The realisation of business benefits when implementing mandatory software in an IT department: A case study in a South African financial services organisation

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Declaration

I, Fazlyn Petersen, do hereby declare that the thesis 'The realisation of benefits when implementing mandatory software in an IT department' is my own original work and that all sources have been accurately reported and acknowledged, and that this document has not previously in its entirety or in part been submitted at any university in order to obtain an academic qualification.

Fazlyn Petersen May 2011

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Key words

Business benefits, benefits realisation, business process, business strategy, information systems, user acceptance, South African financial services organisation, mandated usage, organisational factors influencing usage, Information Management Body of Knowledge (IMBOK,) Extended Technology Acceptance Model (TAM2), Motivational Model (MM), Model for PC Utilisation (MPCU)

ABSTRACT

No organisation has an endless and unlimited supply of money, especially in a recessive economy, and therefore decisions have to be made as to which areas an organisation will invest in. As organisations, such as YZ[1] financial services organisation, are focused on seeing returns on investment (ROI), implementing software that is not being used will not render any benefits to the organisation.

Research problem: Project Managers (PMs) in YZ organisation's IT department need to perform mandated processes, as defined in their centralised repository. PMs need to use Financial and Planning Software (FPS)[2] software to perform certain project management activities, as required by their job function. However, it was found that MPP[3] software, another tool, was used for more detailed project schedules, as well as activities that were not strictly enforced by management, the Project Office or the Quality Assurance team. Therefore, from this discovery, it was not clear whether the intended benefit of implementing this mandatory software (FPS) was being realised – since implementing software that is not being utilised fully would not deliver the intended benefits to the IT department (Devaraj & Kohli 2003), even if the software is termed 'mandatory'.

Objective: The primary objective of this research was to explore and optimise the key success factors for an effective implementation of mandatory software in a department, in order to derive the intended business benefits.

Literature Review: Literature was reviewed in the search for models or theories that explore the relationship between the use of mandatory software and the achievement of business benefits. The Information Management Body of Knowledge (IMBOK) was selected as this framework defines the relationship between IT and the realisation of business benefits, and ultimately the achievement of any business strategy.

The literature review focused predominantly on the level of user involvement, change management, as well as factors that influence the usage of mandatory software by individuals.

1 *The name of the organisation utilised has been changed. Refer to Ethical Consideration*
2 *The name of the tools utilised has been changed. Refer to Ethical Consideration and list of acronyms*
3 *The name of the tools utilised has been changed. Refer to Ethical Consideration and list of acronyms*

Focus was given to organisational factors affecting usage, such as top management support and organisational processes. A model was compiled using unique constructs in the Technology Acceptance Model (and TAM2), the Motivational Model (MM) and the Model of PC Utilisation (MPCU) – in order to test user acceptance of mandatory software.

The literature study concludes with a review of an approach to benefits management including five stages, namely: identifying and structuring benefits, planning for the realisation of benefits, executing the plan, in addition to the evaluation and the review.

Research design and methodology: A case study was used in this research, as it examined the phenomenon in its natural setting, employing multiple methods of data collection to gather information from a few entities (groups and data sources). In this way, it was not limited to only qualitative or quantitative approaches, but utilised mixed methods instead. A mixed methods approach was used in order to elaborate, enhance and clarify the results from the qualitative research through the results of the quantitative analysis.

Findings: The main finding, based on the compilation of three models of user acceptance, proved that FPS was not being utilised as intended. There was also no evidence of an improvement in business operations. Therefore, benefits management was negatively impacted. Organisational processes were identified as the most important organisational factor, influencing the usage of FPS software. Own technological capability was considered to be the least important factor, as respondents believed that they had sufficient IT skills in order to learn how to use FPS software.

Change management was rated negatively; and as a result, it impacted the usage of FPS, as users were not involved in the decision to implement, and had limited interaction in the implementation process. In addition, there was no evidence found that benefits management was conducted in the IT department; and therefore, the impact of using alternative software could not be quantitatively assessed.

