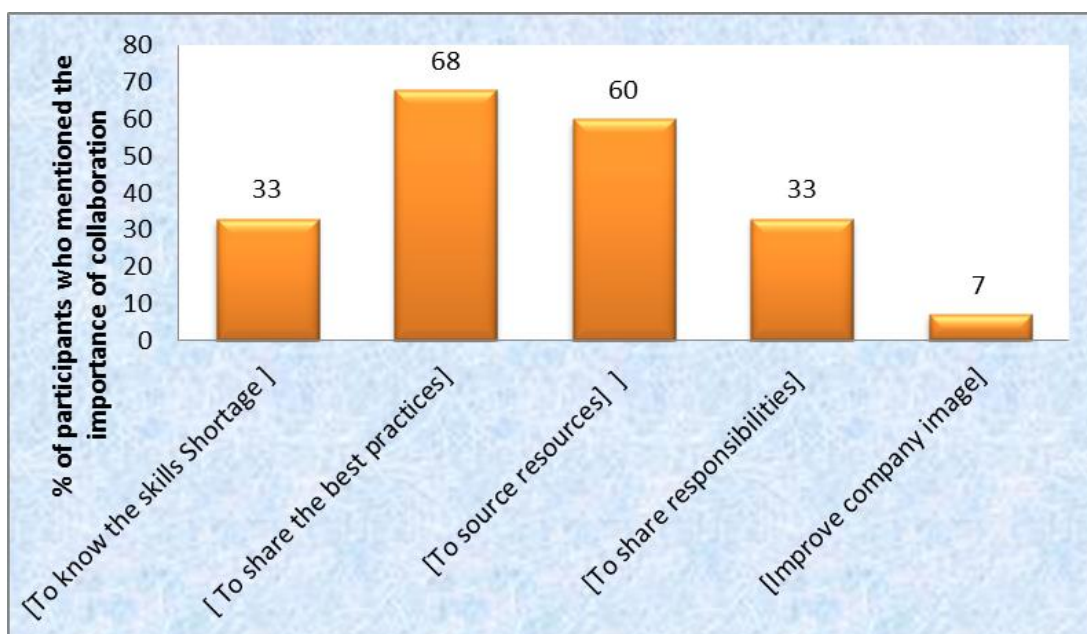


Figure 4.7: The importance of internal and external collaboration

Internal and external collaborations are important for the survival of institutions and this is highlighted in Figure 4.7. The figure also illustrates in percentages that collaboration benefits organisations in terms of sharing best practices, responsibilities, sourcing organisational resources, and improving organisational image. The sub-findings for Finding 8 are indicated below.

Sub-findings as a result are:

- i) There is a lack of collaboration at the FETC to share best practices and source resources
- ii) The FETC lacks the capability to collaborate and identify skills shortage in the industry and share responsibilities
- iii) The FETC lacks the aptitude to collaborate more to eradicate FETC stereotyping

Finding 8: There is little collaboration within the FETC in terms of resources planning and utilisation, best practices and information sharing

Interview question 2.3: *Which processes do you think are the most critical for the survival of this college?*

The majority of participants [13 of 15; 87%] identified the registration process as one of the most critical processes for the FETC's survival and agility.

The following is stated by P1 (Appendix H: 153):

“The most critical process is the registration; it needs to be re-engineered as we are not prepared every time when we are towards it so as the examination process [sic]. It has always been a struggle when it comes to registration because there are external forces in play, when classes should start and when students should write exams. Results are always released late and at the same time we are expected to commence classes on time. This year was chaotic, the Minister directed us to register only students who have 50% average, which excluded the majority and they had to revise that decision.”

Some participants are of the opinion that in order to improve the agility of the FETC, the registration processes need re-engineering to improve efficiency, security and outcomes, and to avoid wasting resources. P9 (Appendix H: 156) expressed the following: “Registration is critical for FETC survival because if we do not select the appropriate students it will affect all other processes [as] we want [to produce] world class students. However, all processes work in collaboration”. Other participants such as P8 and P14 (Appendix H: 145-159) identified the registration as a complicated process which needs re-engineering and planning.

Some participants [3 of 15; 20%] are of the belief that curriculum development and staff recruitment are critical for institutional survival and agility. P4 (Appendix H: 154) said: “Staff selection and registration as well as programs offering should be based on industry needs. From 1990s offerings were supply driven, but since 2000, 2002, colleges offerings are now demand driven”.

Only two participants [13%] indicated that service delivery and all other processes such as those shown in Figure 2.11 and Figure 2.12 (bursary and resource procurement processes) are important. As described by one of the participants: “Processes work in collaboration, all is dependent on the other, though most depend upon registration” (P13, Appendix H: 158).

One participant highlighted that service delivery is as vital as registration and that without, it the institution will be non-existent: “Service delivery, without it we spoil everything and cause strike[s], dropout and extra” (P15, Appendix H: 158).

Figure 4.8 represents the most critical processes for the survival of the College.

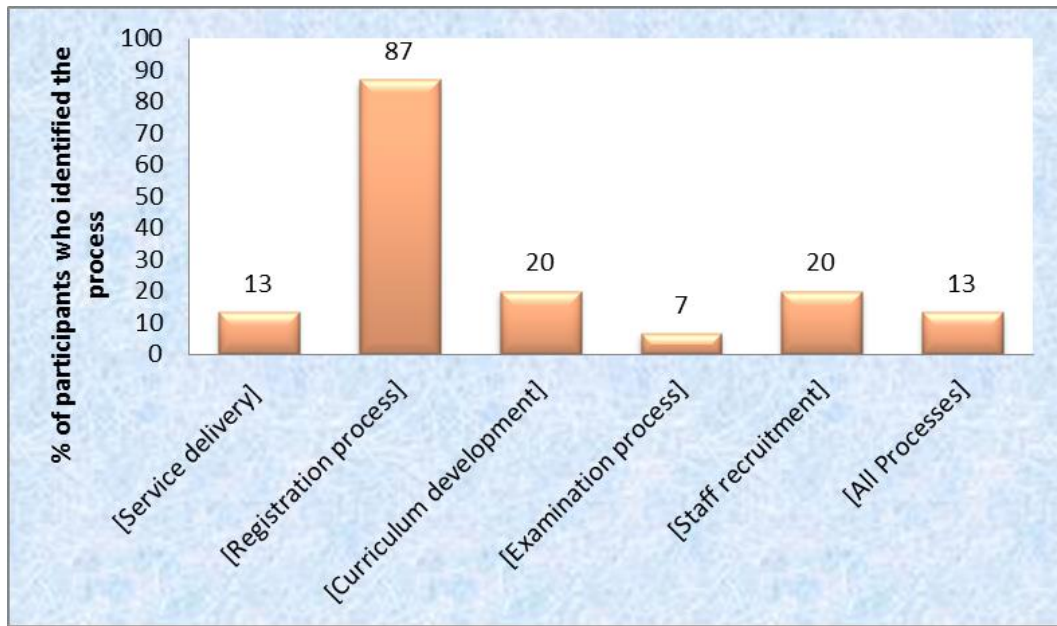


Figure 4.8: The most critical processes for the survival of the College

Figure 4.8 reveals that the majority of participants regard registration as one of the most crucial processes which determines the organisational agility and survival, although some indicated that curriculum development, service delivery, staff recruitment, and all the others processes are equally important.

The sub-findings as a result are:

- i) The FETC lacks the capability to manage the registration and curriculum development processes for its survival, adaptability, and productivity
- ii) The FETC lacks the ability to manage the human resources for its survival, adaptability, and productivity

Finding 9: The registration process is ineffective and inefficient

4.2.2.1 Sub-Research Question 2.1 (SRQ 2.1)

SRQ 2.1: How does a competitive environment impact on the perceived importance of 'business agility and speed to the market'?

Interview question 2.1.1: *The business environment is impacting more positively than harmfully, do you agree?*

A number of participants [10 of 15; 67%] stated that the FETC is situated in a community with a disadvantaged background and as such, poverty and crime are affecting the FETC. The following citation highlight this: "[The] environment is affecting negatively, our campus is riddled with social ills such as crime; service

delivery protest is the order of the day as well as non-compliance, child care issues and students come to class with empty stomachs, etc.” (P9, Appendix H: 156).

P12 (Appendix H: 157) expressed that “the environment is affecting [agility] negatively. After Mandela was released, people still have militant behaviour and they are exercising it at their campus. The protest action, strikes, violence, burning tires; is still being counselled for acute stress”.

Participants such as P13 (Appendix H: 158) explained how the environment is affecting the College:

“Negatively because of the social, economic problems such as child headed families, unemployment leading to crime, HIV, TB, other diseases, poor attendance, poor results, student dropouts, etc. We had no bursaries at one point and students paid. Bursaries have not improved our results as we are still attracting [the] same [type of] students. We are uncertain as to what extend people will sacrifice for education if the government stops offering bursaries”.

Four of the 15 participants [27%] are of the view that the environment is affecting the FETC agility positively since it is enabling the College to collaborate with its stakeholders and source its resource needs. The same participants stated that the environment is affecting the College’s ability to be more agile because of the rise in protest actions in the community. As shown by P11 (Appendix H: 157): “We are not keeping lecturers and students because of the environmental security, violence, strike, so the environmental circumstances are affecting negatively”.

Three of the participants [20%] also cited some undesirable effects of politics and changes in policies, as well as positive effects of access to education as factors affecting the FETC’s ability to respond to changes.

P8 (Appendix H: 156) identified the negative effects of leadership and politics on the College’s ability to respond to the environment: “Policies are changed willy nilly (as they like and unnecessarily) and before students adjust financially. Not giving transport allowance by the government for students staying within the 10km radius will result in high dropout rates, strikes and a decrease in pass rates.”

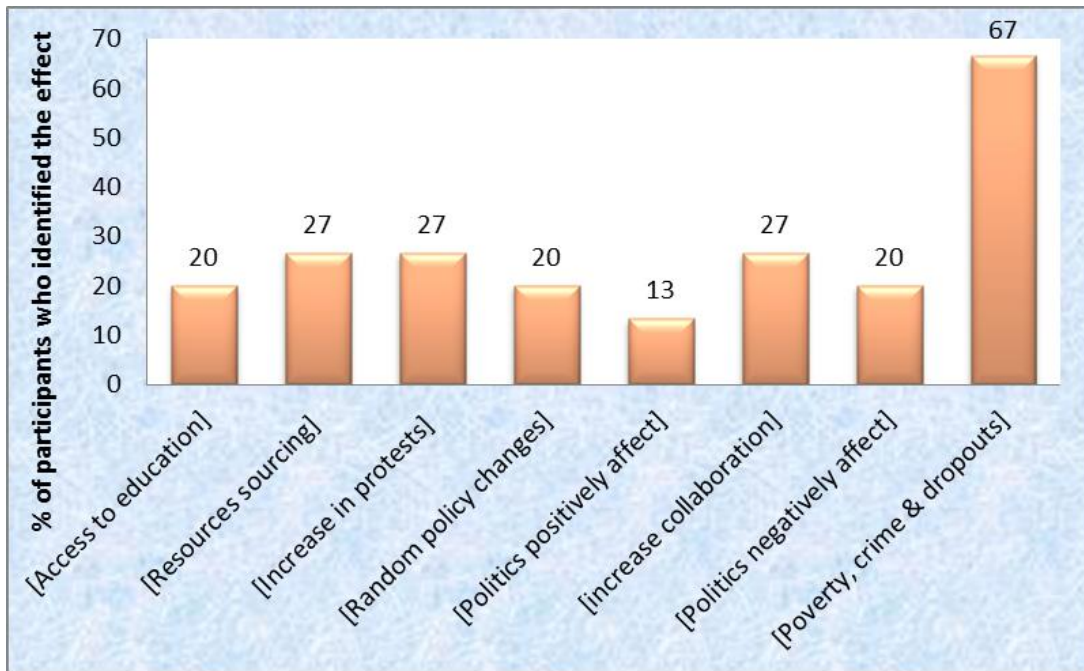


Figure 4.9: Environmental effects on FETC agility

Demonstrated in Figure 4.9 are the environmental effects on the College's agility as are indicated by the interview participants. The majority of the participants view poverty as one of the main environmental factors affecting the FETC's agility. Some expressed the positive effects of the environment in the form of collaboration, government bursaries, access to education, and resource outsourcing. A small number indicated that the undesirable effects of the environment include politics, unexpected changes in policies, and the increase in service delivery protest action in the community.

Sub-findings as a result are:

- i) It is necessary for the FETC to manage poverty among the stakeholders, which affects its agility
- ii) The FETC is unable to manage random policy changes, politics, and protest actions, and increase collaborations in order to improve agility
- iii) The FETC is failing to manage tangible, human, and intangible resources in order to improve agility

Finding 10: Poverty, politics, unexpected changes in policies, the slow economy, poor service delivery and protest actions are environmental factors affecting the agility of the FETC

4.2.2.2 Sub-Research Question 2.2 (SRQ 2.2)

SRQ 2.2: How can FETCs manage the changing and competitive environment in order to execute the mandate government bestowed on them?

Interview question 2.2.1: How can FETCs manage the changing and competitive environment in order to execute the mandate government bestowed on them?

Participants [10 of 15; 67%] expressed the view that increasing support to students can alleviate the challenges emanating from the competitive environment. The following quotes express this opinion:

P11 (Appendix H: 157):

“Management at central and the government must understand our challenges and address them appropriately - like providing transport to students as well as transport allowances”.

P8 (Appendix H: 156):

“Adjust time and after [informative] assessment 1 all below 50% should do extra studies to improve results. Neighbourhood watch should have ladies and men to walk around our campus to increase security. For the staff they should look at CVs as it seems they are not doing that. One case is where they recruit anyone who did N4 accounting without looking at if they have taught”.

Some participants [6 of 15; 40%] stated that strategic partnership is one of the main approaches that can be used to adapt to the competitive educational environment. As expressed by one participant:

“The environment is changing too fast but what FETC has done is to position itself strategically so that they are able to capitalize. If you look, we used to have [a] NATED course, SETA seating under the Department of Labour and we used to have FETCs. Now the DHE took over the SETA to be under the DHET so as for FETC to relate to the SETAS which are related to the industry and where change is to be implemented” (P1, Appendix H: 153).

Three participants [3 of 15; 20%] expressed dissatisfaction with government and other institutional funding systems that are in place because they see them as ineffective and inefficient in handling bursary applicants across government institutions or colleges.

The following two citations illuminate the participants' positions:

“Our government has created a dependence syndrome; even those who can afford are applying for a bursary. The funds are not enough. When I was working at [a local hospital] we were training students... funded by government for [practical] training. When they finish we would sent them to a FETC for theoretical training where the government would pay R11 000. When they fail at one FETC they would enrol at another FETC and the government would pay another R11000 at the same level. The government would end up paying R100 000 for the same student at the same level but at a different college. At the same time the student will remain unemployed and unqualified. There should be an interrelated system which can identify bursary application[s] at the same level but at different FETCs (P7, Appendix H: 155).

P 14 stated the following:

“There should be systems in place to turn away students who repeatedly fail all subjects at the same level and return the following semester or year or go to another college to get a bursary and transport allowance. This avoids wasting government funds on students who are not serious and concentrate on giving chance to those who have the will” (P14, Appendix H: 158).

Only 2 participants [13%] encourage communities and higher education authorities to assist community leaders, industry and other stakeholders to change perceptions towards FETCs and their graduates. P13 (Appendix H: 158) stated that:

“Partnerships with the local forum, neighbourhood watch and police can assist on security. Changing the perception of people toward FETCs through model students will help. This is because some universities are not accepting our students because they still believe in the old stigma that those who want to use their hands and did not do well at high school can go to FETCs”.

Some participants such as P9 (Appendix H: 145-159) identified the following strategy as important in attempting to manage the competitive educational environment: i) early registration of students to avoid congesting the process, and ii) giving FETCs autonomy to run their colleges instead of the government controlling everything. One participant also encouraged policy implementers to fulfil their plans and policies. These management strategies are described as follows:

College management is employed by the state as such they are mandated to do things in a way which is in line with what government wants. Government must give autonomy to run own affairs. The control by government compromise[s] quality, progress and benefits for the College. This also means they are treating them as new born, spoon feeding them. Government or the college should assist on access to the College because some of the student[s] might not come to write tests because of crime and transport problems” (P9, Appendix H: 156).

The South African objectives as indicated by the South African National Development Plan (South African Government, 2015) are related to False Bay strategic plans (see Table 4.5). One method put forward by P10 (Appendix H: 157) to manage the dynamic educational environment, is that “registration must be started early, keep records, to avoid registering anyone, even those who do not qualify”.

FETCs must recruit the right type of staff, be recapitalised, and venture into occupationally directed training where they can easily access funds. However, FETCs are reluctant to do so. Participant P4 described and expressed this as follows:

“Recapitalise colleges, attract right type of staff and create clear career path[s] for them, strategic partnerships help colleges train people. Australia have customers out of the country train for industries. Colleges are spoiled with program funding. Colleges should go into occupational training because there are funds waiting for them, though colleges are afraid to do” (Appendix H: 154).

Figure 4.10 shows the tactics which participants appraised in attempting to manage the changing educational environment.

In order to adapt to the competitive educational environment and execute the mandate bestowed on FETCs, some of the findings as shown in Figure 4.10 illuminate the following factors: strategic partnerships, increasing student support, and having a system to screen bursary applicants to avoid those who repeat many times at the same level in order to access only the allowances.

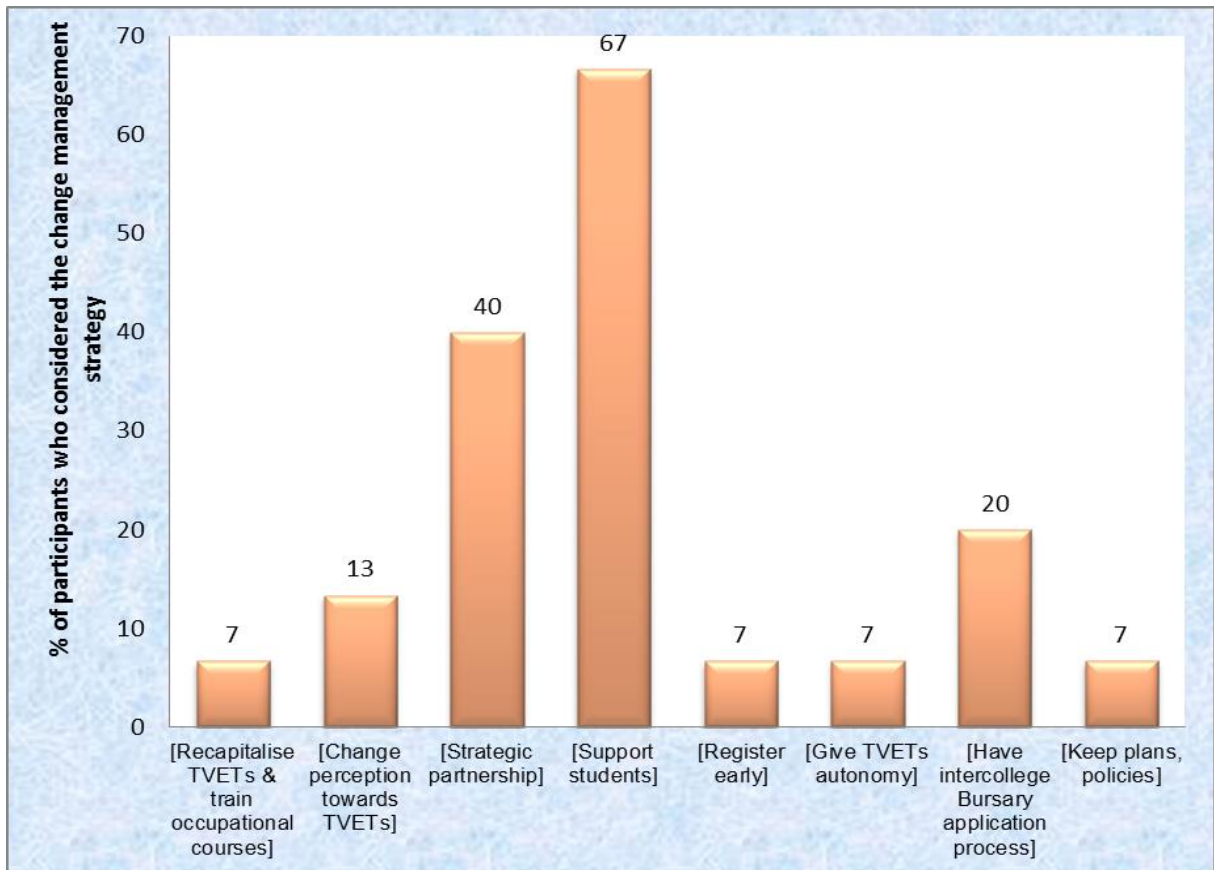


Figure 4.10: Factors to consider for a change management strategy at FETC

Sub-findings as a result are:

- i) There is no or little strategic partnership to assist the FETC in fulfilling its mandate
- ii) There is a lack of enough student support on the FETC campus
- iii) There is a need for recapitalisation of the FETC
- iv) There is a lack of relevant and enough practical programmes
- v) Policies change frequently and without notification
- vi) There is high misuse of the registration and bursary processes by students

Finding 11: i) There is no or little strategic partnership to assist the FETC in fulfilling its mandate; ii) frequent policy changes without notification; iii) lack of sufficient student support on the FETC campus; iv) lack of relevant and enough practical programmes; v) there is a need for recapitalisation of the FETC; vi) there is a high misuse of the registration and bursary processes

4.3 SECTION B: DOCUMENTARY FINDINGS

4.3.1 Documentary findings and observations

Documentary findings to be presented relate to the following research questions:

RQ1: What are the factors that affect the agility of BPs and systems in a complex educational environment?

RQ2: How can the agility of BPs and systems be improved to respond to the changing requirements in a complex educational environment?

The FETC does have collaborative abstract BP or P2P processes in BPMN (Figure 4.11). P2P is a human-centric or person-to-person class of process where people interact with each other, for example project managers (Van der Aalst, 2013).

In Figure 4.11, the FETC buyer buys books for lecturers and students from the bookshop seller (sales representative). The buyer initially analyses market prices, places an order for textbooks, receives invoices and text books, and then settles the invoice. The bookshop sales representative receives the order and processes the order by sending the invoice and books together. The invoices are also archived for later reference.

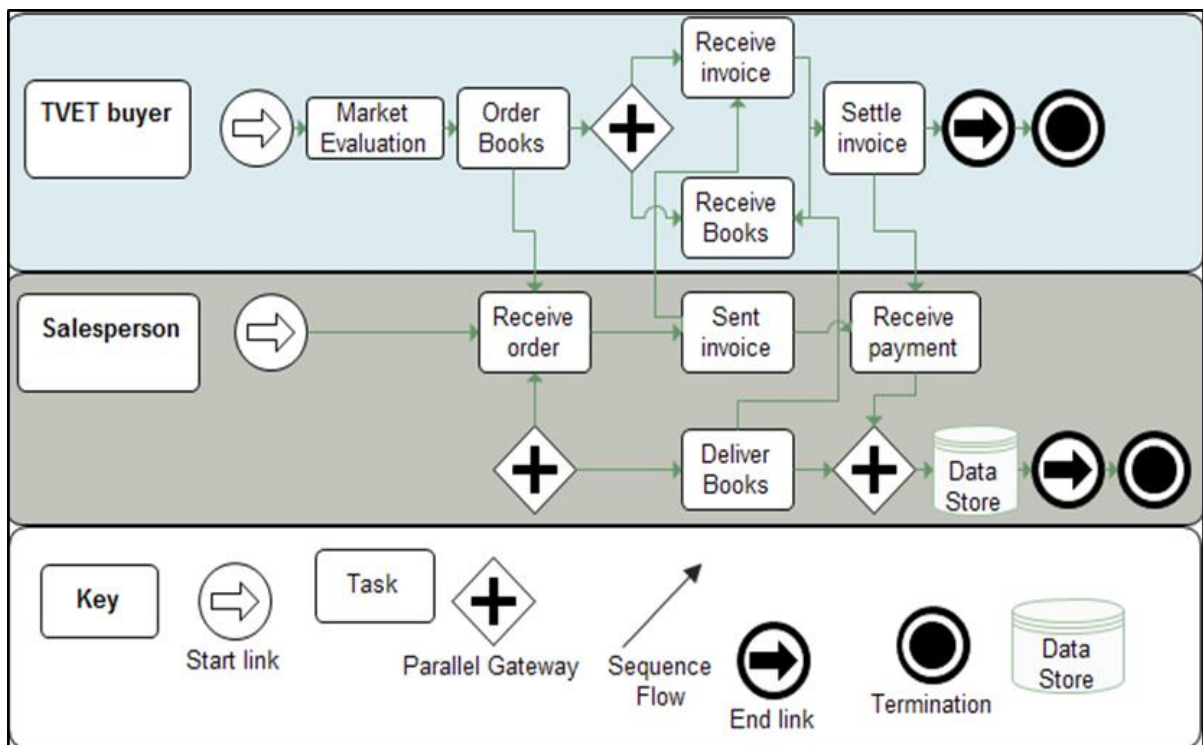


Figure 4.11: FETC (TVET) book procurement: A BPMN type diagram

Figure 4.12 demonstrates the comprehensive bursary application process (support or operational private process) at the Technical College using the *Metasonic Build* tool.

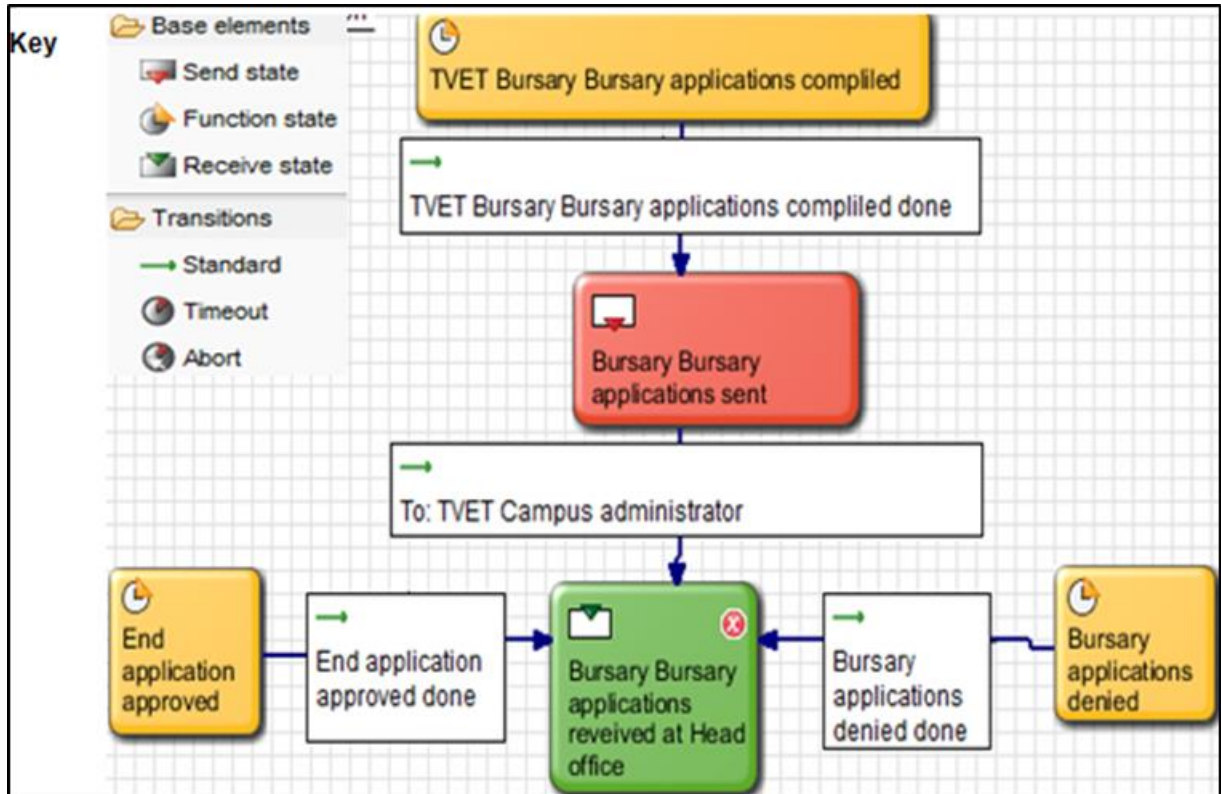


Figure 4.12: High level FETC (TVET) bursary application processes

Shown in Figure 4.12 is the detailed bursary application process (support or operational private process) at the FETC. A student applies for a bursary and waits for approval from the head office (approver on behalf of the government at the FETC). The administrator where the applicant applies for registration sends the application forms on behalf of the student to the head office. Once the head office receives the applications it can approve or disapprove them. A metasonic process tool (named *Metasonic Build*) is used to develop and show the detailed bursary application process. Figure 4.12 shows the basic elements of a metasonic process namely the send state which denotes sending a request, the function state and the receive state. *Metasonic Build* is referred to as a subject-oriented modelling tool for BPs (Metasonic GmbH, 2014). It has the advantage that it provides security enhancements with the aid of BPMN during the designing of secure processes (Gritzalis *et al.*, 2014).

BPMN has the advantages of security in that it presents the implementation detail to internal stakeholders for execution and only a simple version (Figure 4.13) to external stakeholders. There are two internal subjects, one being the sender and the other the receiver.

Figure 4.13 presents the bursary application process meant for external stakeholders. It reveals only a simple version to enhance security.

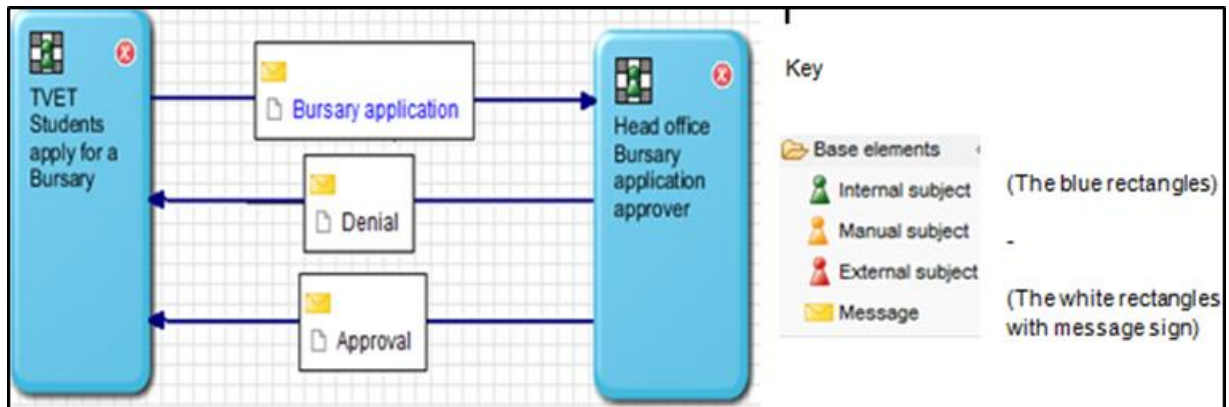


Figure 4.13: An illustration of bursary application process with a metasonic building tool

Registration is one of the most critical processes (refer to Figure 4.8). Figure 4.14 shows the ‘as is’ registration process at the FETC being studied. Figure 4.14 is an example of a private process at the FETC. It is presented in an event-driven process chain using the *Microsoft Visio* application tool. The ‘as is’ process (current) shows the main processes, indicating role players and the relationships to the model of the event-driven process chain. An event-driven process chain is a graphical illustration and description tool which describes the workflows possible in chronological order. It focuses on the process, illustration of data, organisations and systems (Helmke, 2013a). It has the following elements:

- An event which describes an actual economically relevant status of an information item and which controls or influences the further course of the BP
- A function which is a professional task, procedure, activity or information item for the support of one or more business aims. It is a carrier of time and costs. Illustrated on the lower part (key) of Figure 4.14 are elements of the event-driven process chain which include event, function, organisational view Information unit and the three connectors consisting of exclusive **xor**, **and**, **or**, including the other labelled key elements

The process in Figure 4.14 starts with a demand for a course or specific training such as skills training, academic course or professional course. The student is assessed to determine if he/she satisfies the requirements to do a specific course. The student decides to register depending on whether he/she qualifies. The next step is to manually fill out registration forms and paying registration fees or applying for a bursary in order to register. FETC campus staff captures the forms while registration and bursary application approval takes place at the head office only. Both the Department of Higher Education and the head office confirm registered students.

The 'as is' (current) FETC registration process is illustrated in Figure 4.14.

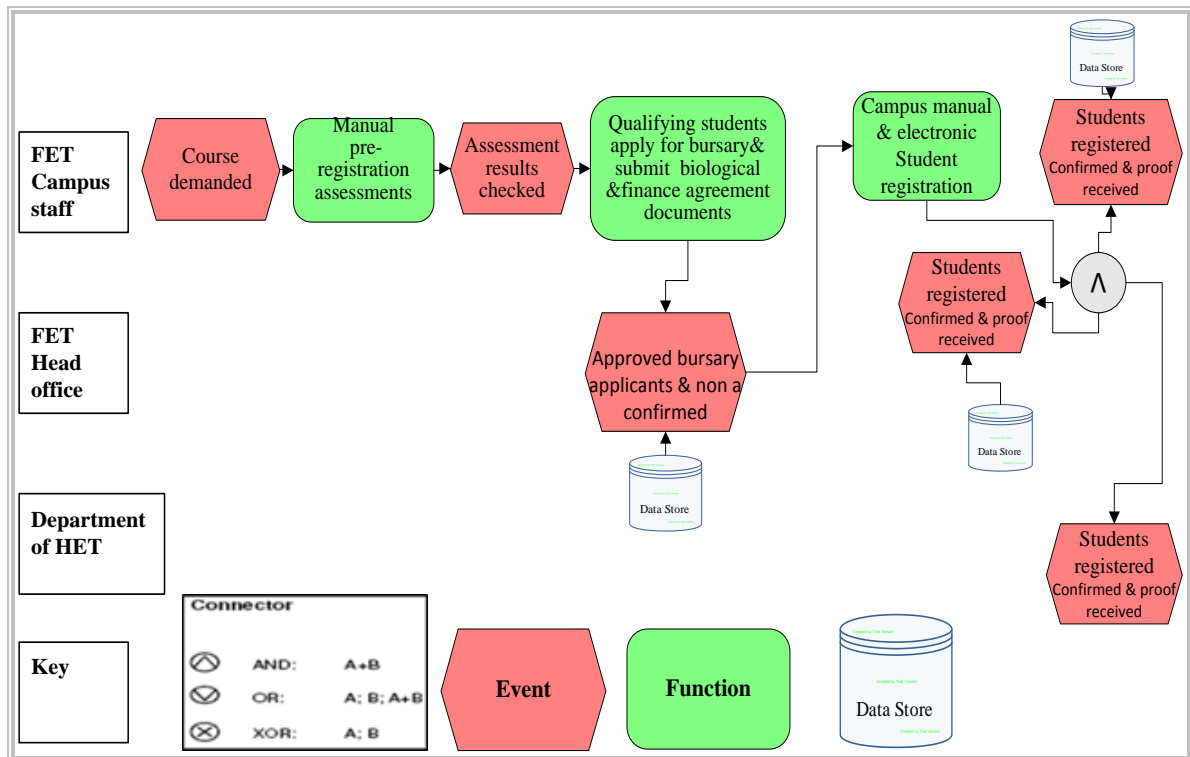


Figure 4.14: The 'as is' registration process at the FETC being studied

Figure 4.14 illustrates the 'as is' FETC registration process. It presents the process as falling short of the required experts or capabilities for the registration process because anyone is doing it (the cleaners, the maintenance staff and others). The registration process always commences late because the FETC normally waits for an instruction from the DHET to commence. The registration process is also usually characterised by long queues which could be attributed to a lack of capabilities. The process is done manually with no online registration. FETC processes are written in a natural language which makes them vulnerable to fraudsters. Additionally, the

process duplicates and has many redundancies, does not promote paperless transactions (it is rigid) and does not ensure BP security at design. Furthermore, waiting time for bursary approval from the head office is too long. This could lengthen the *lead time* (the total time from establishing the event to the finishing point), *service time* (time actually worked on a function or incident), *waiting time* (time an event is waiting for resource availability), and *synchronisation time* (the time an activity is not yet fully functional and waiting for an exterior initiator) during the registration process. The process does not reflect interconnected FETC registration and bursary processes to avoid abusing the process.

Finding 12: The FETC is lacking to manage the registration and other support processes in order to change and remain competitive in the industry

Table 4.1 shows a summary of the findings linked to the research question and sub-research questions.

Table 4.1: Summary of the findings linked to the research question and sub-questions

RQs and SRQs		A summary of the findings linked to the research questions and sub-questions
RQ1	What are the factors that affect the agility of BPs and systems in a complex educational environment?	<p>Headline Finding 1: Factors impeding the FETC’s ability to respond to the competitive environment and properly implement BPM are: i) lack of the following: financial support, collaboration, specialisation, new and relevant curricula, and resources conducive to the teaching and learning environment; ii) resistance to change; and iii) politics</p> <p>Headline Finding 2: Poor leadership, lack of capabilities, culture and non-alignment of BPs with the vision of the FETC are factors which prevent the College from being agile and creating value for its clients</p>
SRQ 1.1	What are the key agility indicators (KAIs) and critical success factors (CSFs) for FETCs to be agile in order to service their clients?	<p>Headline Finding 3: The negative environment and shortage of resources and processes are holding back the optimal functioning of the FETC</p> <p>Headline Finding 4: The redundant, unreliable, unsecure and inaccurate BPs (e.g. registration and examination) hamper productivity of the FETC</p> <p>Headline Finding 5: The FETC needs quality distributable information to be sustainable and successful</p>
SRQ 1.2	What are the risks of a competitive environment such as wherein FETCs operate on the perceived important ‘business agility and speed to the market’?	<p>Headline Finding 6: The decrease in financial support, insecurity, stereotyping, quality of staff and students and competition of similar institutions are threats to the FETC’s ability to respond to environmental changes and survival</p> <p>Headline Finding 13: The FETC is failing to manage the correct major risks in order to change and remain competitive in the industry</p>

RQs and SRQs		A summary of the findings linked to the research questions and sub-questions
RQ 2	How can the agility of BPs and systems be improved to respond to the changing requirements in a complex educational environment?	<p>Headline Finding 7: The FETC is failing to adapt and retain clients and unwilling or at least slow to change in order to remain competitive in the industry</p> <p>Headline Finding 8: There is little collaboration within the FETC in terms of resources planning and utilisation, best practices and information sharing</p> <p>Headline Finding 9: The registration process is ineffective and inefficient</p>
SRQ 2.1	How does a competitive environment impact on the perceived importance of 'business agility and speed to the market'?	<p>Headline Finding 10: Poverty, politics, unexpected changes in policies, the slow economy, poor service delivery and protest actions are environmental factors affecting the agility of the FETC</p>
SRQ 2.2	How can FETCs manage the changing and competitive environment in order to execute the mandate government bestowed on them?	<p>Headline Finding 11: i) There is no or little strategic partnership to assist the FETC in fulfilling its mandate; ii) frequent policy changes without notification; iii) lack of sufficient student support on the FETC campus; iv) lack of relevant and enough practical programmes; v) there is a need for recapitalisation of the FETC; vi) there is a high misuse of the registration and bursary processes</p> <p>Headline Finding 12: The FETC is lacking to manage the registration and other support processes in order to change and remain competitive in the industry</p>

4.3.2 Documentary findings related to SRQ 1.2

SRQ 1.2: What are the risks of a competitive environment such as wherein FETCs operate on the perceived important 'business agility and speed to the market'?

***Interview question 1.2.1:** What risks is your institution exposed to that are hampering its ability to fully respond to change/environment?*

The purpose of the College Risk Management Framework at the FETC is to build a quality risk management environment that allows for responsible risk taking. The purpose is to ensure that legitimate precautions are taken to protect the public interest, maintain public trust and ensure due diligence. The College Risk Management Framework is also meant to improve proactivity and establish a reliable basis for decision making. *Risk Matrix* is the tool for ranking and displaying risks. In addition, the risk owner is the person accountable for managing a particular risk. Risk tolerance is the level of risk exposure the institution is willing to bear (False Bay College, 2013).

Risk can be treated (through being anticipative, reactive and flexible) or managed through reduction (by having a cushion), protection, transfer and financing (DHET,

2014). Table 4.2 shows the risk impact, ranking guidelines and analysis which form a critical part of the FETC's strategic management, adding value and is a fundamental part of a comprehensive good business practices approach (False Bay College, 2013).

Table 4.2 demonstrates the risk impact, ranking guidelines and analysis.

Table 4.3 reveals the likelihood ranking.

Table 4.4 shows the risk index.

Table 4.5 presents the risk tolerance thresholds.