Recommendations: In concluding this research, it is recommended that the "best practice", derived from the pertinent literate should be followed more diligently if YZ organisation is to benefit from the implementation of mandatory software. For example, in this research, it was found that top management's support of FPS (second most important organisational factor

influencing use) was lacking, despite the literature suggestion that senior management involvement in changing technology is crucial for organisational commitment.

It is suggested that a more formal approach to benefits management should be implemented. It is also recommended that further study should be conducted – in order to explore the applicability of the Japanese framing (achieving benefits from IT software through the concept of strategic instinct, rather than strategic alignment) in the context of a developing country (such as South Africa).

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF ACRONYMS AND ABBREVIATIONS

Business Requirements Specification	BRS
Chief Information Officers	CIOs
Enterprise Resource Planning	ERP
Equity-Implementation Model	EIM
Financial and Planning Software	FPS
Global Address List	GAL
Information Management Body of Knowledge	IMBOK
Information Systems	IS
Information Technology	IT
Key Result Areas	KRAs
Management Information Systems	MIS
Alternate software utilised by Project Managers	MPP
Project Management Body of Knowledge	PMBOK
Project Managers	PMs
Quality Assurance	QA
Return on Investment	ROI
Service Level Agreements	SLAs
Pseudonym used for the financial institution where this research was conducted	YZ organisation

Acknowledgements/Dedication

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CHAPTER 1

1 NATURE AND SCOPE OF THE STUDY

1.1 BACKGROUND

The Financial Services industry in South Africa is subject to legislation and government regulation, such as the Financial Advisory Intermediary Services Act and the Financial Services Board Act, (Act 97 of 1990). These conditions affect the environment in which organisations operate. One of the organisations operating in this environment is the YZ[4] organisation. YZ is the most well-established financial services provider in Southern Africa, with a prominent position in the industry that is reflected in a strong operating performance across all businesses.

The organisation has a strong financial flexibility with demonstrated access to international capital markets and a diversity of business interests. This diversity of business interests is facilitated through partnerships with other organisations. The Information Technology (IT) department in YZ organisation plays a key role in establishing these partnerships; and this enables the organisation to offer a variety of financial products and services. These span investment, life assurance, asset management, banking, healthcare and general insurance with a client base comprising of individuals, businesses, corporates and institutions. Product and service solutions take into account what clients need and deliver these needs through collective skills, years of experience and value-driven people.

This comprehensive business model does not come without some challenges, especially in the IT department. One of these challenges includes an increased pressure on organisations to decrease their costs (for example, the cost per insurance policy) and to increase their profitability (net Client Cash Flow). YZ's strategy is to reduce IT spending and to improve performance -- particularly in today's recessive economic environment, where disposable income is declining, and as a result purchases of YZ's products are affected.

When individuals purchase fewer products, it means that YZ organisation's income decreases; and this places additional pressure on profitability targets. On account of this pressure, the YZ

4 *The name of the organisation and tools utilised has been changed. Refer to Ethical Consideration*

organisation places its emphasis on decreasing costs in each business unit, especially in the IT department. This currently adds the biggest percentage cost to the cost per policy figure and is the most expensive of all operational units.

Hence, decreasing costs in the IT department has become a strategic initiative due to its impact on the cost and profitability of YZ organisation as a whole. In summary, decreased IT costs would lower the cost per policy (for example, insurance and risk policies) and increase the profitability, provided the prices of YZ's products remained unchanged.

One way of decreasing costs is for organisations to invest resources in implementing information technology – in the hope that these investments would result in increased productivity for employees and would accrue substantial direct or indirect benefits for the organisation (Jain and Kanungo, 2005).

A direct benefit would result if cost per policy was lower, while profitability remained the same; then the products would become more affordable to more people; and this could result in more sales and an increased market share. This is directly related to YZ's strategic objective of becoming the leading financial services organisation.

An assumed direct benefit of implementing software in YZ's IT department would be to ensure delivery to its clients, together with the business units within the organisation, within a specified cost, schedule and level of quality. Based on a preliminary investigation, if costs are not within budget and the additional spending cannot be recovered from clients, then any overspending would lead to IT department losses. In addition, not delivering within the specified time would also lead to IT department losses, as the cost of time and material can be substantial.