Table 4.2: Risk impact, ranking guidelines and analysis
(False Bay College, 2013)

Impact ranking	Strategic	Education/teaching risks	Financial	Legal risk	Reputation	Technical complexity	Health and safety	Human resources	External risks
Critical 5	No achievement of objectives.	Disruption for undetermined period over one or more campuses.	Insufficient cash reserves to remain operational. Qualified audit. Tender process jeopardises a fair assessment for tenderers. Fraud. Bad debts >10%.	Major litigation or prosecution with damages >R1m.	International press reporting over several days.	Use of unproven technology for critical systems/project components. High level of technical inter-dependencies between system components.	Major environmental damage. Serious injury (permanent disability) or death of personnel (>1) or members of the public.	Inability to recruit staff. Annual staff turnover of >50%.	No funding received. No exam results (1yr) or before new year.
Major 4	Performance significantly under target.	Disruption for >1 day over more than one campus.	Unauthorised budgetary spend (>150,000). Impacts heavily on other budget items. Incomplete specifications for tender process. Bad debts >5≤10%.	Major litigation or prosecution with damages> R500k≤1m.	National press over several days.	Use of new technology not previously utilised by the organisation for critical systems/project components.	Significant environmental damage. Serious injury (permanent disability) or death of personnel (>1) or members of the public.	Delays (>6 months) in academic staff appointment. Annual staff turnover of >30%.	No funding received for >6 months. No exam results (>6mnths).

Impact ranking	Strategic	Education/ teaching risks	Financial	Legal risk	Reputation	Technical complexity	Health and safety	Human resources	External risks
Moderate 3	Slight under achievement of target performance	Disruption for >1 day over a significant area of a campus.	Unauthorised budgetary spend (>R50-<150,000). Adjustments to other budget items. Unclear specifications for tender process. Bad debts >2≤5%	Major litigation or prosecution with damages> R100k≤500k	Local press over several days.	Use of unproven or emerging technology for critical systems/ project components.	Lower level of environmental impacts. Extensive injury (permanent disability) of personnel (>1) or members of the public.	Delays (>3months) in academic staff appointment. Annual staff turnover of >20%.	No funding received for >4 months. No exam results (>4mnths).
Minor 2	Inconvenient delays.	Brief local inconvenience (1 day).	Unauthorised budgetary spend of <R50k (can be absorbed). Bad debts >1≤2%	Major litigation or prosecution with damages >R50; ≤R100k	Limited negative media coverage.	Use of unproven or emerging technology for systems/ project components.	Little environmental impact. Less severe injury (temporary disability) (>1) or members of the public.	Delays (>2 months) in staff appointment. Annual staff turnover of >10%.	No funding received for >3 months. No exam results (>3mnths).
Insignificant 1	No or minimal impact.	No or minimal impact on core systems (<1 day).	Cost increase < 1%. Minimal impact on budget. Bad debts <1%.	Major litigation or prosecution with damages <R100k.	Negative media coverage has no impact.	Use of unproven or emerging technology for non-critical systems/ project components.	No environmental impact. First aid only.	Delays (>1 month) in staff appointment. Annual staff turnover of <10%.	No funding received for >2 months. No exam results (>2months)

Table 4.3: Likelihood ranking
(False Bay College, 2013)

Likelihood factor	Measurement criteria	Qualification criteria	Rating
5 = Highly likely	The risk is already occurring, or has a high likelihood of occurring more than once during the next 12 months.	The risk is almost certain to occur in the current circumstances.	5
4 = Likely	The risk will easily occur, and is likely to occur at least once during the next 12 months.	More than an even chance of occurring.	4
3 = Moderate	There is an above average chance of the risk occurring more than once during the next three (3) years.	Could occur often.	3
2 = Unlikely	The risk has a low likelihood of occurring during the next three (3) years.	Low likelihood, but could happen.	2
1 = Rare	The risk is unlikely to occur during the next 3 years.	Not expected to happen – event would be a surprise.	1

Table 4.4: Risk Index QMS
(False Bay College, 2013)

IMPACT	5	5	10	15	20	25
	4	4	8	12	16	20
	3	3	6	9	12	15
	2	2	4	6	8	10
	1	1	2	3	4	5
		1	2	3	4	5
	LIKELIHOOD					

Table 4.5: Risk tolerance thresholds
(False Bay College, 2013)

Threshold tolerance (Risk Index Value)	Threshold interpretation	Suggested action	Suggested timing
from 16 to 25	RED Unacceptable High Risk	Management should take immediate action to reduce risk exposure to an acceptable level.	Immediate action required
From 8 to 15	YELLOW Cautionary Medium Risk	Management should reduce the risk exposure and related control adequacy.	Medium term action within 4 months
From 1 to 7	GREEN Acceptable Low Risk	Management should monitor risks and may consider reducing the cost of control.	Monitor - no Immediate action required

Risk index (RI) is determined by multiplying the **Likelihood (L)** and **Impact Ranking (IR)**.

Using the above information (Tables 4.2 to 4.5) to relate to the risks of the decrease in financial support and security risks mentioned by all participants (Appendix: H: 150) (see also Figure 4.5), the following:

- i) **RI Financial Risk** = $5 \times 5 = 25$. The threshold tolerance (or Risk Index Value) is in the range 16 to 25, which is unacceptable and needs immediate action (See Table 4.5).
- ii) **RI Security Risk** = $5 \times 4 = 20$. The threshold tolerance (or Risk Index Value) is also in the range 16 to 25, which is unacceptable and needs immediate action (See Table 4.5).

The calculated values 25 and 20 (threshold tolerance or Risk Index Value) are red and unacceptable (both values, 25 and 20, are found in threshold tolerance ranges from 16 to 25). Threshold tolerance Table 4.5 indicates that management should take immediate action to reduce the risk impact to an acceptable level.

In addition, an immediate action is required to manage these risks as shown by the different levels of risk tolerance in Table 4.5. This is also evidenced by the financial risk and security risk with threshold tolerance of 25 which needs immediate action, as shown in Table 4.2 and Table 4.5. Although the FETC manages risks such as education/teaching, financial and legal risks, reputation, technical complexity, health and safety, human resources and external risks (Table 4.2), it seems that the wrong risks are managed. Table 4.6 shows the risk reduction and elimination techniques related to the FETC.

Table 4.6 reveals the FETC goals, risk statement, impact, probability, severity, risk management and control as well as elimination techniques related to the FETC.

Finding 13: The FETC is failing to manage the correct major risks in order to change and remain competitive in the industry

Presented in Table 4.7 is the thematic analysis extracted from the interview findings. The following themes were identified: organisational architecture or factors; security and risk; the business environment; BPM; and agility.

Presented in Table 4.7 is the thematic analysis extracted from the interview findings. The following themes were identified: organisational architecture or factors; security and risk; the business environment; BPM; and agility. The

themes are based on the categories developed from the findings as described by Creswell (2012) and Saunders et al. (2009). The findings were derived from the interviews, which was transcribed and coded. The findings were then logically group together to form the said categories.

The themes are presented in Table 4.7.

Table 4.6: Risk reduction and elimination techniques related to the FETC
(False Bay College, 2013)

Strategic goals	Risk statement	Impact Low/ Moderate/ High/ Extreme	Probability Unlikely/ Likely/ Almost certain	Severity Low/ Moderate/ High/ Extreme	Risk management and control
1. Increase the number of skilled youth by access to education and training for youth.	Inadequate National Student Funds Aids Scheme (NSFAS), bursary allocation. This could result in not meeting student needs, relating to transport and student unrest.	Extreme	Likely to almost certain	Extreme	Communicate the situation in advance with the Student Representative Council (SRC). Clearly communicate with prospective students the bursary expectations as well as the schedule of payment for transport allowances.
2. Increase the number of skilled youth by access to education and training for youth.	Inadequate DHET Programme-based funding to support the growth of students in programmes linked to Artisan Training and N4-N6. This will have a negative effect on the College cash flow.	High	Likely	High	The growth of these programmes is primarily located in the part-time department, thereby ensuring that at the very least, the staff costs are covered by class fees.
3. Increase the number of skilled youth by access to education and training for youth.	Lack of suitable infrastructure to accommodate the training demands of the communities, specifically at two campuses.	Extreme	Likely	Extreme	The College is continuously lobbying for the expansion of two of the campuses. Securing access to a new site will eliminate this risk completely.
4. Increase the number of skilled youth by access to education and training for youth.	Growth of occupational student numbers is often linked to availability of student residences. Student residence at one of our campuses is old and deteriorating and could lead to the decrease in accommodation for more students.	High	Likely	High	Secure funding to upgrade residences. If the DHET is not in a position to provide the financial support then the College has no option but to resort to other sources of funding in order to prevent the closure of some wings.
5. Adequately capacitated individual institutions for effective provision or facilitation of learning.	A shortage of suitably qualified lecturers in mathematics and engineering fields. This could impact negatively on the growth of student numbers as well as the quality of teaching.	High	Likely	High	Develop a work environment that limits staff losses and are attractive to top quality educators.

Table 4.7: Thematic analyses from the interview findings

RQ	RQ	Interview Findings	Categories	Final themes
RQ 1	What are the factors that affect the agility of BPs and systems in a complex educational environment?	<ul style="list-style-type: none"> The FETC is failing to manage the financial problems, quality of students, human resources, and increase collaboration to be more agile and implement BPM The FETC lacks physical connectivity and security in order to be more agile The FETC lacks an updated curriculum in order to be more agile <p>Headline Finding 1: Factors impeding the FETC’s ability to respond to the competitive environment and properly implement BPM are: i) lack of the following: financial support, collaboration, specialisation, new and relevant curricula, and resources conducive to the teaching and learning environment; ii) resistance to change; and iii) politics</p> <ul style="list-style-type: none"> The FETC lacks leadership agility to be more agile and create value for its clients The FETC is failing to improve its culture of change and manage its capabilities The FETC BPs are not aligned with the vision of the FETC <p>Headline Finding 2: Poor leadership, lack of capabilities, culture and non-alignment of BPs with the vision of the FETC are factors which prevent the College from being agile and creating value for its clients</p>	Organisational factors Curriculum development Business environment Agility Culture	Organisational factors Business environment
SRQ 1.1	What are the key agility indicators (KAIs) and critical success factors (CSFs) for FETCs to be agile in order to service their clients?	<ul style="list-style-type: none"> The FETC lacks adequate funds and does not provide enough platforms to university education in order to satisfy clients The FETC students need extra support, job placements opportunities, skills development , and updated curricula <p>Headline Finding 3: The negative environment and shortage of resources and processes are holding back the optimal functioning of the FETC</p> <ul style="list-style-type: none"> The FETC BPs are failing to eliminate redundancy and provide accurate and desirable results The FETC BP lack security and alignment with the organisational vision BPs at the FETC fail to save resources and are unreliable <p>Headline Finding 4: The redundant, unreliable, unsecure and inaccurate BPs (e.g. registration and examination) hamper productivity of the FETC</p> <ul style="list-style-type: none"> The FETC BPs lack information for productivity and commercial intelligence The FETC is failing to manage its information, distributing it for best practices, and sharing responsibilities <p>Headline Finding 5: The FETC needs quality distributable information to be sustainable and successful</p>	Organisational factors Old Curriculum Environment BPM BPR Security Financial support	PPM Security
SRQ	What are the	<ul style="list-style-type: none"> The FETC lacks the capability to increase financial support to students 		BPM

RQ	RQ	Interview Findings	Categories	Final themes
1.2	risks of a competitive environment such as wherein FETCs operate on the perceived important 'business agility and speed to the market'?	<ul style="list-style-type: none"> The FETC lacks physical and BP security The FETC is failing to manage competition and eliminate its stigma The FETC is failing to manage its human resources <p>Headline Finding 6: The decrease in financial support, insecurity, stereotyping, quality of staff and students and competition of similar institutions are threats to the FETC's ability to respond to environmental changes and survival</p> <p>Headline Finding 13: The FETC is failing to manage the correct major risks in order to change and remain competitive in the industry</p>		Risks
RQ 2	How can the agility of BPs and systems be improved to respond to the changing requirements in a complex educational environment?	<ul style="list-style-type: none"> The FETC is failing to adapt The FETC is failing to increase its client retention capability The FETC is failing to manage the culture of change and improve its competitive advantage <p>Headline Finding 7: The FETC is failing to adapt and retain clients and unwilling or at least slow to change in order to remain competitive in the industry</p> <ul style="list-style-type: none"> There is lack of collaboration at the FETC to share best practice and source resources The FETC lacks the capability to collaborate and identify skills shortage in the industry and share responsibilities The FETC lacks the aptitude to collaborate more to eradicate FETC stereotyping <p>Headline Finding 8: There is little collaboration within the FETC in terms of resources planning and utilisation, best practices and information sharing</p> <ul style="list-style-type: none"> The FETC lacks the capability to manage the registration and curriculum development processes for its survival, adaptability, and productivity The FETC lacks the ability to manage the human resources for its survival, adaptability, and productivity. <p>Headline Finding 9: The registration process is ineffective and inefficient</p>	Organisational factors TQM BPM Change Agility	Agility
SRQ 2.1	How does a competitive environment impact on the	<ul style="list-style-type: none"> It is necessary for the FETC to manage poverty among the stakeholders, which affect its agility The FETC is unable to manage random policy changes, politics, and protest actions, and increase collaborations in order to improve agility The FETC is failing to manage tangible, human, and intangible resources in order to improve 	Organisational factors Business	

RQ	RQ	Interview Findings	Categories	Final themes
	perceived importance of 'business agility and speed to the market'?	<p>agility</p> <p>Headline Finding 10: Poverty, politics, unexpected changes in policies, the slow economy, poor service delivery and protest actions are environmental factors affecting the agility of the FETC</p>	<p>environment</p> <p>BPM</p> <p>Poverty</p>	
SRQ 2.2	How can FETCs manage the changing and competitive environment in order to execute the mandate government bestowed on them?	<p>Headline Finding 11: i) There is no or little strategic partnership to assist the FETC in fulfilling its mandate; ii) frequent policy changes without notification; iii) lack of sufficient student support on the FETC campus; iv) lack of relevant and enough practical programmes; v) there is a need for recapitalisation of the FETC; vi) there is a high misuse of the registration and bursary processes</p> <p>Headline Finding 12: The FETC is failing to manage the registration and other support processes in order to change and remain competitive in the industry.</p>	<p>Organisational factors</p> <p>Environment</p> <p>BPM</p> <p>BPR</p> <p>Old curriculum</p>	

4.4 SUMMARY

This chapter presented and illustrated the research context, case study, and locational environment. The main findings from the 15 purposively selected participants are the following:

- Finding 1:** Factors impeding the FETC's ability to respond to the competitive environment and properly implement BPM are: i) lack of the following: financial support, collaboration, specialisation, new and relevant curricula, and resources conducive to the teaching and learning environment; ii) resistance to change; and iii) politics
- Finding 2:** Poor leadership, lack of capabilities, culture and the non-alignment of BPs with the vision of the FETC are factors preventing the College from being agile and creating value for its clients
- Finding 3:** The negative environment and shortage of resources and processes are holding back the optimal functioning of the FETC
- Finding 4:** The redundant, unreliable, unsecure and inaccurate BPs (e.g. registration and examination) hamper productivity of the FETC
- Finding 5:** The FETC needs quality distributable information to be sustainable and successful
- Finding 6:** The decrease in financial support, insecurity, stereotyping, quality of staff and students and competition of similar institutions are threats to the FETC's ability to respond to environmental changes and survival
- Finding 7:** The FETC is failing to adapt and retain clients and unwilling or at least slow to change in order to remain competitive in the industry
- Finding 8:** There is little collaboration within the FETC in terms of resources planning and utilisation, best practices and information sharing
- Finding 9:** The registration process is ineffective and inefficient
- Finding 10:** Poverty, politics, unexpected changes in policies, the slow economy, poor service delivery and protest actions are environmental factors affecting the agility of the FETC

Finding 11: i) There is no or little strategic partnership to assist the FETC in fulfilling its mandate; ii) frequent policy changes without notification; iii) lack of sufficient student support on the FETC campus; iv) lack of relevant and enough practical programmes; v) there is a need for recapitalisation of the FETC; vi) there is a high misuse of the registration and bursary processes

Finding 12: The FETC is lacking to manage the registration and other support processes in order to change and remain competitive in the industry

Finding 13: The FETC is failing to manage the correct major risks in order to change and remain competitive in the industry

In Chapter Five, the research questions and findings followed by a discussion on the significance of the findings are explained under the following themes: organisational architecture or factors; security and risk; the business environment; BPM; and agility.

CHAPTER FIVE: DISCUSSION

5.1 INTRODUCTION

The aforementioned chapter presented the main findings extracted from the interviews of the 15 selected participants of whom some interviewees are multi-experienced, knowledgeable and acquainted with FETC processes. This research used naturalistic investigation to collect qualitative data through a semi-structured questionnaire by means of interviews. The purpose of this study is to explore, understand and explain the factors affecting the agility and implementation of BPM at False Bay College in the Western Cape, South Africa. The main objective of this chapter is to provide explanatory insights into these findings, taking into consideration literature on factors affecting the agility and implementation of BPM at the selected FETC in the Western Cape province of South Africa. This chapter also integrates and assesses the results of the literature study with the results of the empirical study to respond to the research questions.

A full understanding of the perspectives of participants on factors affecting the agility and implementation of BPM would provide insights into how the FETC can be more agile and implement BPM.

The chapter presents the research questions and findings, conceptual framework and a discussion on the significance of the findings under five specific themes. Following this, conclusions are drawn from the study to form part of Chapter Five.

5.2 THE RESEARCH QUESTIONS

The research data were coded, analysed and organised as revealed by the research questions. Findings were then presented in line with the trends outlined by participants. The study was based on the following main research questions:

RQ 1: What are the factors that affect the agility of BPs and systems in a complex educational environment?

RQ 2: How can the agility of BPs and systems be improved to respond to the changing requirements in a complex educational environment?

The above research questions are answered by the findings presented in Chapter Four. The analysis of this chapter is meant to understand the research process and grasp and synthesise the findings. The implications of these findings are intended to supplement the understanding of perceptions indicated by participants from the

research questions mentioned in 5.1. The discussions are related to the main themes that emerged from the findings.

5.3 THEMES

From the findings presented in Chapter Four, the following themes related to the factors affecting the agility and implementation of BPM at the FETC, will be discussed: organisational architecture or factors; security and risk; the business environment; BPM; and agility.

Figure 5.1 is designed to summarise the findings and related issues. The conceptual framework elements that are presented in Figure 5.1 are discussed in this chapter. The conceptual framework in Figure 5.1 shows the factors affecting the agility and implementation of BPM at the FETC. The global interconnected main themes or findings are related to the factors affecting the agility and implementation of BPM at the FETC.

The conceptual framework in Figure 5.1 mainly differs from the proposed theoretical framework (see Figure 2.15) in the following sense: globalisation, cloud computing and internationalisation. Localisation and Africanisation are not included in the conceptual framework and need further studies in terms of how they affect educational institutions such as FETCs. However, localisation and Africanisation are part of the business environment, and so is business intelligence. Although the factors are interlinked, some factors such as BP design, modelling and institution connectivity can be categorised under BPM or agility, while cooperate foresight can be categorised under organisational architecture. People, IT, processes and culture shown on the theoretical framework are included as part of the organisational factors on the conceptual framework. Security and risk are factors identified and shown on the conceptual framework and not on the theoretical framework.

The researcher recommends a multiple case study to be conducted on this issue because of the differences in environmental setup, which could deliver different results.

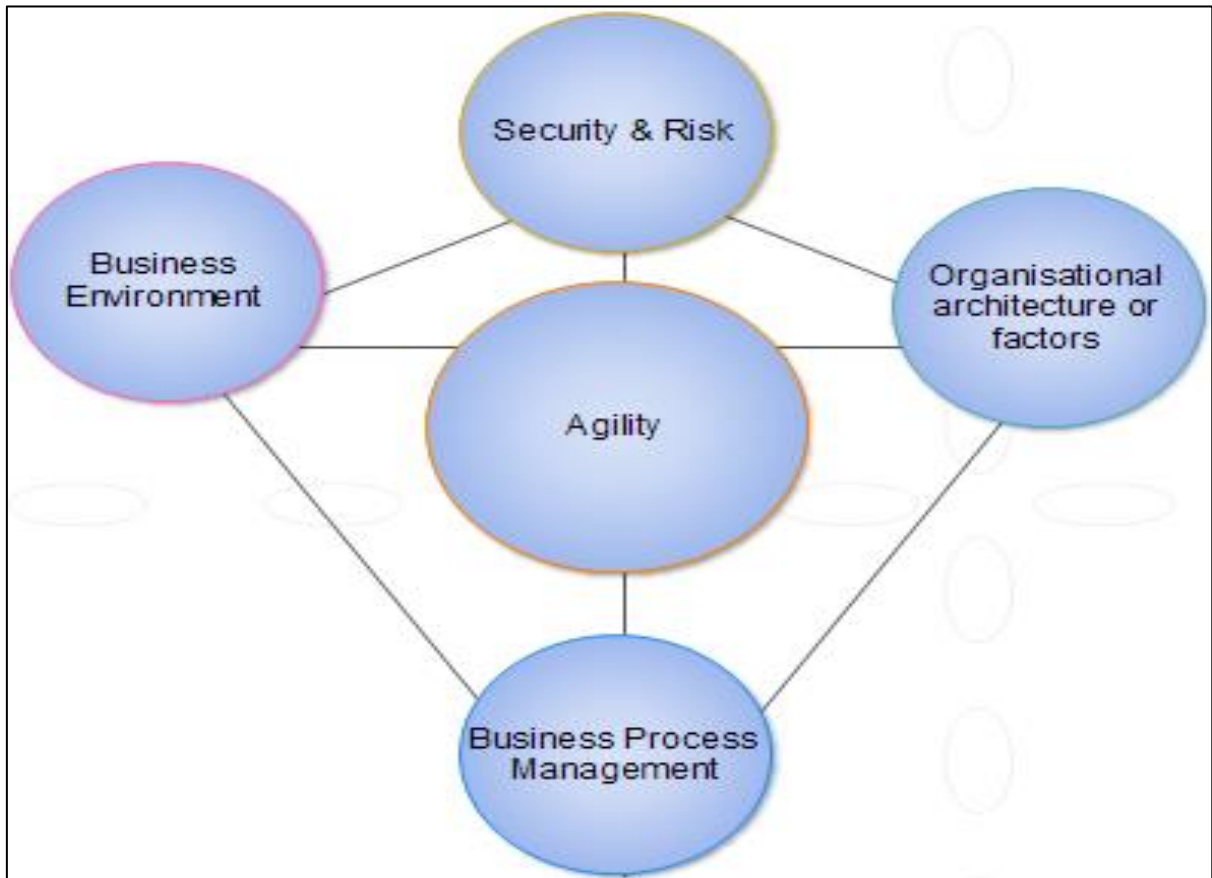


Figure 5.1: The conceptual framework that resulted from Chapter Four findings

The ensuing discussion relates to the main themes identified in Chapter Four and illustrated in a conceptual framework in Figure 5.1.

5.3.1 Theme I: Organisational architecture or factors

Organisational architecture or factors refers to the combination of its key dimensions and how these will be aligned to ensure successful strategy implementation. Some of its key dimensions include resources, leadership, organisational structure, organisational culture, strategy and policies (Van Rensburg, Davis & Cronje, 2010). There is a lack of i) tangible resources, for instance financial support and physical resources such as class rooms, security and equipment; ii) intangible resources such as culture, clear policies or business rules, good reputation (stereotype), quality students/contracts and updated curricula; and iii) human resources for example collaboration, BPM, IT and performance capabilities.

The lack of resources is impeding the FETC's agility, flexibility and the ability to create value for its clients. This finding is hardly surprising because the lack of resources for teaching and learning has been stressed by Kraak and Hall (1999), Bahr *et al.* (2013), and Otto and Musinguzi (2013) who indicate that tertiary

institutions are facing rigorous financial support reductions and large enrolments. The consequence of high student populations could be high staff-student ratios, which may cause a significant negative impact on student experience and probably high dropout rates (Shah, Lewis & Fitzgerald, 2011).

The lack of intangible resources is also illuminated by higher education institutions' unwillingness to comply with regulations, inappropriate governance structures, culture, poor management of academic activities and poor leadership (Alaba & Arikewuyo, 2012). This resulted in the de-licensing and closure of seven universities in April (2012) in Nigeria (Alaba & Arikewuyo, 2012). Appendix F shows the new business regulations, new education policy and bursary application rules. The DHE's apologies regarding this may reveal that frequent policy changes do inconvenience FETC agility and the delivery of value to stakeholders.

The prevailing situation could also be attributed to the lack of adequate mechanisms to source funds since the FETC depends mainly on government funding. Ukepe (2007) mentions that globalisation resulted in some of the following problems: low wages, job destruction and losses, casualisation of labour, more expenditure on advertisement and less on workers, restricted labour mobility and protest actions.

So, globalisation could be causing the lack of resources (the FETC is located in a community where parents are poor (P1, P7 & P8, Appendix H: 145-159). The lack of resources could also be because of a lack of leadership agility which should aid the College to source funds from sources other than the government. P9 (Appendix H: 156) mentioned the need for autonomy at the FETC and said: "Government must give autonomy to run own affairs. The control by government compromise[s] quality, progress and benefits for the College. This also means they are treating them as new born, spoon feeding them".

This also corresponds with what Kraak and Hall (1999) explain as one aspect which was associated with FETCs in the previous regime. Before South Africa attained its freedom, some FETCs were given autonomy (in terms of powers, management/governance and funding), and some were not (Kraak & Hall, 1999).

The lack of culture and poor quality students could be stemming from what students inherited from disadvantaged communities. They are probably taught by unqualified teachers and do not have enough resources at high school. P9 (Appendix H: 149) described student quality and curricula as follows: "The FETC is part of a big institution which is situated in a disadvantaged community....students....are not

exposed to technology, certain necessary subjects and updated curriculum related to what we are offering”.

The problem of poor quality students and outdated curricula is also expressed by Kraak and Hall (1999), Christen, Henry and Eyring (2012), and Adam (2013). These authors mention that the higher education is facing globalisation, disruptive technologies, internationalisation, high student dropout rates and longer completion periods for programmes (outdated curricula). The changing educational environment, disruptive technology and internationalisation (including globalisation) may possibly be causing the curricula to be outdated. It seems that the FETC is not completely willing to take the initiative to develop the old curricula and is waiting for the DHE to develop it for them. A reason for this is stated by P1 (Appendix H: 145): “Curriculum is too old and IT NCV was developed in 2006. It is too old for the fast IT developments”.

The lack of collaboration, BPM, IT and performance capabilities at the FETC could be because of the lack of what Pendleton and Furnham (2012) stated. They explained that good leadership have positive effects on culture, climate, staff satisfaction, loyalty, productivity, customer satisfaction and the organisation.

The FETC lacks quality human resources. The finding is supported by van Rensburg, Davis and Cronje (2010), Adam (2013) and the South African Government (2015) who specified that the South African FET system and a part of higher education are ineffective, have insufficient critical skills, inadequate infrastructure, high competition between the private and public sector, and poor output quality. In addition, graduates are finding it difficult to secure employment. The difficulties facing graduates in securing employment and articulating this to the university could be due to the stigma or stereotyping attached to FETCs, as indicated by P9, P12 and P13 (Appendix H: 145-159) as well as Kraak and Hall (1999).

The Green Paper on FETCs reveals that the following areas need development: capabilities, management, physical resources, academic staff development and changing culture (Kraak & Hall, 1999). This reflects the lack of resources mentioned by all the participants.

5.3.2 Theme II: Security and risk factors affecting FETC agility and implementation of BPM

The FETC is facing two major threats, namely losing students and staff due to competition and insecurity, and recruiting poor quality staff and students. These

affect the ability to respond to environmental changes and become agile. Risk refers to the chance of loss or exposure to hazard or danger (Aloini, Dulmin & Mininno, 2007). The FETC provides the following terms related to risk management:

- **Risk management** as a continuous, proactive and systematic process, designed to identify potential events that may affect the College and provide reasonable assurance regarding the achievement of the College's objectives
- **Impact** is the severity of the consequences
- **Likelihood** is a measure or estimation of how likely it is that something will happen
- **Internal audit** is an independent, objective assurance and consulting activity designed to add value and improve FETC's operations
- **Risk** is measured in terms of impact
- **Likelihood** risk management is the coordinated activities to direct and control the College with regard to risk (False Bay College, 2013)

Risk can be managed through the following phases: context analysis; risk identification; risk analysis; risk evaluation; risk treatment, monitoring and review; and communication and consulting (Stoddard & Jarvenpaa, 1995; Aloini, Dulmin & Mininno, 2007).

Forces, probability of occurrence, consequences and risk management are some of the components of risks. Aloini, Dulmin and Mininno (2007) acknowledge the following project risk effects: budget is exceeded, time is exceeded, project stoppages, poor business performances, and inadequate system reliability and stability.

The researcher found that in 2014, four (4) lecturers lost their laptops within four (4) months after leaving them in their offices. Staff members could not trace who stole their laptops or where the person(s) got the keys for their offices. There are no surveillance cameras near the offices to traces such activities at the FETC. The lack of security might be attributed to the unwillingness of the FETC to invest in security. It might also be because the FETC is situated in a crime ridden area consisting of poverty stricken people with disadvantaged backgrounds, as stated by P1, P9, P12, P15 (Appendix H: 145-159) and other participants.

P7 (Appendix H: 155) indicated the same and said: "Crime - fence was stolen, people being robbed at the gate, break-inns, anybody can drive in and we do not have security in place. The security does not search..."

This finding corresponds with what Kraak and Hall (1999) express in terms of stereotyping, shortage of adequate infrastructure, low staff morale and poor work ethics at FETCs. These circumstances affect lecturers' ability to support students and implement BPM, and the FETC may lose staff members and lecturers.

There is also the risk of recruiting incompetent staff, losing students due to competition, the decrease in student support, and crime in the community. To illuminate the risks posing a threat to the survival of the FETC, all participants point to the decrease in financial support and lack of security. In relation to the FETC risks, P2 (Appendix H: 153) also said: "Recruitment of staff with drought of skill or not fully skilled, losing students because of lack of funds and online institutions".

This finding matches what Kraak and Hall (1999) and the South African Government (2015) through the SANDP indicate, namely that South African organisations are threatened by the shortage of leadership, capabilities, resources, the willingness to prioritise and the lack of accountability. To add to this, the authors propose an improvement in the quality of education, reformation of the FETC funding system, increasing social security, and raising employment through faster economic growth. This will assist in managing the risks.

Described and summarised in Table 4.6 are risk reduction and elimination techniques. It also shows the risk management strategies and strategic plans made in consultation with the College Council, community representatives, staff and the SRC. The FETC strategic plans and risks being faced correspond with what the participants indicated in Figure 4.5. All participants expressed the opinion that security and the decrease in financial support are major sources of risks to the campus agility and survival. Figure 4.5 also illustrates other risks posing a threat to the campus agility and survival as mentioned for instance by P7 and P9 (Appendix H: 145-159). Communicating the situation in advance with the Student Representative Council (SRC) in the face of inadequate national student funds seems to be insufficient because this looks like it does not guarantee sustainability and enough funds (Table 4.6).

5.3.3 Theme III: The business environment

The negative environment and shortage of resources and processes are holding back the optimal functioning of the FETC. This finding may perhaps be because of the business environment which is continuously changing and FETCs not designing flexible BPs. The competitive business environment necessitates effective BPs to

accommodate changes in new laws, new strategy or emerging technologies, among others (Van der Aalst, 2013).

Ukepe (2007) indicates that technology is increasing the pace of outsourcing, obsolescence of skills, re-engineering and retrenchments. Furthermore, it is affecting current and potential workers, the organisational structure and strategy implementation. On this note, as technology affects potential workers, FETCs are not spared. Graduates should have skills which are wanted by industry and this could also explain why FET graduates struggle to find employment. More so, technology has brought virtual corporations which require a reduction in labour supply as more transactions are done electronically. This is despite the benefits of the complementary presence of virtual firms to the brick and mortar institutions (FETCs).

The author is of the opinion that an online library, mobile computing, other learning and teaching material and the use tablets can enable the FETC to implement organisational learning. Organisational learning is “the process that enables an organisation to adapt to change and move forward by acquiring new knowledge, skills or behaviours, thereby transforming itself” (Smith *et al.*, 2007).

Grover, Sambamurthy and Barandwaj (2003) point out that IT enables agility through external collaboration platforms, supply chain systems and customer relationship management systems, among others. These in turn enable rapid and up-to-date information flow among buyers, sellers, partners and competitors. Grover, Sambamurthy and Barandwaj (2003) argue that internal collaboration platforms and other internal information sharing systems enable knowledge creation and sharing, which is an important part of improving business agility. In addition, IT should be used as an important part of the corporate foresight process to collect business environment data. Lack of capability to use technology for environmental scanning could be the reason why the FETCs are failing to adapt and become proactive. Socially, the internet has brought negative effects such as child pornography, crime and fraud although it benefits society through communication (Ukepe, 2007).

The following excerpts elaborate on how the physical environment and politics are affecting negatively and positively on the FETC’s functionality: “We are not keeping lecturers and students because of the environmental insecurity, violence, strike, so the environmental circumstances are affecting negatively” (P11, Appendix H: 157).

All the participants indicated that the environment (insecurity) has a negative effect, although P5 (Appendix H: 158) on a more positive note mentioned that students can now access funds, provide for themselves and access higher education and training.

The government rules and regulations are affecting the functionality of the FETC. The rules and regulations are sent to FETCs without notice, for instance the new registration rules, policies and allowances (Appendix F: 140). This affects FETC agility. P1 (Appendix H: 145) said:

“[There is] confusion on policies from the FETC and the DHE who say anyone who have passed grade 9 can do engineering and IT. They should leave the political connotations as they say assessment is not meant for selection but rather to help you identify challenges faced by the students”.

The College is also located in a community of people with a disadvantaged background as said by P1, P9 and P12 (Appendix H: 145-159), among others. So poverty, the slow economic growth in their area, poor service delivery, and protest actions affecting the agility of the FETC may possibly be because of:

- Poverty originating from underprivileged backgrounds
- Lack of proactivity and the ability to initiate change, which is evidenced by old curricula and the lack of new partners or sources of funds at the FETC. This corresponds to the point that performance is higher for organisations which anticipate and initiate change than those which do not. In addition, organisational performance is high for those which manage and respond to strategic risks than those which do not manage their strategic risks (Horney, Passmore & O’Shea, 2010)
- Organisational growth, i.e. the enrolment of FETC students, is increasing (Adam, 2013). FETCs need to change their strategies when organisations grow
- Capitalist globalisation which is the interaction and integration among people, organisations, and governments of different states. It is motivated by international trade and investment and aided by Information and Communications Technology (ICT) (Ukepe, 2007). To add to this, capitalist globalisation causes low wages, job destruction and losses, casualisation of labour, and more expenditure on advertisement and less on workers

- The decline in manufacturing and the rise of the services sectors reducing number of jobs, the increase in demand for high skills and the decline in demand for low skilled labour (Kraak & Hall, 1999)

The following was also found at the FETC:

- There is no or little strategic partnership to assist the FETC to fulfil its mandate
- There is a lack of enough student support at the FETC
- There is a need for recapitalisation of the FETC
- There is a lack of relevant and enough practical programmes
- There is high misuse of the registration and bursary processes by students

These are affecting the agility of the FETC. In order to manage the competitive educational environment, participants encouraged the recapitalisation of colleges, strategic partnerships and the management of resources (for instance P4 & P11, Appendix H: 145-159). Since the demand for education is increasing, FETCs must change strategies and have more strategic alliances. Corporate combination strategies are exercised if an organisation wants to earn foreign markets, gain knowledge expertise and reduce research costs. Examples of corporate combination strategies are joint ventures, strategic alliances and licensing agreements (Louw & Venter, 2010). This may possibly enable FETCs to acquire the needed resources (tangible, intangible and capabilities).

Participants (for example P7, P14 & P15, Appendix H: 145-159) applauded an integrated bursary application process in higher education to avoid the abuse of the registration process, which concurs with what Kraak and Hall (1999) indicate. Kraak and Hall (1999) specify that there is a need for a single nationally coordinated system of FETCs to monitor funding, performance and programme approval. Louw and Venter (2010) encourage the use of IT in support of what participants (including P7, P12 & P15, Appendix H: 145-159) indicated in relation to misuse of the registration process. As revealed by Louw and Venter (2010), the use of IT is prominent in removing barriers to entry, changes in modes of customer contacts, and elimination of discriminatory stereotypes such as gender, ethnicity and age. It also increases productivity, profitability, cost reduction, improved services, efficiency and effectiveness through re-engineering (Louw & Venter, 2010). Managing the registration process to manage change and resources, as indicated by participants P7, P12 and P15 (Appendix H: 145-159), concurs with what Reiss (2011) outlines.

As revealed by Reiss (2011), change management techniques are more appropriate in the current management frameworks and include e-business, knowledge management, virtualisation and globalisation. Ravesteyn and Batenburg (2010) indicate that there are a variety of evolutionary systems useful to manage the competitive business environment namely BPMS, TQM, BPR, WFM and ERP, which are software systems focusing primary on internal operations of an organisation, integration of functional and cross-functional BPs, and supporting multiple languages and currencies (Ravesteyn & Batenburg, 2010; Helmke, 2013b; Van der Aalst, 2013).

There is a lack of student support at the FETC. The reason for this could be because lecturers are afraid of crime in the area if they go the extra mile after hours at the FETC. In addition, it could be that there are not enough resources in the form of funds, equipment, lecturers or planning. Organisations in dynamic business environments need to plan. Kuettner (2012) also mentions that business software systems and ERP are components which can manage organisational operations in competitive environments. As revealed by Kraak and Hall (1999), there is a low staff morale, poor work ethics, authoritarian management culture, and unorganised programmes. This corresponds with what all participants (Appendix H: 145-159) indicated in relation to the uncondusive working environment at the FETC.

5.3.4 Theme IV: Business Process Management

Business Process Management (BPM) refers to the achievement of an organisation's objectives through the improvement, management and control of BP (Jeston & Nelis, 2014). A business process refers to a set of homogenous actions that are predestined to accomplish a specific task, for instance processing a customer's order, delivering the customer order, servicing after sale, and so on (Haag & Cummings, 2008).

Objectives are specific measurable outcomes in terms of what, when and how to achieve them (Pearce & Robinson, 2009). In relation to improving education, training and innovation, South Africa intends to achieve some of the following objectives:

- Improve the quality of basic education and long term prospects of future generations
- Eradicate infrastructure backlog to accommodate 1.65 million enrolments at universities, and produce 30 000 artisans and 100 doctoral graduates per million per year by 2030

- Expand science, technology and innovation outputs by increasing research and development spending by government through encouraging industry to become involved
- Increase qualified doctoral staff at higher education from 34% to over 75% by 2030
- Improve the throughput to 80% and provide 1 million opportunities through Community Education and Training Centres (CETCs) (South African Government, 2015)

The FETC being studied has some of its objectives outlined in Table 4.6 and some below:

- Increase the number of students successfully entering the labour market upon completion of training
- Have a curriculum responsive to the demands of the market place which can transform and adapt quickly and effectively to changing skills needs, with a special emphasis on artisan training

The key operational objectives of BPM are flexibility and the ability to change (Weske, 2007). As revealed by van Rensburg, Davis and Cronje (2010), Alaba and Arikewuyo (2012), Adam (2013) and the South African Government (2015), the South African FETC systems and some higher education institutions are ineffective, have insufficient critical skills, inadequate infrastructure, high competition between the private and public sector, and poor output quality. Moreover, the FETC is unwilling or at least slow to change in order to adapt and remain competitive in the industry. This corresponds with what participants P1, P2, P3, P8, P9, P12 and others (Appendix H: 145-159) expressed in relation to the FETC processes. They mentioned that the registration process is ineffective, inefficient and one of the most critical processes. Additionally, there is high misuse of the registration and bursary processes by students. Furthermore P1 and P7 (Appendix H: 145-159) stated that the processes are inflexible, wasteful, and failing to adapt to change. P1 explained that this can be attributed to the fact that the FETC is always chaotic during registration periods as policies and external processes are frequently changed without notice (Appendix F: 140) with new bursary, transport, and promotion policies.

As revealed by Li and Chang (2014), BPR comprises of four fundamental ideas which consider the following aspects: understanding the main concerns, redesigning the process, having new incredible BPs, and concentrating on the most critical

processes. Zare, Habibi and Molavi (2014) as well as Li and Chang (2014) point out that re-engineering processes are mainly used for improving, providing parallel processes, automating and integrating human resources, and enhancing a competitive advantage. Zare, Habibi and Molavi (2014) uphold that it also enables innovation and redefinition of values in public institutions in this volatile environment even though it is also considered to be essential for private organisations. This match up with what participants P1, P2, P3, P8, P9, P12 and others (Appendix H: 145-159) stated in relation to FETC processes such as registration. Swanson and Chermack (2013) maintain that BPR needs planning, knowledge, expertise, analysis and synthesis for successful implementation.