It is believed by clients and Management at YZ organisation that when the IT department delivers poor quality systems, it leads to incidents and production downtime that affect Service Level Agreements (SLAs) – and ultimately costs too.

To manage the spending on cost, schedule and quality for projects, a decision to purchase *Financial and Planning Software (FPS) was made by an executive member. FPS' functionality is available for perusal in Appendix 1a. The information has been obtained

directly, without any amendment – except for the name change, from the FPS website. Because of ethical considerations connected to this research, references for the website will not be included.

After implementation, FPS was then mandated for use by Project Managers (PMs) by implementing IT governance, via IT policies and processes, to enforce its usage.

YZ's IT department defines policies and processes, in a central repository to which PMs have to adhere, with the aim of ensuring efficient and quality project management deliverables. These processes are based on the Project Management Body of Knowledge, PMBOK, and include the following phases:

- Initiating – projects need to provide a signed project contract so that they can obtain a project ID in FPS and these projects are linked to high level plans to ensure strategic alignment;
- Planning – projects should have detailed schedules to ensure that delivery can be adequately tracked. This leads to improved project delivery, as any project delays can then be immediately noticed and addressed;
- Controlling – detailed project schedules shows actual vs. planned effort, as actual time spent on activities and tasks will be captured in FPS;
- Executing – resources book time against activities and tasks (which management needs to approve); and these costs are tracked for financials purposes; and
- Closing – project review reports need to be provided to the Project Office so that the FPS project IDs can be closed and the client billed.

This IT governance is implemented via a top-down approach – in order to manage project costs, quality and schedules – with the ultimate objective of lowering the IT department's costs, and hence the organisation's costs.

However, this cost-reduction strategy will only be successful if the governance is effectively applied and enforced. Adherence to these processes is enforced by the Quality Assurance (QA) team whose job it is to verify that work products, as defined in the centralised repository,

- Actually exist;
- Have been peer-reviewed (to ensure content quality); and

- Have been approved by the necessary approvers.

Without meeting the three criteria above, approval for projects to be promoted to the production environment, to be used and accessible to clients, is not given. Previously, the QA team extracted data from FPS to provide metrics on the amount of time spent on testing and ensuring content quality through peer and code review, but the data proved to be incorrect and invalid, as not all PMs were capturing time at such a granular level in FPS software.

A preliminary investigation has shown that FPS functionality is not being used to its full extent, as additional MPP[5] software is being used in addition to the FPS – in order to manage project schedules. MPP allows for projects to be broken down into activities and tasks; and it then then allows for resources to be assigned. It generates a Gantt chart that provides a graphical representation of the tasks and the activities; and they can be used to illustrate critical paths.

A critical path is the series of tasks (or even a single task) that dictates the calculated starting date and end date of the project, taking into consideration the constraints of the preceding and successive tasks. A detailed description of the MPP functionality is provided in Appendix 1b. The information has been obtained directly from the MPP website, without any amendment, except for the name change. On account of ethical considerations for this research, references for the website will not be included here.

Based on the information available in Appendix 1a and Appendix 1b, it would appear that FPS is well suited to align PMs to PMBOK processes, as it supports best practices. Both FPS and MPP allow for Project Management activities, but PMBOK alignment is not evident for MPP. In addition, it would appear that the FPS enterprise portfolio management will allow management to track projects and resources across the IT business with one single tool; and this should assist in managing IT finances, especially if the focus is on lowering IT costs. This would not be possible for MPP, as MPP does not allow for resources to allocate time worked against the tasks and activities for which they were assigned, unless the MPP enterprise project management tool is added.

5 The name of the actual software has been changed for (the previously mentioned) ethical reasons. Also, please see the “List of acronyms and abbreviations”.