Improvement refers to making the BPs more efficient and effective (Jeston & Nelis (2014). Efficiency means having more outputs than inputs or doing things right (Haag & Cummings, 2008). As highlighted in the above paragraph, FETCs are ineffective and inefficient. Additionally, participants (for instance P1, P12, P13 & P14, Appendix H: 145-159) indicated that the redundant, unreliable, unsecure and inaccurate BPs hamper the productivity of the FETC. P14 (Appendix H: 145-159) expressed that the frustration of clients are due to process redundancy, unreliability because their documents get lost along the way, and a shortage of examination venues which are often overcrowded. This could be because of a lack of efficiency, effectiveness and insecurity. Gritzalis *et al.* (2014) argue that BPMN and UML are vital aspects for security enhancement in BPM (in modelling and BP design). Kraak and Hall (1999) and the South African Government (2015) state that the FETC throughput is low or too small, inefficient, and of poor quality. Furthermore, the South African Government (2015), through the SANDP, explains that the improvement of student quality improves the employability of FETC graduates. The poor quality outputs could be the reason why FETC graduates find it difficult to secure employment (besides the stereotyping).

Effectiveness means doing the right thing, being the first in a race in business; this means speed is important (Haag and Cummings, 2008; Jeston & Nelis, 2014). To enhance its agility, the following are dominant strategies being used by the FETC (although these seem to be inadequate): students now have access to financial aid and universities, updated customised training, extra support and job placements (P1, P4 & P5, Appendix H: 145-159).

Figure 4.2 highlights the inability to satisfy clients, as mentioned by P4, P8, P11, P12, P13 and P14 (Appendix H: 145-159). This is through staff absence, outdated curricula, failure to provide sufficient security, failure to identify alternative funding

sources, and resistance to change. The strategies being used by the FETC appears to be inadequate as evidenced by literature from Kraak and Hall (1999), the South African Government (2015), van Rensburg, Davis and Cronje (2010), Alaba and Arikewuyo (2012) and Adam (2013) who outline the same problems.

Management refers to arranging people, their skills, motivation, performance measures, rewards, process, structures and the system to support a process (Jeston & Nelis, 2014). As revealed by Smith *et al.* (2007), all managers regardless of their capabilities and management level engage in planning, organising, leading and controlling organisational resources to achieve their desired goals.

Planning defines the organisation's vision, mission, goals, methods and resources to reach goals. It can be at strategic, tactical and operational level. There is a lack of planning in FETCs, evidenced by what P1 (Appendix H: 153) stated: "The most critical process is the registration; it needs to be re-engineered as we are not prepared every time when we are towards it".

Kraak and Hall (1999) and P4 (Appendix H: 145-159) concur that FETCs should plan on identifying new policies and sources of funding their programmes. In addition, Table 5.1 reveals some of the FETC strategic plans which also align to the South African objectives outlined in the SANDP (South African Government, 2015).

Organising consist of defining tasks, roles and responsibilities as well as establishing policies and procedures (organisational structure). It also includes the coordination and allocation of financial, human, information and other resources to the relevant stakeholders (Smith *et al.*, 2007). It further matches the strategy and structure (organisational design). The frequent and unexpected changes in policies from the DHET are affecting the agility of the FETC. This could be because of a mismatch between organisational structure and strategy and what Kraak and Hall (1999) explain, namely that there is a serious absence of an accurate national information database that covers the FETC sector in detail for comprehensive and coherent sectorial management and planning.

Leadership (leading) refers to the ability to influence others to move in the direction they ought to in pursuit of ends by use of means through selected or approved methods (Louw & Venter, 2010). Furthermore, effective leadership possesses strategic thinking (ability to diagnose and being agile), emotional intelligence, transformational capabilities and Ubuntu. Effective leadership can also set direction, drive strategy, manage social capital and create culture. As revealed by Kraak and Hall (1999), FETCs have more of autocratic leadership styles, lacking culture of

change and critical skills. P1 and P12 (Appendix H: 145-159) indicated the lack of leadership agility and the culture of change at the FETC. This relates to the finding that the negative environment and shortage of resources and processes are hindering the optimal functioning of the FETC. This might be because of the lack of leadership agility and transformational leadership. Pendleton and Furnham (2012) maintain that good leadership have positive effects on internal quality (culture and climate), staff satisfaction and loyalty, productivity, value, customer satisfaction and the organisation. As revealed by Pendleton and Furnham (2012) as well as Smith *et al.* (2007), transactional leadership concentrates on rewards and expectations which are rarely linked to a vision; it also rarely involves adhering to guidelines, seeing things as they are, and organising resources. In contrast, transformational leadership (which creates vision and motivates followers towards it) directs, aligns, inspires and produces revolutionary changes).

Control means monitoring and identifying risks, activities, risk management and performance to ensure that they match the predetermined organisational goals or objectives (Smith *et al.*, 2007). One of the findings of the study is that the decrease in financial support, insecurity, stereotyping, quality of staff and students and competition are threats to the FETC's ability to respond to environmental changes and survival. This may be attributed to the FETC being unwilling or at least slow to change in order to adapt and remain competitive in the industry. It could also be due to the little collaboration within the FETC in terms of best practices, resources planning and utilisation, and information sharing. P1, P7 and P8 (Appendix H: 145-159) explained that the FETC is failing to adapt because it is failing to control processes such as student registration.

5.3.5 Theme V: FETC agility

Agility is explained as the ability to react to unforeseen changes in an unpredictable environment, while flexibility enables firms to respond to anticipated change within distinct constraints (Grover, Sambamurthy & Barandwaj, 2003; Kuettner, 2012). As revealed by Conboy, Fitzgerald and Golden (2005:43): "...agility requires waste to be eliminated, but only to the extent where its ability to respond to change is not hindered".

This is not the case at the FETC because of frequent policy changes without notification (Appendix F: 140) and a high misuse of the registration and bursary processes by students.

P7 (Appendix H: 158) enlightened this point by saying: “There should be systems in place to turn away students who repeatedly fail all subjects at the same level and return the following semester or year or go to other colleges to get bursary and transport allowance. This avoids wasting...”

As revealed by van der Aalst (2013), agile organisations should have flexible IT infrastructure, multi-expert teams, a flexible organisational structure or standby resources. This permits the firm to be innovative and enthusiastically react to change and market opportunities as they arise. This is however not the case considering findings that the FETC is failing to adapt and unwilling or at least slow to change in order to adapt and remain competitive in the industry (P1 & P13, Appendix H: 145-159).

Tallon and Pinsonneault (2011) found that the organisation performance increase if agility is improved in highly competitive environments. As revealed by Grover, Sambamurthy and Barandwaj (2003) there are three types of agility:

- i) Customer agility which seeks to satisfy customers more than rival through the ideas and innovations they contribute
- ii) Partnering agility which enables firms to create a network to secure its resource needs
- iii) Operational agility which involves the ability of firms to function with speed, accuracy, economically and utilise opportunities

In relation to the above types of agility there is little collaboration within the FETC in terms of resource planning and utilisation, best practices and information sharing. The reason for this may be attributed to a shortage of human resources who possess the capabilities to lead collaboration or use IT. This finding corresponds to the SANDP (South African Government, 2015) and what P11 and P14 (Appendix H: 145-159) indicated, namely that there are ineffective, inadequate critical skills and inadequate resources at FETCs.

One information aspect of agility as revealed by Imache, Izza and Ahmed-Nacer, (2012) is that it concentrates on warehousing, i.e. internal and external movements of information in the enterprise which can be measured by the ability to collect, share, and exploit structured data. It can also be measured by accuracy, exhaustiveness, non-redundancy, utility, reliability, security, integrity, actuality, publicity and accessibility. Furthermore, information represents a fundamental factor for organisations to maintain sustainability. The FETC is lacking quality, distributable information to be sustainable and successful (see Finding 7 in Table 4.1). This is

also specified by Kraak and Hall (1999), the South African Government (2015), and van Rensburg, Davis and Cronje (2010) which explain that the South African FETC systems and some higher educations are ineffective, lack quality information, and have insufficient critical skills, inadequate infrastructure, high competition between the private and public sector, and poor output quality. Critical skills (leadership, BPM and performance capability) are important in collaboration and BPM implementation. For instance, P5, P11 and P12 (Appendix H: 145-159) explained that there is lack of team work and collaboration which is important in sharing good practice. As revealed by Jeston and Nelis (2006:17), the following are BPM and agility drivers:

- **Market:** Market volatility from growth in the market that results in increasing the introduction of new products and product life
- **Competition:** Increased competition caused by a fast changing market, international competition, internet usage, increasing costs and shorter production time for new products
- **Customer requirements:** Changing customer requirements caused by customisation, quicker delivery time and increased customer expectations about quality
- **Technological innovations:** Technological innovations caused by new production facilities and integration of systems
- **Social factors:** Change in social factors for environmental protection purposes, workforce/workplace expectations and from legislation

5.4 SUMMARY OF DISCUSSION

This chapter portrayed the main objectives which are to provide explanatory insights into the findings, taking into consideration literature on factors affecting the agility and implementation of BPM at the selected FETC in the Western Cape province of South Africa. This chapter also integrated and assessed the results of the literature study with the results of the empirical study to respond to the research questions.

A full understanding of the perspectives of participants on factors affecting the agility and implementation of BPM provided insights about how the FETC can be more agile and implement BPM. The researcher argued that practitioners, experts and organisations such as FETCs need to evaluate the structural paybacks and inadequacy and balance BPR with their chosen strategy, competencies, resources and environmental status. In addition, BPR should not be applied haphazardly without research, but should be applied only to the unhealthy BPs if necessary.

The chapter presented the research questions and findings and a discussion on the significance of the findings under five specific themes. The following are the main themes discussed: organisational architecture or factors; security and risk; the business environment; BPM; and agility. These themes are important because they answer the research questions and indicate the fulfilment of the research objectives.

The succeeding chapter integrates the findings of the literature study with the results of the empirical study to respond to the research questions. The chapter also presents the conclusions, recommendations and reflection.

CHAPTER SIX: CONCLUSION, RECOMMENDATIONS AND REFLECTION

6.1 INTRODUCTION

The preceding chapter presented the research questions and findings as well as a discussion on the significance of the findings under five specific themes. The purpose of this research is to discover, comprehend and describe the factors affecting the agility and implementation of BPM at False Bay FETC College in the Western Cape, South Africa.

The chapter incorporates the findings of the literature study with the results of the empirical study to respond to the research questions. The objective of the study is to identify the factors that affect the agility of BPs and systems in a complex educational environment to determine how the agility of BPs and systems can be improved to respond to the changing requirements in a complex educational environment.

In this chapter the conclusion, recommendations, future study and reflection are elaborated on. The importance of evaluating the research also receives due attention, and thus widely accepted criteria for evaluating qualitative research that were employed, follow in this regard. The research limitations are also acknowledged.

This chapter provide conclusions on the following main themes: organisational architecture or factors; security and risk; the business environment; BPM; and agility.

The main research questions answered by the research are as follows:

RQ1: What are the factors that affect the agility of BPs and systems in a complex educational environment?

The main themes, which are organisational architecture and factors, security and risk, the business environment, BPM, and agility, answer RQ1. In conclusion, the factors that affect the agility and implementation of BPM at the selected FETC are multi-faceted.

The FETC needs to find alternative means to source tangible, intangible and human resources as these are obtained mainly from the government. The lack of organisational resources is impeding the FETC's agility, flexibility, implementation of BPM and the ability to create value for its clients. The lack of human resources is also resulting in high staff-student ratios, which may cause a significant negative

impact on student experience and probably high dropout rates. Lack of resources such as capabilities or leadership agility is causing a negative impact on the FETC culture and climate, staff satisfaction and loyalty, productivity, and customer satisfaction.

RQ2: How can the agility of BPs and systems be improved to respond to the changing requirements in a complex educational environment?

No matter how extensive one has worked in a given occupation, one can always take advantage of focusing on the fundamentals to improve for instance the organisational agility, efficiency, effectiveness and implementation of BPM by managing major factors.

The FETC requires workforce fluidity, leadership agility and multi-capabilities. Furthermore, it is necessary for the FETC to improve its physical and BP security, and it needs to identify the major risks in order to manage change and remain competitive in the industry.

It further needs to collaborate more, register students early, adapt a culture of change, and create customer agility, strategic partnership or partnering agility, operational agility and flexibility in order to retain clients and remain sustainable in the industry. It is mandatory for the FETC to have capabilities which enable it to scan and manage the social, unexpected changes in policies (from government and the FETC), politics, IT, the slow economy as well as poor service delivery and protest actions. Moreover, the FETC needs more student support, updated curricula and a decrease in the frequency of policy changes without notification. This should enable the College to be more agile, flexible and implement BPM in a dynamic educational environment. There should be interrelated registration and bursary processes to manage resources, and the registration process needs re-engineering and increased security due to environmental factors which are impacting negatively on the perceived importance of 'business agility and speed to the market'.

6.2 RECOMMENDATIONS

In light of the findings and conclusions of this study, education practitioners, the government and other stakeholders need to get on board and offer an environment with adequate resources conducive to meaningful education and teaching. Students need to be equipped with social skills to be able to prioritise their studies. Furthermore, the researchers recommend that the FETC find ways of improving physical and BP security at the College.

The following are also recommended:

- Increase the strategic partnership or partnering agility as well as customer and operational agility to assist the FETC in fulfilling its mandate
- Intensify student support on the FETC campus and obtain resources from diverse sources
- Recapitalisation and increased autonomy at the FETC
- Increase the number of relevant and enough practical programmes
- Decrease the frequency of policy changes without notification
- Decentralise bursary applications from the head office to the campus
- There should be an interconnected registration and bursary application processes to manage resources and remain agile by 2017
- Re-engineer, increase security and manage the registration processes and systems to improve the agility of BPs and respond to the changing requirements in a complex educational environment
- Recruit staff with multi-capabilities, adopt virtualisation, globalisation and diversification, and choose a combination strategy to reduce bureaucracy

The recommendations above relate to the findings from the following RQs.

RQ 1: What are the factors that affect the agility of BPs and systems in a complex educational environment?

RQ 2: How can the agility of BPs and systems be improved to respond to the changing requirements in a complex educational environment?

Figure 6.1 is a presentation of the recommended model for the FETC registration process using a combination of BPMN and an event-driven process chain diagram to enhance optimum use of resources. The pre-registration assessments and capturing of the student profile should be done electronically for ease of use, to build a database, to avoid duplications and redundancies, to promote paperless transactions (eradicate rigidity) and to increase BP security as well as flexibility by definition, deviation and under-specification at design (Van der Aalst, 2013:25).

Figure 6.1 also shows the functions and events which require electronic processes as well as the role players who should be fulfilling the events and functions concerned. An event-driven process chain is a graphical illustration and description tool which describes the workflows possible in chronological order. It focuses on the process, illustration of data, organisations and systems (Helmke, 2013a), and consists of the following items: an event that describes the actual economically

relevant status of an information item which controls or influences the further course of the BP, and a function which refers to a professional task, procedure, activity or information item for the support of one or more business aims. It is a carrier of time and costs. Recommended also is to commence the registration process early and to decentralise the approval of bursaries as it takes too long to wait for the approval from the head office. This could shorten the *lead time* (the total time from establishing the event to the finishing point), *service time* (time actually worked on an a function or incident), *waiting time* (time an event is waiting for resource availability), and *synchronisation time* (the time an activity is not yet fully functional and waiting for an exterior initiator) during the registration process (Van der Aalst, 2013). Furthermore, since the FETC processes are written in a natural language, modelling these into BPMN or an event-driven process chain (or a combination of both) could enhance security against potential process fraudsters. BPMN has the advantages of security in that it presents the detail to internal stakeholders for execution and only the simple version to external stakeholders (Weske, 2007; Van der Aalst, 2013).

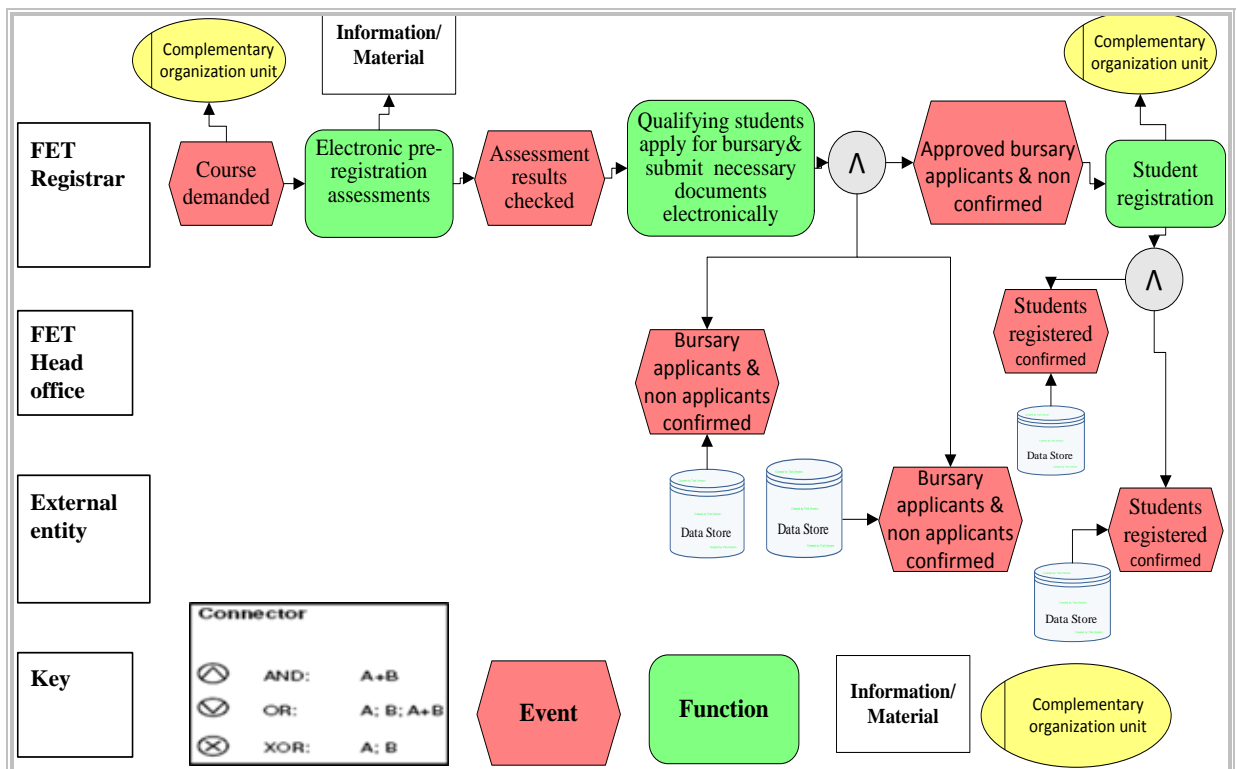


Figure 6.1: Recommended (to be) improvements on the registration using an event-driven process chain

The rules set can easily be created using the comparison and Boolean operators (notations). The user can easily create the rule set using the graphical user interface. The user is provided with the option to select the comparison and Boolean operators along with parentheses to specify the precedence. The rule set created once may be applied to as many data variables as required. A data variable may have many rule sets for data confirmation. The symbols used for rule set definitions are indicated in Table 6.1 except for 'First Come First Served' (FCFS) added by the researcher.

Table 6.1: Boolean's comparison operators used for rules creation
(Kamran & Azam, 2010)

Number	Operator	Notation
1	Greater than	>
2	Lesser than	<
3	Greater than or equal to	>=
4	Lesser than or equal to	<=
5	Equal to	=
6	Not equal to	!=
7	First Come First Served	FCFS

There are new rules for registration, bursary applications and promotion to the next level for each programme a student completes at the FETC in the Western Cape province of South Africa. The FETC is going ahead with implementation of these rules. This is as indicated by the requirements of the South African Department of Higher Education. Appendix F shows the initial list of the rules for registration and promotion at the College which the author found to be difficult to understand because of its presentation and which has been retyped into a clearer form as shown in the business rule setup below and the concept map in Figure 6.2. First Come First Served (FCFS) in Boolean's comparison operators (Table 6.1) is an addition by the author and un-coded or written at the FETC being studied.

Promotion and bursary application rules at a FETC are shown in Appendix F. Written natural language can also be presented in business rule set form as follows:

- IF a student passed >=3 subjects **THEN** registration will be on first come first served
- IF a student does not produce all necessary documents **THEN** no registration will take place

- IF a student passed ≥ 3 subjects and is owing fees from previous level **THEN** no registration until debt is cleared
- IF a student owes textbooks **THEN** no registration will take place
- IF a student passed ≥ 3 subjects **THEN** apply for a bursary
- IF a student passed ≥ 3 subjects and can afford to pay fees on own **THEN** do not apply for a bursary
- IF a student passed < 3 subjects **THEN** do not apply for a bursary
- IF a student passed < 3 subjects **THEN** pay the fees on own for the subjects failed
- IF a student passed < 3 subjects **THEN** redo those failed subjects part-time
- IF a student passed < 3 subjects **THEN** pay fees for full time not for exam only
- IF a student fails any subject (for example Financial Accounting 1) to be done at next level (Financial Accounting 2) **THEN** the student cannot do it at next level until the student passes the previous level subject

Promotion and bursary application rules in Appendix F can be demonstrated in a concept map as in Figure 6.2 below.

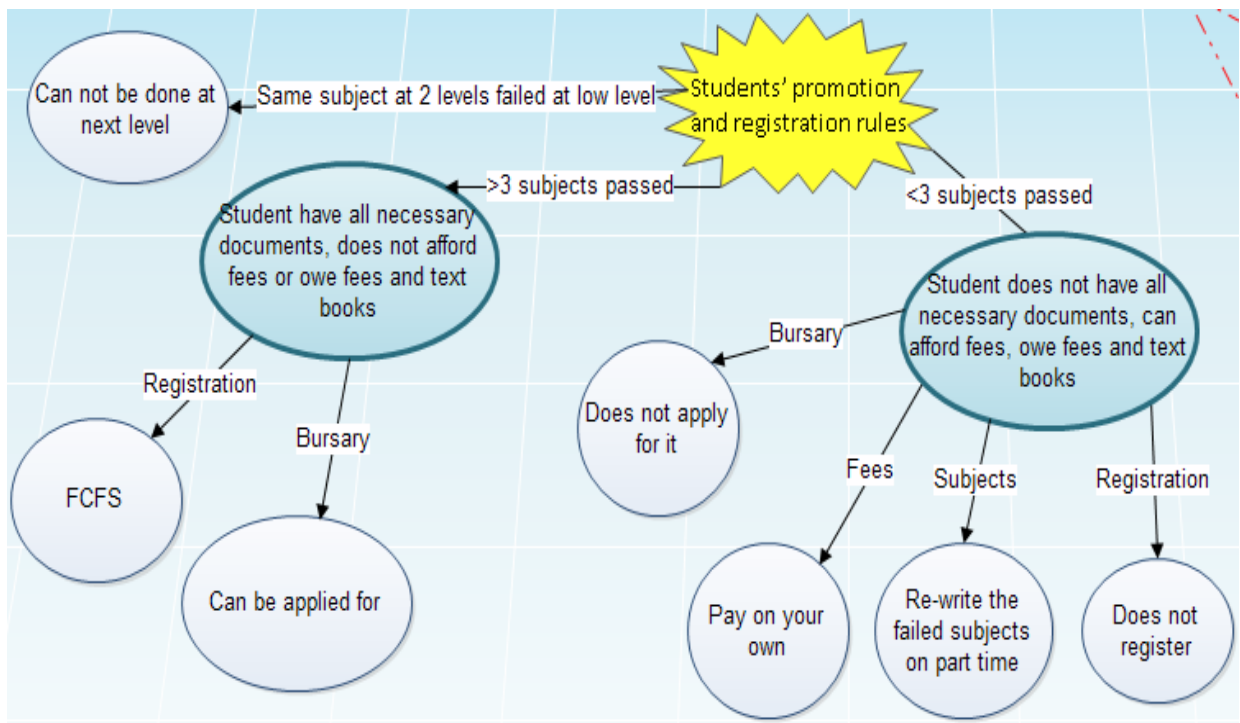


Figure 6.2: FETC BPM implementation and Business rules in concept map format

Figure 6.2 illustrates the Business rules and the implementation of BPM in concept map format. Promotion and bursary application rules at a FETC are shown in Figure

6.2. E-draw software was used which allows one to draw pictures or diagrams on the screen by providing the user with many standard shapes and symbols that can be used to create the drawing. Boxes, circles and other shapes are provided and the user can select, rotate, resize and colour these.

6.3 FUTURE STUDY

This research has revealed the factors affecting agility and the implementation of BPM at a FETC in a dynamic environment. Although the present research has made significant contribution in the education sector, certain areas still need to be explored. Further research needs to be conducted through a multi-case study to explore whether the same factors will be identified in terms of:

- Determining how to manage and improve other processes besides the registration process for FETCs to be agile in order to service their clients
- Ascertaining the factors affecting the agility and implementation of BMP at FETCs in the Western Cape, South Africa, as well as the risks of a competitive environment such as within the FETCs on the perceived important 'business agility and speed to the market'
- Discovering how a competitive environment affects the perceived importance of 'business agility and speed to market'

However, the data collected provide a good baseline to answer the research questions and fulfil the mentioned research objectives. This is a clear indication that there is, presumably, a high possibility of obtaining the same results even if the research is carried on a wider scale or in other provinces.

6.4 REFLECTION

The researcher conducted the research while also working full-time and this necessitated extra effort in scheduling appointments with participants. Financial resources were also limited since the researcher needed to consult with the supervisor. If enough financial backing had been available, the research could have been a multi-case study to obtain a broader perspective of the factors affecting the agility and implementation of BPM at FETCs. This limitation became more obvious because the case study was done at a FETC College located in a disadvantaged background community. It could have given more insights had it been a multi-case study, since the College has campuses in non-disadvantaged background communities with different environments. Additionally, Participants such as P7, P14 and P15 (Appendix H: 145-159) applauded an integrated bursary application process in higher education to avoid the abuse of the registration process, which

concurr with Kraak and Hall (1999) who indicate that there is a need for a single nationally coordinated system of FETCs to monitor funding, performance and programme approval. On this note, a multi-case study could assess how an integrated bursary and registration process assists in saving resources.

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APPENDIX A: INTRODUCTORY LETTER FOR COLLECTION OF RESEARCH DATA



Introductory letter for the collection of research data

Fradreck Nyambandi is registered for the M Tech (IT) degree at CPUT using student number 211109754. In order to meet the requirements of the university's Higher Degrees Committee (HDC) the student must get consent to collect data from organisations which they have identified as potential sources of data The thesis is titled: Factors affecting the agility and implementation of business process management in a selected FET College in the Western Cape, South Africa.

The study seeks to explore the, agility and the implementation of Business P rocess Management at a FET college in a dynamic environment. The study intends to discover new knowledge on the implementations of BPM in an unstable environment. Additionally, it aims to let the researcher understand and explain the risks involved in agility and the implementations of BPM in a competitive environment. The supervisor(s) for this research is/are:

Supervisor: Dr.A.de la Harpe
Faculty of Informatics and Design
delaharpera@cput.ac.za /andrei2ifica@com
Cell/ Phone 082 448 1058/ 021 460 3291

Co- supervisor: Prof. Dr. Oec. Erhard Alde
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In this case the student will use semi-structured-questionnaires to collect data in by means of interviews. A questionnaire is an instrument that aids a researcher to gather huge quantities of data, to provide confirmations for the relevance of findings in a research process. More so, it is used for assessments at a later stage of the research process. Semi-structured interviews are those were the interviewee will be asked, initially precise questions or areas and later broad questions. Furthermore, secondary data sources such as Websites, books and journal articles will be used for data collection.

If you agree to this, you are requested to complete the attached form (an electronic version will be made available to you if you so desire) and print it on your organisation's letterhead. For further clarification on this matter please contact either the supervisor(s) identified above, or the Faculty Research Ethics Committee secretary (Ms V Naidoo) at 021 469 1012 or naidoo@ve@cput.ac.za.

Regards


Dr.A.de la Harpe

**APPENDIX B: TEMPLATE FOR RESPONSE TO INTRODUCTORY LETTER FOR
COLLECTION OF RESEARCH DATA**

<<On company letterhead>>

I <<insert name>>, in my capacity as <<insert position in company>> at <<insert company name>> give consent in principle to allow <<insert student name>>, a student at the Cape Peninsula University of Technology, to collect data in this company as part of his/her MTech IT research. The student has explained to me the nature of his/her research and the nature of the data to be collected.

This consents in no way commits any individual staff member to participate in the research, and it is expected that the student will get explicit consent from participants. I reserve the right to withdraw this permission at some future time.

In addition, the company's name may or may not be used as indicated below. (Tick as appropriate)

	Thesis	Conference paper	Journal article	Research poster
Yes				
No				

<<Insert name>>

<<insert date>>

APPENDIX C: CONSISTENCY CHART

RQ	RQ	Interview Findings	Final themes	Conclusions	Recommendations
RQ1	What are the factors that affect the agility of BPs and systems in a complex educational environment?	<p>Finding 1: Factors impeding the FETC's ability to respond to the competitive environment and properly implement BPM are: i) lack of financial support, collaboration, specialisation, new and relevant curriculum, and resources conducive to the teaching and learning environment; ii) the resistance to change; and iii) politics</p> <p>Finding 2: Poor leadership, lack of capabilities, culture and non-alignment of BPs with the vision of the FETC are factors preventing the College from being agile and creating value for its clients</p>	<p>Organisational factors</p> <p>The business environment</p>	<p>The FETC needs to find alternative means to source resources: i) tangible, ii) intangible, ii) human (beside the main source which is the government).</p> <p>The FETC requires workforce fluidity, leadership agility, and multi-capabilities.</p>	<p>The following is recommended:</p> <ul style="list-style-type: none"> i) Increase the strategic partnerships or private and public collaborations to assist the FETC to fulfil its mandate ii) Intensify the student support on the FETC campus and sourcing resources from diverse sources iii) The recapitalisation of the FETC and increasing autonomy iv) Increase the number of relevant and enough practical programmes v) Decrease the frequency of policy changes without notification vi) There should be an interconnected registration and bursary processes to manage change and remain agile
SRQ 1.1	What are the key agility indicators (KAIs) and critical success factors (CSFs) for FETCs to be agile in order to service their clients?	<p>Finding 3: The negative environment and shortage of resources and processes are holding back the optimal functioning of the FETC</p> <p>Finding 4: The redundant, unreliable, unsecure and inaccurate BPs (e.g. registration and examination) hamper productivity of the FETC</p> <p>Finding 5: The FETC needs quality distributable information to be sustainable and successful</p>	<p>Agility</p> <p>Security and risk</p>	<p>It is necessary for the FETC to improve its physical and BP security. The FETC is also failing to manage the correct major risks in order to change and remain competitive in the industry.</p>	<p>There should be an interconnected registration and bursary application processes to manage resources at the end of 2015.</p> <p>Re-engineer, increase security and manage the registration processes and systems to improve the agility of BPs as well as respond to the changing requirements in a complex educational environment.</p>
SRQ 1.2	What are the risks of a competitive environment such as wherein FETCs operate on the perceived important 'business agility and speed to the market'?	<p>Finding 6: The decrease in financial support, insecurity, stereotyping, quality of staff and students and competition of similar institutions are threats to the FETC's ability to respond to environmental changes and survival</p> <p>Finding 13: The FETC is failing to manage the correct major risks in order to change and remain competitive in the industry</p>	<p>Security and risk</p> <p>Business environment</p>	<p>The FETC needs to improve on its physical and BP security. The FETC needs to manage the correct major risks in order to change and remain competitive in the industry.</p>	<p>There should be an interconnected registration and bursary process to manage resources.</p> <p>Re-engineering, increasing security, and managing the registration processes and systems to improve the agility of BPs as well as respond to the changing requirements in a complex educational environment.</p>

RQ	RQ	Interview Findings	Final themes	Conclusions	Recommendations
RQ2	How can the agility of BPs and systems be improved to respond to the changing requirements in a complex educational environment?	<p>Finding 7: The FETC is failing to adapt and retain clients and unwilling or at least slow to change in order to remain competitive in the industry</p> <p>Finding 8: There is little collaboration within the FETC in terms of resources planning and utilisation, best practices and information sharing.</p> <p>Finding 9: The registration process is ineffective and inefficient</p>	<p>Agility</p> <p>BPM</p> <p>BPM</p>	The FETC needs to collaborate more, be agile and flexible, and adapt a culture of change in order to retain clients and remain competitive in the industry	<p>Recommend the management of processes.</p> <p>FETC to have strategic partnership or to collaborate; be agile, flexible and adapt a culture of change in order to remain competitive in the industry.</p>
SRQ 2.1	How does a competitive environment impact on the perceived importance of 'business agility and speed to the market'?	Finding 10: Poverty, politics, unexpected changes in policies, the slow economy, poor service delivery and protest actions are environmental factors affecting the agility of the FETC	Business environment	It is a requisite for the FETC to have capabilities which enable it to scan and manage the social, unexpected changes in policies (from government and the FETC), politics, IT, the slow economy, poor service delivery, and protest actions.	<p>The following is recommended:</p> <p>Recruiting staff with multi-capabilities; virtualisation; globalisation; diversify and use a combination strategy; reduce bureaucracy.</p>
SRQ 2.2	How can FETCs manage the changing and competitive environment in order to execute the mandate government bestowed on them?	<p>Finding 11: i) There is no or little strategic partnership to assist the FETC in fulfilling its mandate; ii) frequent policy changes without notification; iii) lack of sufficient student support on the FETC campus; iv) lack of relevant and enough practical programmes; v) there is a need for recapitalisation of the FETC; vi) there is a high misuse of the registration and bursary processes by students</p> <p>Finding 12: The FETC is lacking to manage the registration and other support processes in order to change and remain competitive in the industry</p>	BPM	<p>The FETC needs more strategic partnerships, student support, updated curricula and a decrease in the frequency of policy changes without notification.</p> <p>There should be an interrelated registration and bursary process to manage resources.</p> <p>The registration process needs re-engineering, increasing security, and managing it.</p>	<p>i) Increase the strategic partnerships or private and public collaboration to assist the FETC fulfilling its mandate</p> <p>ii) Intensify the student support on the FETC campus</p> <p>iii) The recapitalisation of the FETC</p> <p>iv) Increase the number of relevant and enough practical programmes</p> <p>v) Decrease the frequency of policy changes without notification</p> <p>vi) There should be an interconnected registration and bursary process to manage resources.</p> <p>vii) Re-engineering, increasing security, and managing the registration processes and systems to improve the agility of BPs as well as respond to the changing requirements in a complex educational environment</p>

APPENDIX D: DEFINITION OF TERMS RELATED TO RISK ANALYSIS AT FETC

(False Bay College, 2013)

College Risk Management is a continuous, proactive and systematic process, designed to identify potential events that may affect the College, and to provide reasonable assurance regarding the achievement of the College's objectives.

Audit and Risk Committee is a committee to assist the College Council in fulfilling its governance and oversight responsibilities for the system of internal control, risk management, the internal audit process, the external audit, and the College's process for monitoring compliance with legislation.

Impact is the severity of the consequences.

Likelihood is a measure or estimation of how likely it is that something will happen.

Internal Audit is an independent, objective assurance and consulting activity designed to add value and improve the FETC operations.

Risk is the uncertainty of an event occurring that could have an impact on the achievement of objectives. Risk is measured in terms of impact and likelihood.

Risk Management is the coordinated activities to direct and control the College with regard to risk.

Risk Matrix is the tool for ranking and displaying risks.

Risk Owner is the person accountable for managing a particular risk.

Risk Tolerance is the level of risk exposure the institution is willing to bear.

APPENDIX E: BUSINESS RULES, EDUCATION POLICY, BURSARY APPLICATION RULES

(False Bay College, 2013)

IMPORTANT CHANGES TO 2014 DHET BURSARY RULES

The DHET has introduced substantial changes to the bursary qualification rules and guidelines for 2014. These new rules were sent to the colleges on 18 December 2013. On behalf of the DHET, we apologise for the late notification.

The intention of the DHET College Bursary Scheme is to facilitate access to financially needy students who are able to demonstrate potential for academic success.

1. ACADEMIC CRITERIA FOR TUITION BURSARIES

NEW STUDENTS

New students must achieve the following minimums to be considered for a tuition bursary:

- I. N4 50% Aggregate for G for Grade 12 applicants
- II. NCV 50% for Grade 9 and 10 applicants and 45% for Grade 11 or 12 applicants
- III. N1 45% Aggregate for Grade 11 or 12 applicants

New students that have been declined for tuition bursaries based on the above, may re-apply and will be considered for a tuition bursary if they passed all seven NC (V) L2 subjects or all four N1 subject or all four N4 subject during one examination sitting.

CURRENT STUDENTS (EXISTING BURSARY HOLDERS)

Current students must comply with the College PROGRESSION POLICY which lays down the minimum number of subjects to be passed in order to progress to the next level, based on the December results.

If you comply with the progression policy, you will qualify for a tuition bursary for the **subjects passed**.

2. TRANSPORT ALLOWANCES

Only students who qualify for academic tuition bursaries AND who live further than 10KMs from the campus will qualify for a transport allowance, based on shortest road distance. This applies to NEW and RETURNING students.

The College MUST verify up to 25% of the addresses for students claiming transport allowance and submit reports to DHET.

Students found to have defrauded NSFAS and DHET, will be subjected to an internal disciplinary hearing which could result in the withdrawal of the bursary, cancellation of allowances, re-payment of allowances already received, expulsion from the College and criminal charges being laid.

3. DHET ATTENDANCE AND PUNCTUALITY POLICY

DHET has introduced a policy which stipulates that, where a bursary student's attendance is below 80% in a particular month, his/her transport allowance will be withdrawn for the following month, and repaid NSFAS by the College.

APPENDIX F: PARTICIPANT PROFILE LIST

Participant (P)	Gender Male-M, Female-F	Position, experience and responsibilities
P1	M	IT Education Specialist, who manages IT, does budgeting, procurement of department resources, implementing programme, supervising IT lecturer class attendance, five (5) years at the College, National Certificate in Vocational (NCV) introduced in 2007, implemented in 2008, joined 2009. Governed by FETC act of 2006. Formerly IT Manager in business sector.
P2	M	Four (4) year experience in teaching mathematical literacy. Currently an Education Specialist, supporting lecturers in mathematical literacy, curriculum and resources use, including its development.
P3	M	Lecturer for various subjects in the Business Studies department. Has a Diploma in Education, with postgraduate certificate in research.
P4	M	Background in commerce, started in 1997 teaching NATED, in 1999 went to Western Cape Education Department working in simulation, and went overseas to work as an administrator. Also an Education Specialist in the NCV although involved in administration, external examiner, Umalusi officer.
P5	M	Mathematics Lecturer with more than five (5) years of experience.
P6	M	Electrical Engineering lecturer and has been lecturing for six (6) years, Worked for Telkom for more than five (5) years.
P7	F	Programme Manager since 2013 for Electrical Engineering department ensuring that EIC work properly, oversees lecturers' work and training. Studied electrical engineering, human resources development, training and development. Worked as an engineering lecturer at Groote Schuur hospital in 2008, but before that worked as an artisan at Transnet where she qualified.
P8	F	Started working in 1997 when the College opened, teaching Financial Accounting, Office practice and a variety of subjects. Was in 2009 promoted to be Education Specialist at the same time heading Finance, Economics and Administration NCV department. In 2013 was promoted to be NATED Business Studies head and be the right hand to the programme head (NCV).
P9	M	Lecturer in Entrepreneurship and Business Management (business studies) at the FETC for 15 years i.e. since 1999 to date.
P10	F	Student Support Counsellor. Counselling, supporting, and mentoring students with more than six (6) years of experience.
P11	F	Early Childhood Development/Occupational Education lecturer, teaching NATED level for five (5) years but has been teaching early childhood development for 21 years.
P12	F	Currently an Inclusive Education Officer at this FETC and has worked at other FETCs for six (6) years and health sector, has honours degree in Occupational Therapy. Worked as Occupation Therapist in the medical field for seven (7) years. Supports students with disabilities and lecturers, and raises awareness of students with disabilities.

Participant (P)	Gender Male-M, Female-F	Position, experience and responsibilities
P13	M	Was a Programme Manager for National Certificate in Vocational (NCV) in July 2009, prior to that was at one of the campuses as a Head of Department, prior to this was also a lecturer for accounting, computerised financial systems and office practice in Business Studies department, prior to that started at one of the FETC campuses which was closed because its lease contract had expired and could not find another premise there. Also taught geography, mathematics, type writing and accounting at a secondary school from standard six (6) now grade 12 before 2000 and 2001. Currently a Programme Manager for business studies NATED at this FETC.
P14	F	Maths literacy lecturer at this FETC since 2008 in NCV levels 2, 3 and 4 as well as a high school teacher from 1988 to 2007.
P15	F	Programme Manager for Early Childhood Development (ECD). Responsible for managing the lecturers in ECD department, herself as well as liaising with the government and funders, with more than nine (9) years of experience in the FETC.

APPENDIX G: SEMI-STRUCTURED QUESTIONNAIRES

Interview schedule

Introductory remarks

In a turbulent and revolutionary business world, improvements, global competitiveness, the need to have a competitive advantage and adaptive BPs, stimulate organisations to adopt strategies and technologies and apply them to BP to be more agile and implement BPM.

Main aim

The study seeks to explore, understand and explain the factors affecting the agility and implementation of BPM at a FET college in a dynamic environment as well as to determine how FET Colleges can manage the competitive environment in order to accomplish the mandate bestowed on them.