In addition, the IT department's profitability or loss is linked to the productivity of its resources, as clients are invoiced for time worked (time multiplied by a resource rate) on projects, delivered by the IT department, for the business. It is therefore important that the implemented FPS system be used as intended, in order to produce the intended business benefits. That would assume that PMs have a choice as to whether they want to utilise FPS or not. However, FPS is used in a mandated environment, where the use of FPS is required for the job performed by PMs, especially for functions such as time capturing and financial reporting.

1.2 THE PROBLEM

PMs need to perform the mandated processes, as defined in the centralised repository; and additionally, they need to use the tool specified to perform certain project-management activities, such as, for example, using FPS to log projects, capture time and extract financial reporting.

It was discovered that some PMs in this organisation interchangeably use FPS and MPP, placing only the required high level project schedules in FPS (this is a requirement according to the defined process and is checked by the Project Office); and they then use MPP for more detailed project schedules, as well as activities not strictly enforced by management, the Project Office or QA. MMP was also utilised for activities, such as assigning resources to specific tasks at a granular level, whereas FPS allows for these resources to allocate actual hours worked to a high level activity.

As a consequence, PMs are potentially duplicating effort and wasting time, as project schedules would need to be updated in both FPS and MPP when changes occur. As time utilised needs to be billed to clients and affects the overall project costs, using FPS and MPP would not be aligned to the IT department's interests and YZ organisation's objective of lowering IT costs.

As FPS was implemented via a top-down approach, and it is furthermore unclear whether PMs actually utilise the functionality provided by FPS software or whether they understand how to use the software in the best manner, or are simply refusing to do so because they may

not have been sufficiently involved in implementation – or whether this resistance is due to the fact that the implementation has not been adequately changed managed.

Consequently, from this discovery, it was not clear whether the intended benefits of implementing this mandatory software (FPS) was being realised, since implementing software that is not being utilised fully would not deliver the intended benefits to the IT department (Devaraj & Kohli 2003).

1.3 RESEARCH QUESTION AND SUB-QUESTIONS

In order to address the identified problem, the following research questions were formulated:

Does the implementation and use of mandatory software derive the intended business benefit for the IT department? If not, what would be the optimal way to derive benefits from the use of the mandatory software?

In order to answer these questions comprehensively the following sub-questions needed to be answered as well:

- Which factors were considered necessary to successfully implement mandatory software into a department in order to derive the intended business benefit?
    - What is the level of involvement from the intended user group in the decision to implement mandatory software?
    - Was the implementation of FPS adequately change-managed?
- Which factors influence the usage of mandatory software by individuals?
    - Which organisational factors influence the acceptance of mandatory software?
    - Which factors influence the acceptance of mandatory software by individual users?
- What are the impacts of using alternatives to mandatory software on expected business benefits?

1.4 RESEARCH OBJECTIVES

In order to address the identified problem by answering the defined question, the following objectives of this research were established:

- To explore and determine the factors considered necessary to ensure the successful implementation of mandatory software into a department – in order to derive the intended business benefit:
    - To explore and determine the level of involvement from the intended user group in the implementation of mandatory software;
    - To explore and determine whether the implementation of FPS was adequately change- managed;
- To understand and determine the factors influencing the individual usage of mandatory software:
    - To describe which organisational factors influence the acceptance of mandatory software;
    - To explore and determine the factors that influence the acceptance of mandatory software by individual users;
- To understand the IT department's approach to measuring business benefits related to the use of mandatory software and the impact when alternatives to FPS are being utilised; and
- To suggest possible solutions that are required to optimize factors that lead to business benefit realisation when utilising mandatory software, i.e. to suggest a possible way to effectively use a mandatory PM software application.

1.5 OUTLINE OF THE LITERATURE REVIEW

In order to assist in answering the main research question, the literature review was structured in such a way that it followed the logic of answering the identified sub-questions. Thus, the literature review explored in this thesis provides insights into the problems senior executives have with IT, namely: that **the payoffs from IT investments are inadequate**.

In order to understand the relationship between the use of software and the achievement of business benefits, it was necessary to review literature in search for models or theories that

explore this relationship. That search has returned a number of results, including the benefits-realisation capability model (Ashurst et al., 2008), Jacob's ladder (Bytheway, 2003) and Zachman's framework (1987). However, Jacob's ladder was expanded by Bytheway (2004) in the Information Body of Knowledge.

Consequently, it appeared that the Information Management Body of Knowledge (IMBOK) was sufficient for this study, as this framework defines the relationship between IT and the realisation of business benefits, and ultimately the achievement of business strategy.

The study continues by describing factors that should be considered when implementing mandatory software into a department – in order to derive the intended business benefit – focusing specifically on the level of user involvement and the change management process when comparing the three models for emergent change.

It explores those factors that influence the usage of mandatory software by individuals, with the focus on organisational factors, such as top management support and organisational processes. It identifies seven models and theories for the individual acceptance of information systems (technological and human components that work together to produce services that an organisation needs) including the Technology Acceptance Model (and TAM2), the Motivational Model (MM) and the Model of PC Utilisation (MPCU).

Some useful concepts are discussed, such as the differences between a volitional and a mandatory-use environment and whether IS, mandatory or not, can succeed in delivering business benefits if the IS has improved business processes which could bring about improvements in business operations.

The literature review enables certain propositions to be formulated. It is shown, for example, that if business change is not correctly managed, the realisation of business benefits will be negatively affected; and therefore, the method of implementing mandatory software, the level of user involvement and the change management approach when implementing FPS software was examined in this research – in order to explore the factors required to ensure the successful implementation of FPS into the IT department to derive the intended business benefits.

The literature study concludes with the review of an approach to the management of benefits, including the following five stages, namely: identifying and structuring benefits, planned realisation of benefits, executing the plan, the evaluation and the review. In order to answer the research question, the approach to business benefits was discussed with the target population in this research to determine whether this – or another logical approach – should have been applied. When found to be unsuitable, recommendations were made to address the problems found.

1.6 RESEARCH METHODOLOGY

A case has thus far been made for the need to determine whether implementing mandatory software derives the intended business benefits that the IT department had intended. Thus, the research design, which is a *"blueprint or detailed plan for how a research study is to be conducted"* (De Vos, 1998) was considered. Research approaches can broadly be categorized as quantitative or qualitative. Quantitative research incorporates facts to study the associations between different sets, while qualitative research deals with understanding perceptions (Myers, 1997).

However, Schwandt (2000, 2006) argues that the differentiation between the types of research is simply a *"paradigm war"*, and that it is no longer useful, as he believes that all research is interpretive, and that there are a multiplicity of methods that are suitable for different types of insight.

A case study, the research method used in this research, examines a phenomenon in its natural setting, employing multiple methods of data collection to gather information from one or a few entities (people, groups, or organisations), and is thus not limited to qualitative or quantitative approaches alone, but can utilise mixed methods instead. Such a mixed method was used in this research. This was due to the fact that the small sample in this research would not lead to conclusive results, but would rather be useful to complement the qualitative findings.

It was, consequently, considered appropriate to adopt a mixed methods approach, as this research elaborates, enhances and clarifies the results from the qualitative research through the results of the quantitative analysis.

This study is exploratory in its nature, as the purpose of this research was to gain new insights and a better understanding of the use of the mandatory software, FPS, – in addition to the benefits derived from its usage – in a particular organisation. The explorative nature of this research is highlighted by the fact that one of the objectives of this research was to contribute to an understanding of the dynamic relationship between the utilisation of mandatory software and the realisation of benefits, especially when any alternatives to the mandatory software are being used.

As a result, this phenomenon was examined in its natural setting, employing the following methods of data collection:

- Semi-structured interviews with PMs, including the use of a survey;
- An interview with management;
- Observation of the FPS helpdesk; and
- Data from QA.

The survey was administered as a pilot study, to a representative sample of the desired universe – to highlight any inconsistencies and biases in the survey that could have affected the findings. This research used models (TAM2, MM and MPCU), as well as users (PM, FPS helpdesk and management) to implement triangulation – to ensure validity, as this showed that there is compatibility between the constructed realities in the minds of the respondents. These steps were used to produce an internally consistent set of items.