The researcher is kindly requesting answers to the questions listed below in your utmost good faith. Your answers will be used specifically for research purposes only and they will be treated with the highest degree of confidentiality and privacy. More so, participation in this interview is voluntary and allows autonomy.

Specific questions:

SECTION A (participant's profile)

- i. May you briefly tell me about yourself at this FETC (e.g. your position, responsibilities, experience/background and your name)?

Answer	
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SECTION B

The research questions are:

RQ 1: What are the factors that affect the agility of BPs and systems in a complex educational environment?

- ii. **Interview question 1.1:** What are the factors affecting your ability to respond to unexpected changes?

Answer	
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- iii. **Interview question 1.2:** Why are the following factors **important** in the organisation's ability to meet changes: capabilities, people, process complexity, organisational factors, IT, culture of change, operations alignment, market assessment and competition assessment?

Answer	
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SRQ 1.1: What are the key agility indicators (KAIs) and critical success factors (CSFs) for FETCs to be agile in order to service their clients?

- iv. **Interview question 1.1.1:** *How are you satisfying your clients' needs in this constantly changing environment (speed, accuracy and cost control)?*

Answer	
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- v. **Interview question 1.1.2:** *In relation to processes, please explain why the following are important: non-redundancy, reliability, security, productivity, success, and accuracy (KAIs)?*

Answer	
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- vi. **Interview question 1.1.3:** *In relation to information, could you elaborate on the importance of information at this FETC (KAIs)?*

Answer	
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SRQ 1.2: What are the risks of a competitive environment such as wherein FETCs operate on the perceived important 'business agility and speed to the market'?

- vii. **Interview question 1.2.1:** *What risks is your institution exposed to that are hampering its ability to fully respond to change/environment?*

Answer	
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RQ 2: How can the agility of BPs and systems be improved to respond to the changing requirements in a complex educational environment?

- viii. **Interview question 2.1:** Please explain how change is important (culture of change) in terms of diversity, environment, ethics, social conscience, and values.

Answer	
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- ix. **Interview question 2.2:** Why are internal and external collaborations important for this FETC?

Answer	
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- x. **Interview question 2.3:** Which processes do you think are the most critical for the survival of this college? Explain why.

Answer	
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SRQ 2.1.1: How does the competitive environment impact the perceived importance of ‘business agility and speed to the market’?

- xi. **Interview question 2.1.1:** *The business environment is impacting more positively than harmfully, do you agree?*

Answer	
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SRQ 2.2: How can FETCs manage the changing and competitive environment in order to execute the mandate government bestowed on them?

- xii. **Interview question 2.2.1:** *How can FETCs manage the changing and competitive environment in order to execute the mandate government bestowed on them?*

Answer	
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Thank you for your kind assistance with this interview.

APPENDIX H: DATA SUMMARY TABLE FOR THE INTERVIEW FINDINGS

Participant (P)	Interview question 1.1: What are the factors affecting your ability to respond to unexpected changes?	Interview question 1.2: Why are the following factors important in the organisation's ability to meet changes: capabilities, people, process complexity, organisational factors, IT, culture of change, operations alignment, market assessment and competition assessment?	Interview question 1.1.1: How are you satisfying your clients' needs in this constantly changing environment (speed, accuracy and cost control)?	Interview question 1.1.2: In relation to processes, please explain why the following are important: non-redundancy, reliability, security, productivity, success, accuracy (KAIs).	Interview question 1.1.3: In relation to information, could you elaborate on the importance of information at this FETC (KAIs)?
P1	<p>Situated in under-privileged location, the expectation from department senior management focuses on results, irrespective of the operational environment, scarce resources, poor attendance of students' social challenges, place where we belong, suffering from identity crises, and maturity of students to enter tertiary from basic education or secondary schools.</p> <p>Resistance to change because communication/consultative forum of DHE policies not in existence.</p> <p>How to cope with change and motivate students about light at the end of the tunnel.</p> <p>Interaction between FETCs and DHE.</p> <p>Curriculum is too old and IT NCV was developed in 2006. It is too old for the fast IT developments. Registration – confusion on policies from FETC and the DHE who say anyone who have passed grade 9 can do engineering and IT. They should leave the political connotations as they say assessment is meant for selection but rather to help you identify challenges faced by the students.</p>	<p>Capability is critical in any organisation because it becomes the driving force at the top; their policies are going to be formulated but at FETC level policies are changed to tangible operation of which we need skill to do that.</p> <p>Skills are stagnant to keep up with changes in technology.</p> <p>People learn, build the entire system and drive the strategies. Simple process is formulated by DHE fine tuning them complicate, some from the department are brought complex already, e.g. promotion and progression policy from the DHET has a lot of repetition. CEO forms mission/vision and must have multitude of skills. Communicate it. Assessing environment enables us to have a futuristic orientation/view. Change is invisible, we cannot run away from and things are changing fast in this e-age to adapt to new technology, courses and not to be left behind. We deliver what has been done not in future.</p>	<p>Students are progressing to universities. Students are also enrolled to do short term courses such as ICDL CISCO, that help them got more qualifications from a program enrolled and assume those who pass are satisfied. Assess skills requirement for the country to offer skills.</p>	<p>Avoiding duplication serves time. Security people cheat through fake matric certificates, ID to be admitted in the registration.</p> <p>Absenteeism management process didn't succeed because of a variety of factors.</p>	<p>Information is a factor of production and a resource which results in information management. No business or organisation will survive without information.</p>
P2	<p>Absenteeism of students, resources for lecturers and students, I have just come from a classroom where a lecturer doesn't know about a software which can be used by students and being used by all lecturers having been provided by DHE.</p> <p>Situated in under privileged location, the expectation from department senior management focuses on results, irrespective of the operational environment, scarce resources, poor attendance of students, social challenges.</p>	<p>There is a lack of skills to use technology and the College mission is not known to some. Selection of lecturers draws back as lecturers affect the whole system, resources should stream from the top and computer skills hinder lecturers' duties. There is resistance to change as people want to remain in their comfort zones and must be managed. None-alignment with mission causes mismatch with activities and should be communicated. Assessing environment enables to benchmark, know better competition, SWOT.</p>	<p>Incentives to staff, staff turnover good, there is promotion and working conditions are good. Resources given just like how other are.</p>	<p>Redundancy caused by different set of people working with students and to avoid fraud. Processes should be remodelled to enhance security. Information should be available by the press of a button, enabled by ITS.</p>	<p>DHET taking over FETCs, retrenchments, different programs, cartel might be formed, distance education affecting FETCs.</p>

Participant (P)	Interview question 1.1: What are the factors affecting your ability to respond to unexpected changes?	Interview question 1.2: Why are the following factors important in the organisation's ability to meet changes: capabilities, people, process complexity, organisational factors, IT, culture of change, operations alignment, market assessment and competition assessment?	Interview question 1.1.1: How are you satisfying your clients' needs in this constantly changing environment (speed, accuracy and cost control)?	Interview question 1.1.2: In relation to processes, please explain why the following are important: non-redundancy, reliability, security, productivity, success, accuracy (KAIs).	Interview question 1.1.3: In relation to information, could you elaborate on the importance of information at this FETC (KAIs)?
P3	Students not willing to change and attend, legislation a problem, management should understand situation on the ground, consultation not part of the institution (up and down communication) because maybe it's a government.	We are living in a world heavily dependent on technology so lecturers and students should be able to use computers and access, train them so that lecturers can deliver updated training. People implement process and there should be win-win as everyone should benefit not only a few; no funds available to everyone. Selection and marketing is complicated, lecturing should be for lecturer only, mixing marketer and lecturer in registration affects quality (specialised) resources enable competitiveness so as student should be global students who should complete anywhere, anyone who resists change resists research, activities are in line with the vision although registration process is too long. Assessing market enables us to know our client.	We are teaching them what they didn't know. Our students are being employed in the industry.	Non-redundancy is important, if not there it means we are not using our IT and Admin optimally as this may affect our image from the students. There is fraud in processes like registration and there are kickbacks which are not clearly displayed. There are hiccups in registration because you see that, list from the education during exam will be different from what the College has, they should use variety of providers not only one. There is no follow up after registration.	Sharing information means they can share responsibilities enabling people get ideas and better approaches to problem solving.
P4	Attracting skilled workers. Lecturers are doing more administration instead of their main tasks, having harmonious work relationship with the HR; some students are not ready for tertiary education and the selection process need[s] refinement.	Multi-skilled /staff cross training enables staff to adapt and become employable from one department to another, people been to college tend to own when they train you, it should be win, from 1910 doing pure artisans to business studies, 1960s, 1970s to be program offerings. Best practices are learned, ethics, integrity are found in people who are role models so as lecturers who possess these characteristics.	The PACE - assessment and interviewing of students in registration, lecturers should not be involved in the administration, resources, staff selected - most are narrow minded dead woods who should be motivated to develop, adapt and go for field work to know what's in the industry, assessment of the environment enables to see who are the competitors, the market college offerings looking for privileges, students are mobile and offer them latest programs, part time programs will become big and if you don't do it someone else will.	Activities are aligned because of the better equipped staff, inclusive education indicates alignment, job placement in 1997 we had 97% success rate. Promising what you will fulfil, job shadowing, need student satisfaction survey. I don't know if we have metrics too, they measure satisfaction, satisfied if informed why they are studying, they want benefits now interviews are important, exit.	Non-redundancy enabled by system should avoid this to save time. New policies from DHE cause redundancy, exams only, later lecture and exams annoying.

Participant (P)	Interview question 1.1: What are the factors affecting your ability to respond to unexpected changes?	Interview question 1.2: Why are the following factors important in the organisation's ability to meet changes: capabilities, people, process complexity, organisational factors, IT, culture of change, operations alignment, market assessment and competition assessment?	Interview question 1.1.1: How are you satisfying your clients' needs in this constantly changing environment (speed, accuracy and cost control)?	Interview question 1.1.2: In relation to processes, please explain why the following are important: non-redundancy, reliability, security, productivity, success, accuracy (KAIs).	Interview question 1.1.3: In relation to information, could you elaborate on the importance of information at this FETC (KAIs)?
P5	FETCs formed in amalgamation of private and governmental institutions –pty had own ways of funding for profit, the government could adapt conflict of interest. There were too many policies and regulation in a short space of time to synthesise because the government was regulating. Two ministries FETCs, Basic Education and HET policies. Uncertainties of transfer of staff from college employees to DHE.	<p>Management skills are very critical. FETCs are not physically in one building and all managers should cooperate, coordinate with others. Managers who possess management skills can encourage and be upskilled. People are the main resource of organisations, should be capacitated as they implement objectives, and well versed with technology. Critical process is the recruitment of lecturers, a manager may be bias towards those who possess skills same as his, so interaction with HR is important.</p> <p>Culture of change is facing resistance, for instance the introduction of the biometric system of clocking in and out, at first it was not appealing and people were asking why we are not clocking manually. Communication and convincing goes hand in hand with management skills. Culture of change in terms of diversity, change can happen but if not managed can hamper progress. Alignment of activities with vision not up to scratch; there is no specialisation as lecturers are doing more administration instead of catching up with core duties of tutorials. I have to catch up with capturing registers".</p> <p>Environment assessment enables us to get correct client who enables you to achieve objective. (147)</p>	We are providing opportunities to community where FETC was not there or education, most are getting bursaries. Being the first to provide a service it will carry up you profile, achieving you mission as well as providing opportunity to the clients. Redundancy waste resources and human resources which could be deployed somewhere. Process are generally secure, no cases have been seen. In registration, PACE assessment; even after failing can go on to rewrite for the sake of survival.	To make a correct decision you need correct information in registration, inaccurate information wastes time and resources.	For instance, we are dealing with life of students, if incorrect information is given it can temper with opportunities to get bursaries and correct courses.
P6	Too old computers/resources though changes are too slow. Positive effect ERP ITS. Constant policies, rules and regulations - changes affect student and lecturers.	Processes are secure because there is no evidence to tell insecurity. People skills are critical because educators bring so much into the classes - for instance values, beliefs, principles. All are important but administration processes are complex so is registration as they do not do all they are supposed to. Examination is complex, service delivery.	The institution is not satisfying the needs to the full, only what it needs.		To keep up to date with trends and to teach up to date information. To see if we are not being irrelevant.

Participant (P)	Interview question 1.1: What are the factors affecting your ability to respond to unexpected changes?	Interview question 1.2: Why are the following factors important in the organisation's ability to meet changes: capabilities, people, process complexity, organisational factors, IT, culture of change, operations alignment, market assessment and competition assessment?	Interview question 1.1.1: How are you satisfying your clients' needs in this constantly changing environment (speed, accuracy and cost control)?	Interview question 1.1.2: In relation to processes, please explain why the following are important: non-redundancy, reliability, security, productivity, success, accuracy (KAIs).	Interview question 1.1.3: In relation to information, could you elaborate on the importance of information at this FETC (KAIs)?
P7	<p>Capacity, political matters in everything, background of students are from disadvantages, culture if affecting.</p> <p>I we want to run college in a certain way or implement plans some do not adhere because of religion.</p> <p>New policies of students not giving transport money for those within twenty kilometre radius which makes them get tired before classes.</p>	<p>Skills are very important for me as an artisan. I have to be able to transfer skills, not to read from a book. Registration is difficulty especially when doing PACE assessment you have to train people who have never used a computer and this makes it challenging. Communication is difficult because sometimes I have to mix Zulu, Xhosa and find a translator. Results are delayed, so is proving the bursary application. HR is important, here we have people who are working for the sake of money, they hold on to the past, they struggle to change, 2010 is too new why I can't use 2003 office? This affects production.</p> <p>We are not working toward our vision so as the way we are implementing plans. We deviate from plans, for instance I want artisans and the department employs a person without the skill which needs to be transferred to students. This 'chomi' (friendship) business here should stop, my uncle is working here, and it kills the vision. Assessing the environment enable[s] us to know our stakeholders and relate to the community who can also protect the College when we are not there on Sundays.</p>	<p>Most clients are very happy because most are referred. Companies which recruit students are happy.</p>		<p>The reception is not trained to provide information, we don't have a reception; they can't refer.</p> <p>Our clients walk around the whole campus looking for IT. We need the talents too; we need signs to show directions.</p>
P8	<p>Type of student who is immature; I do not see the college achieving what we want to achieve. Student does not care and take it for granted because they do not care.</p> <p>A manager who must be in class. Managers like to implement what they are just being told by senior manager who compare us with the non-disadvantaged campuses whose parents some are managers. So our management is failing us.</p>	<p>Capabilities are important for all our stakeholders- all students will use it in industry; the same is for stuff as they are expected to transfer the skill to students. People like all staff must know what we do as all should be informing our clients to satisfy them. Registration is complicated as assessments are done by Jack and Tom and there is no proper structure. Khayelitsha have resources which only need maintenance, e.g. the OLC. IT lectures and diverse improve the pass rate so as the diversity as lecturer from other countries are good in IT and Mathematics. Alignment of activities working towards the vision like at exit level, equip students. Advertisement dept. is not enough.</p>	<p>Managers are not doing their job - lecturers panic when being visited in class, meaning they are not doing enough.</p> <p>Transport allowance, bursaries.</p> <p>We are not measuring satisfaction ability of the College.</p> <p>Extra classes.</p>	<p>Processes are secure for NATED as it has never been experienced. Registration not reliable because we are sometimes recruiting anyone who passes by. Examination processes have too many cooks who some are untrained and some results are not captured.</p> <p>Administration and lecturers should do their work; we have students whose marks were not captured and he is supposed to come and re-do N6 level again.</p>	<p>Information helps to know what is expected of staff and students.</p>

Participant (P)	Interview question 1.1: What are the factors affecting your ability to respond to unexpected changes?	Interview question 1.2: Why are the following factors important in the organisation's ability to meet changes: capabilities, people, process complexity, organisational factors, IT, culture of change, operations alignment, market assessment and competition assessment?	Interview question 1.1.1: How are you satisfying your clients' needs in this constantly changing environment (speed, accuracy and cost control)?	Interview question 1.1.2: In relation to processes, please explain why the following are important: non-redundancy, reliability, security, productivity, success, accuracy (KAIs).	Interview question 1.1.3: In relation to information, could you elaborate on the importance of information at this FETC (KAIs)?
P9	<p>Lack of the DHET to integrate universities, colleges, high schools. Universities are not recognising FETC qualifications. Recently FETCs were given a platform to explain their qualifications/courses and why universities should accept FETC students though some courses/subjects were found to be not up to scratch for acceptance of their students.</p> <p>The FETC is part of a Big institution, with more than 100 staff members which is situated in disadvantaged community. Types of students are from a disadvantaged community and are not exposed to technology, certain necessary subjects and curricular not related to what we are offering.</p> <p>Daunting.</p>	<p>Capturing students' attendance.</p> <p>FETC is intended to bridge skills gap and it's another vehicle to the university.</p>		<p>There are reliable because I do not have evidence of any fraud.</p> <p>Process success like in registration is not always possible because of a variety of factors.</p>	<p>Relevant and reliable information is important for best practice.</p>
P10	<p>Social ills.</p> <p>Financial problem for transport and paying fees. The government new policy on transport allowance which is now offering it to only those staying beyond ten kilometre radius.</p>	<p>People pass on skills to students; support staff assists the students on counselling.</p> <p>People have not yet mastered the registration process as it delays the time to start classes.</p> <p>This campus is growing the offices, classes' rooms, and ventilation at the workshops.</p> <p>Administration staff needs training as well as they are the face of our campus. Culture of change needs communication to be accepted.</p> <p>Our activities like lecturers photocopying during lesson time which shows lack of planning, a student get a report without other subject marking or ISET marking might not be added, and this reflects negligence.</p> <p>Government policies are hindering our ability to grow so bursaries are important.</p>	<p>We have student support, inclusive education, job placement so that they leave the College wholesome, not to dropout and ready for the industry.</p> <p>Among FETCs in the Western Cape we are pioneers of inclusive education which I think will improve our image and show we care, e.g. a success story of a blind student on one of our campuses.</p>		<p>Information helps us to know about what's taking place.</p>

Participant (P)	Interview question 1.1: What are the factors affecting your ability to respond to unexpected changes?	Interview question 1.2: Why are the following factors important in the organisation's ability to meet changes: capabilities, people, process complexity, organisational factors, IT, culture of change, operations alignment, market assessment and competition assessment?	Interview question 1.1.1: How are you satisfying your clients' needs in this constantly changing environment (speed, accuracy and cost control)?	Interview question 1.1.2: In relation to processes, please explain why the following are important: non-redundancy, reliability, security, productivity, success, accuracy (KAIs).	Interview question 1.1.3: In relation to information, could you elaborate on the importance of information at this FETC (KAIs)?
P11	<p>Security - the College is located in crime rampant areas. We do sight visits to our students. If the CEO would see where I drive through he will get a heart attack.</p> <p>The time frame for completing the programs is too short and additionally, resources such as [a] simulation room required to complete the syllabus is not there and we can't teach without it. I seat on the floor to teach, I seat under the table and teach because there are no cupboards or shelves and when you tell management they say keep quiet and do your work. I was given a written warning because I requested for a trolley (for carrying students' portfolios)</p>	<p>I need to be able to paint as it is required by the programs I teach. Different skilled people are not working as a team and it's required.</p> <p>Administration staff is not enough. Our results are always late and it delays starting classes. We assess the environment to know the background of our student and provide appropriate support like transport and security.</p> <p>Registration has developed. It should be done early, captured in the system and provide all proof of registration.</p>	<p>We are not satisfying our clients because our 30 to 40 year old ladies are abused, stabbed and raped as they walk to the College, even if the College is getting a lot of money to support them. We can't offer evening part-time classes because there is no transport for them. Some of my students did not write tests because there was no transport and they could not arrive in time and had to walk ten kilometres because of the new policy no longer offering transport allowance for those staying within 10 kilometre radius. Students are used to reading from books but some lecturers are using projectors and other ways.</p>	<p>People jump the waiting list and pressurise us to take them or put their friends on the list.</p> <p>We are not working as team. There are rules - no cell phones in class, no food in class, no cell phones in meetings, but lecturers answer phones in meeting and students eat in classes.</p>	
P12	<p>There is resistance to change, fear of the unknown, and people do not buy in people with disabilities. There is lack of collaboration/team work and customer services. There are no signs to direct students at the campus. Also, this is a high risk area to the staff and our students. I was attacked, told to get out of my car on my way home this past August (2014) because of strike[s] and I am still recovering as well as receiving counselling. I am here only because I need a job. I have nowhere to go for now. There are social and financial ills affecting the College. Financially this campus will not survive without bursaries because most of our students are coming from one-parent families, child headed families who are poor. The FETC is called a dumping site and this mentality need[s] to be changed.</p>	<p>Capabilities assist staff to execute their duties professionally. People like leaders provide guidance to improve the campus; I have a mentor who guides me to do my duties. For instance, people like administrators who capture wrong information on ITS cause a long term effect. There is a shortage of resources like printers. There are no tools for instance to fix cupboards; management must know that these are basic things.</p> <p>Culture of change is non-existence. People still think that people with disabilities are a case from God.</p> <p>People or management are even scared to correct an older person who is conducting an exam process wrongly because culturally it's off-limits to tell an older person what to do if they are stubborn.</p>	<p>Through job placements with good companies, supporting students at the campus. People see learning new things as an extra work. Students are used to reading from books by lecturers so we are using projectors and other ways.</p>	<p>The registration process is not secure because I have seen students getting high PACE results but could not read or understand English language which is the medium of communication. [During] the registration process - some students have to bring their lost identity documents, at PACE assessment, at registration. One girl came here seven times because she was told to go and collect separately all her documents until she decided to go and complete matric elsewhere.</p> <p>Curricula should be changed</p>	<p>Information for instance about a student with disability assists a lecturer to find a way to assist or support a student and avoid seeing the student feeling rejected.</p> <p>Things can flow smoothly, departments are not united or working as a team which frustrate client, portray bad image, causing strikes and loosing students.</p>

Participant (P)	Interview question 1.1: What are the factors affecting your ability to respond to unexpected changes?	Interview question 1.2: Why are the following factors important in the organisation's ability to meet changes: capabilities, people, process complexity, organisational factors, IT, culture of change, operations alignment, market assessment and competition assessment?	Interview question 1.1.1: How are you satisfying your clients' needs in this constantly changing environment (speed, accuracy and cost control)?	Interview question 1.1.2: In relation to processes, please explain why the following are important: non-redundancy, reliability, security, productivity, success, accuracy (KAIs).	Interview question 1.1.3: In relation to information, could you elaborate on the importance of information at this FETC (KAIs)?
		Inclusive education, animation, job placement help to elevate the image of the campus.		because student list second choice agriculture which is not relevant with us.	
P13	<p>The bounding outdated syllabus (1990/1991) meant initially for different types of students, for instance those who were doing Accounting, Mathematics, and Economics, are now inapplicable for our current students.</p> <p>Structures of the courses we have need methods; no longer applicable.</p> <p>Technologically students who do not have the background for the technology in use today give us a challenge as it affects the way they learn. Most are affected like those from under-privileged communities.</p>	<p>Capabilities help lecturers to use different teaching styles to accommodate students with different learning styles such as visuals, oral, kinetics and thinkers. We need staff and clients to provide a dual relationship.</p> <p>Leadership is there to provide resources like laptops, projectors and others which are not enough. Stationery requisition process is too long and complex. Culture of change is difficult for instance people are finding it difficult to accept people with physical disabilities or to interact with them. Culture if using the one's first language or mother language. Culture of attendance or punctuality for students and lecturers is difficulty to deal with as people are used to their way of doing things. Activities are in line with our vision, for instance I am communicating the core values on my door placards so that all of us can leave them. People still think certain places, races are superior - these affect our student numbers who leave these communities to others.</p>	<p>We are offering courses not being offered by many other colleges such as Financial Management, to offer Public Management, part time courses for who are working and cannot cope with four subjects at a semester. Distance are for who are working and can attend once over weekends.</p> <p>Most of the students we ask how they knew about us point out that they were referred by their relatives studying here.</p>	<p>Processes are secure, there are stringent processes gone through to check though we are unable to control fraudulent document brought by the students.</p>	
P14	<p>Registration of the correct student who some are not ready for tertiary education.</p> <p>Social problem such as food, child headed families, transport which disturbs attendance.</p>	<p>Capabilities enable the smooth running of the College. People implement objectives which in turn are interlinked. Relationship of management and staff which may affect staff giving 100% effort. Central office do not see us as human, they do not take time with us or show interest when we have problems. IT assists lecturers to deliver their services. Even printing a few documents takes me 55 minutes. Accepting change is difficulty because some staff is not exposed to the new technology. The environment assessment helps the way you support and deliver service such as lecturing.</p>	<p>"No, we are not because some staff are always absent as this affects the pass rate and customer services." (151)</p>	<p>Process redundancy frustrates clients as it looks too long and unreliable as student documents get lost.</p> <p>Registration process is not successful - some examination processes - because of shortage of venues are overcrowded as they can copy each other. An exam which usually starts at 8 o'clock makes lecturers to crowd the storerooms at the same time.</p>	<p>Information sharing serves to share responsibilities.</p>

Participant (P)	Interview question 1.1: What are the factors affecting your ability to respond to unexpected changes?	Interview question 1.2: Why are the following factors important in the organisation's ability to meet changes: capabilities, people, process complexity, organisational factors, IT, culture of change, operations alignment, market assessment and competition assessment?	Interview question 1.1.1: How are you satisfying your clients' needs in this constantly changing environment (speed, accuracy and cost control)?	Interview question 1.1.2: In relation to processes, please explain why the following are important: non-redundancy, reliability, security, productivity, success, accuracy (KAIs).	Interview question 1.1.3: In relation to information, could you elaborate on the importance of information at this FETC (KAIs)?
P15	<p>Background of the student who comes from difficult social problems.</p> <p>Staff not ill disciplined staff.</p> <p>Funds for transport. ECD students are getting a salary.</p>	<p>Multi-capabilities help to deal with a variety of students with different learning capabilities and changing characteristics. Staff development process is lacking as it hinders staff potential, especially with the new curriculum different from the old once they were using. Activities are not in alignment with the vision. Staff are not giving their full to clients as most are not willing to go the extra mile. Knowing the environment enables us to know what to expect.</p>		<p>Registration not secure enough and we found that some are paying friends to write for them.</p> <p>Marks - we have two cases were marks were produced without evidence.</p>	<p>From campus to executive to head office distribution of information is not happening for fear of being victimised.</p> <p>As well as to share best practice and uniformity.</p>

Participant (P)	Interview question 1.2.1: What risks is your institution exposed to that are hampering its ability to fully respond to change/environment?	Interview question 2.1: Please explain how change is important (culture of change) in terms of diversity, environment, ethics, social conscience, and values.	Interview question 2.2: Why are internal and external collaborations important for this FETC?	Interview question 2.3: Which processes do you think are the most critical for the survival of this college? Explain why.	Interview question 2.1.1: The business environment is impacting more positively than harmfully, do you agree?	Interview question 2.2.1: How can FETCs manage the changing and competitive environment in order to execute the mandate government bestowed on them?
P1	Competition, funds, security on processes, and physical and work environment.		<p>We need constant dialogue, for instance the industry as the employer should specify their needs or quality of who they can put on internship.</p> <p>The kids we are teaching are for the industry, so dialogue enables the industry and FETCs to benefit. For instance, 44 students are graduating, mainly the SETA. This FETC ICDL and City Council as well as the Khayelitsha Development Forum partnership. City Council as well as the Khayelitsha Development Forum put funds on the table as we train for the industry which absorb the students.</p>	<p>The most critical process is the registration; it needs to be re-engineered as we are not prepared every time when we are towards it so as the examination process. It has always been a struggle when it comes to registration because there are external forces in play when classes should start and when students should write exams. Results are always released late and at the same time we are expected to commence classes on time. This year was chaotic, the Minister directed us to register only students who have 50% average, which excluded the majority and they had to revise that decision.</p>		<p>The environment is changing too fast but what FETC has done is to position itself strategically so that they are able to capitalize. If you look, we used to have NATED course, SETA seating under the Department of Labour and we used to have FETCs. Now the DHE took over the SETA to be under the DHET so as for FETC to relate to the SETAS which are related to the industry and where change is to be implemented.</p>
P2	Recruitment of staff with drought of skill or not fully skilled, losing student because of lack of funds and online institutions.	Change Impart diversity learning and different abilities.	Sharing information is for the betterment of us and the institution. It is also meant to share best practice. Focus groups for moderation, and assessment meeting DHET.	Lecturing registration and need refinement as it should allow online registration.	Positively for example we now have software for maths, there is distance education and international partnership with colleges in England and Australia. Politics is dampers in education I am not happy with e.g. in schools which are not doing well so parents are hopping FETCs are doing well.	Listening to governments instructions, structure for implementation, get board of directors' support, strikes at universities and their struggle offer a positive effect to FETCS as they will have more students.

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P3	Funds resulting in less students, online institutions will not affect as our students want to be in class.	We must change our entrenched certain way of thinking.	Collaboration result in learning good practice, we won't know everything.	Marketing and student selection, and lecturer recruitment.	Environment is affecting positively. Politically because they do not pay as they get bursaries, there are FETC to study.	Create a forum or a community within a community or an organisation within an organisation to see what works, online discussion or debate and inform those on top and voice our concerns that things are changing. Recruit multi-skilled lecturers from the industries
P4	Loosing students due to skills in admin who do not know all applications and how to provide information.	Change enable[s] organisations to adapt thought we lacking in some aspects.	Decentralisation of certification through collaboration with DHE, student slip in through the process up to university even before they get results from this student. We have a student 2010 studying at a university having not passed NCV level 21 subjects who get conditional acceptance by the administration and register, the student came and said I won't graduate because I still owe subjects at this institution.	Staff selection and registration as well as programs offering should be based on industry needs. From 1990s offerings were supply driven but since 2000, 2002, colleges are now demand driven.	Yes partnering with SETAs, WCED, industry, strategic partners.	Recapitalise colleges, attract right type of staff and create clear career path for them, strategic partnership help colleges train people. Australia have customers out of the country train for industries, Colleges are spoiled with program funding. Colleges should go into occupational training because there are funds waiting for them, though colleges are afraid to do.
P5	Financial risk – validation of student documents is vital so that students who do not qualify through fraud. Security of processes- people can forge qualifications.		Collaboration is very critical- because your performance is for public scrutiny to improve your position compared with other institution even with other countries.	Recruitment of students and lecturers because you won't achieve your mission. If you don't get the correct mixture you won't without them you might go to liquidation	Positively because enrolment is increasing because initially some courses were opened and closed through wrong decision/ management skill and policies. Students can now enrol at FETC to access universities as opportunities were scarce and competition was too much.	Mix skills, academic thinking, social support executives must have multi capabilities to manage change and accomplish the mission.

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P6	<p>Security risk-Financial risk</p> <p>Loosing clients because we are not growing As revealed by needs. You can't build a cafeteria yet there is a need for extra classes. Institution is basing at the SIMM.</p>		<p>Yes they are, though I have not communicated with others from other colleges for the past 5 years. There is no path and most time I am always in class to collaborate with external bodies. Conventions are vital or have functions to enable interaction.</p>	<p>Change is improvement in any environment. The curriculum has not change and it's not serving the current requirements.</p>	<p>Economy affect lecturers for instance if petrol price increases.</p>	<p>Keep changes for a certain period.</p> <p>Plan and assess rules, policies before implementation</p>
P7	<p>Crime - fence was stolen, people are being robbed at the gate, break-ins, anybody can drive in, and we do not have security in place. The security does not search. Finance is not enough we have a lot of students who are stuck and have dropped out because it cost R3000 per subject; they pay on their own if they fail any of the seven subjects. We are losing students out of that.</p>	<p>There is resistance to change and unless it stops full development will not takes place sooner.</p>	<p>To benchmark, secure our process, physically secure FETCs. Avoid bureaucracy, and save public funds through.</p>	<p>We do not have qualified quality lecturers. Some even get teaching qualification when they are employed already. Some are here only for money, teaching methods are important some don't believe in themselves and the programs they are teaching.</p>	<p>Very negatively-Students are scared to come at seven o'clock to get an extra thirty minutes in the library because of crime or remain at the campus till late because it's not safe.</p> <p>"I still remember last year I tried to extend the workshop development contract for some contractors, It became a big issue for the local community leaders because people where asking about parties which contractors belonged to and the beneficiaries as well as if they were to be informed every time. It ended up not happening".</p>	<p>Our government has created a dependence syndrome; even those who can afford are applying for a bursary. The funds are not enough. When I was at Groote Schuur when we were training students at Groote Schuur. They would get 50 students funded by Government for practical. When they finish we would sent them to a FETC for theoretical training where the government pays R11 000. When they fail at one FETC they would enrol at another FETC and the government would pay another R11000 at the same level one. The government will end up paying R100 000 for the same student at the same level but at a different college, at the same time the student will remain unemployed and unqualified.</p> <p>There should be an interrelated system which can identify bursary application at the same level but at different FETCs.</p>
















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P8	Burglaries, criminals are always pouncing on our students.		Sharing information helps the clients and improves the image of the campus. Focus groups help when we share exam areas to be asked in the examination (common paper). Sharing of information or discuss for instance we are not discussing about complaints made on books like one book we are now using with lots of mistakes and the old one was better- nothing has been done don't just make money.	Recruitment students. Programme development.	Students are coming to college with empty stomachs. Government is offering bursaries; crime is affecting and may scare staff and students. Policies are changed willy nilly and before students adjust financially. Not giving transport to students by government for students within the 10 km radius will result in high dropout rate, strikes, decrease in pass rates.	Adjust time and after assessment 1 all below 50% should do extra studies to improve results. Neighbourhood watch should have ladies and men to walk around for security. For the staff they should look at CVs as it seems they are not doing that. One case is where they recruit anyone who did N4 accounting without looking at if they have taught.
P9	Stereotype of FETCs that those who come here are those who didn't do well at high school as such we are likely not to get students. The decrease in financial support from the government is causing the student number to drop. On security, we are situated in a place where crime is rife and some students have dropped because of crime.	Accepted slowly only when communicated.	Work-based learning or job placements for students to link theory and practical experience and increase their change of employability. Lecturers are doing work-based learning at Woolworths in order to pass on to students the practical experience.	Registration is critical for FETC survival because if we do not select the appropriate students it will affect all other processes we want world class students. However. all processes work in collaboration.	Environment is affecting negatively, our campus is riddled with social ills such as crime; service delivery protest is the order of the day as well as non-compliance, child care issues, students come to class with empty stomachs etc.	College management is employed by the state as such they are mandated to do things in a way which is in line with what government wants to buy it. Government must give autonomy to run own affairs. The control by government compromise quality, progress and benefits for the College. This also means they are treating them as new born, spoon feeding them. Government or the College should assist on access to the College because some of the student might not come to write tests because of crime and transport problems.

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P10	We are exposed to crime/security as it can scare students and highly skilled staff as well as our part-time students. Financial risk .Selection of students for bursaries will be strict and will affect our number of enrolments.	Change helps us to remain competitive and avoid losing clients.		Registration is the most critical and must be started early. Next year we will require 50% for the selection of all who qualify for bursaries.	Negatively because crime is increasing so we are likely to lose a lot of students.	Registration must be started early, keep records, to avoid registering anyone, even those who do not qualify.
P11	Pass rate decline because of attitude, dropouts, teamwork/working relationship etc. Losing best lecturers because of lack of team work, security. "I am going if I get a job".	50% yes walking the extra mile need communication. People look more to their rights when something changes.	One Job placement individual is enough as it affect number of those who should graduate after work-based learning. We are not collaborating enough though it is necessary for sharing how to conduct exams, registration. Post level one position is not kept for more than a year.	Registration is the most critical and must be started early.	We are not keeping lecturers and students because of the environmental security, violence, strike, so the environment circumstances affecting negatively.	Management at central and the government must understand our challenges and address them appropriately - like providing transport to students as well as transport allowances.
P12	Security, strikes, social problems, students are coming here for holiday and for the money only. Internal collaboration or working as a team frustrate clients and cause strike. Financial risks.		External partners – Cape Town Association of the Blind about how to support the blind, with nurses and doctors, School of skills, WCED, and others. On internal collaboration we are not working as a team which frustrates clients and cause strike. "One example is through Head Office, I found that one student with disability and [a] psychiatric problem was accepted at one of our campus without informing the inclusive education officer or student support department. To tell you the truth that student does not even deserve to be here, the mother said there was no	Registration process is not secure— "One example is through head office I found that a student with disability and psychiatric was accepted without informing the inclusive education officer or student support department. To tell you the truth that student does not even deserve to be here, the mother said there was no doctor's certificate to confirm and I can't chuck out that student because the government has already paid the bursary."	The environment is affecting negatively. After Mandela was released, people still have militant behaviour and they are exercising it at their campus. The protest action, strikes, violence, burning tires, is still being counselled for acute stress.	Internal collaboration and team work should increase. Government must be aware of the social problems of our students like security. Sporting is not happening even if we have the grounds and people are not taking responsibility as there is more than being academic. The grounds uplift the community. Resources like support staff must be increased to enable smooth operation of the College.

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			doctor's certificate to confirm and I can't chuck out that student because the government has already paid the bursary."			
P13	Safety and security. Financial risks. Losing students who leave to other colleges to get transport allowance and bursaries. This is happening because for some if you call them they will be at home and will only complain when they do not get the transport allowance.	Still difficult to accept FETCs, accept the physically challenged students.	ICB external examiners for ICB. WCED, Sector Education and Training Authority Sector (SETAs), focus groups, Job placement officer who work[s] in collaboration with the industry to find the industry requirement. One retail organisation is upskilling some of our lecturers who will deliver to our students. Pastel is an indirect partner providing us the software for our functionality. Internal collaboration is important for planning and to correct all what we might be doing wrong or for best practices.	Processes work in collaboration, all is dependent on the other, though most depend upon registration.	Negatively because of the social, economic problems such as child headed families, unemployment leading to crime, HIV, TB, other diseases, poor attendance, poor results, student dropouts, etc. We had no bursaries at one point and students paid. Bursaries have not improved our results as we are still attracting same students. We are uncertain as to what extend people will sacrifice for education if the government stops offering bursaries.	Partnerships with the local forum, neighbourhood watch and police can assist on security. Changing perception of people toward FETCs through model students will help. This is because some Universities are not accepting our students because they still believe in the old stigma that those who want to use their hands and did not do well at high school can go to FETCs.
P14	Crime and safety. Students are robbed and raped on their way to college. Reputation and reaching our full potential because of the type of students enrolled. Losing students because of the loss of the transport allowance and bursaries.		Collaboration with other 6 colleges in the Western Cape which writes a common paper helps in sharing the workload and ideas.	Registering the correct students not only who are here for bursaries. Some lecturers are not yet willing to use IT to teach, I mean projectors.	Positively and negatively. Students are not getting here in time because they are walking long distances to the College as they are no longer getting transport allowance.	There should be systems in place to turn away students who repeatedly fail all subjects at the same level and return the following semester or year or go to another college to get bursary and transport allowance. This avoids wasting government funds on students who are not serious and concentrate on giving chance to those who have the will.
P15	Financial risk and protest action, if bursaries are stopped, safety, accessibility and stigma	Job opportunities, ability to further their studies or enrol at universities, certificates for those who	WCED, Sector Education and Training Authority Sector (SETAS, social development	Service delivery, without it we spoil everything and cause strike, dropout and extra.	Both- Positively people can access higher education and can now	Government should have agency to make them aware about real community problem for our students. Security needs more

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	leads to losing students to competitors.	dropped at high school can be accommodated. We are not sure who is responsible for students who leave the College.	motivates, and for sustainability.		provide themselves and improve their life. Negatively some students are only up to getting allowances and we call them serpentine.	spending to upgrade it otherwise it will remain the same.

APPENDIX I: SNAPSHOT OF THE PRIMARY SOURCE OF DATA

 1-Participant	8/26/2014 3:56 PM	Windows Media A...	28,059 KB
 2-Participant	8/28/2014 1:32 PM	Windows Media A...	26,625 KB
 3-Participant	8/28/2014 5:03 PM	Windows Media A...	17,847 KB
 4-Participant	8/29/2014 9:48 AM	Windows Media A...	31,466 KB
 5-Participant	9/2/2014 2:54 PM	Windows Media A...	26,485 KB
 6-Participant	9/2/2014 8:37 AM	Windows Media A...	16,216 KB
 7-Participant	9/2/2014 3:52 PM	Windows Media A...	25,893 KB
 8-Participant	9/3/2014 4:13 PM	Windows Media A...	27,757 KB
 9-Participant	9/4/2014 9:41 AM	Windows Media A...	13,265 KB
 10-Participant	9/4/2014 4:26 PM	Windows Media A...	20,921 KB
 11-Participant	9/8/2014 8:56 AM	Windows Media A...	36,285 KB
 12-Participant	9/9/2014 8:56 AM	Windows Media A...	33,102 KB
 13-Participant	9/9/2014 3:49 PM	Windows Media A...	37,754 KB
 14-Participant	9/10/2014 8:58 AM	Windows Media A...	20,587 KB
 15-Participant	9/9/2014 2:43 PM	Windows Media A...	1,772 KB

(Interviewer: Fradreck Nyambandi)