1.6.1 Data gathering

The data gathering process was undertaken by using the purified survey. PMs were identified from an email group list created by the FPS team, available in the organisation's global address list (GAL). It was assumed that the list has been maintained since inception, and that it is therefore an accurate representation of all FPS users, since important information regarding FPS is sent via email to all the FPS users.

The population for this research was chosen from sources available in the organisation. The sources used to compile a list of PMs to obtain primary data were as follows:

- List of FPS users from the Global Address List (GAL); and
- List of PMs from the QA team, as they engage with PMs for verification purposes.

These lists were cross-checked to ensure accuracy. The GAL list contained users that were PMs, but had subsequently changed jobs. These individuals were no longer PMs, but were still users. Given the limited number of PMs in the organisation, it was decided to include these individuals for purposive sampling, because of their level of experience and insight into the organisation.

Data gathering was done by setting up interviews with PMs on the FPS list on the GAL. Meeting invitations were sent out via email, and when no response was received within a week, PMs were called and an alternative time was suggested and arranged. The view of respondents may have contained a measure of bias, since using FPS is required by the job function, and failure to use it may result in disciplinary action.

1.6.2 Data analysis

Quantitative research (descriptive statistics) was used as to expand the qualitative research (thematic content analysis) component – to thereby give a more holistic perspective, and to satisfy the stated research objectives.

The thematic content analysis involved three steps:

- The structure of the interview was focused on specific questions first, and introduced additional probing questions on an ad hoc basis as needed, to cover aspects not adequately addressed by the original general question, or to gain further insight into the comments provided.
- The second step of the content analysis involved categorising the employees whose attitudes towards FPS usage were either clearly positive or clearly negative – with special attention being paid to the degree of sincerity, enthusiasm, and coherence that employees expressed when evaluating FPS, and to account for any possible social desirability bias. In cases where there was doubt, the employee was classified as moderate.

- The third step focused on employees with either a positive attitude or a negative attitude – instead of focusing on “the moderates”. This process allowed for a clear distinction between the factors associated with opposing attitudes toward the usage of FPS software. To best achieve this contrast, the content of each code was extracted, once for the "positives" and once for the "negatives." Within each of the "negative" and "positive" categories, redundancies were eliminated by merging perceptual elements (for example, views about FPS implementation), where the meanings were comparable or convergent.

Organisational factors influencing usage and the impact on the realisation of business benefits were described; and then measured and analysed, via quantitative analysis, without the manipulation of treatments or subjects. The quantitative analysis used descriptive statistics that described the sample data obtained.

The qualitative data of this research have supported the qualitative analysis. Descriptive statistics were preferred, in which the frequency, such as percentage and counts, was determined rather than the mean (for a normally distributed sample) or median (for a not normally distributed sample) value, due to the fact that the variables are predominantly ordinal.

1.6.3 Conclusions and recommendations

The results are presented in written, tabular and graphical form, and are discussed in terms of their correlation with the literature.

The findings, presented in terms of the research objectives, enabled certain conclusions to be formulated regarding implementation and the use of mandatory software – in order to derive business benefits based on a case study from a South African financial services organisation.

The main finding, based on the three models of user acceptance, proved that FPS is not being utilised as intended; therefore, benefits management was negatively impacted, as there was no improvement in business operations.

The conclusion is followed by a discussion on the implications of the study, and the presentation of some recommendations for further research.

1.7 THE SCOPE AND LIMITATIONS OF THE STUDY

The research was geographically confined to a single financial services organisation in the Western Cape, with a head office in Cape Town. It was limited to the use of particular software, due to the resource and time constraints existing in this research. Although this study incorporates the latest findings from the pertinent literature (the selected period for the literature review is that prior to the first quarter of 2010, with the earliest reference being 1989, the year in which the Technology Acceptance Model [TAM] was introduced). The empirical exploration of only one organisation inevitably limits any generalisation of this study's findings.

1.8 LAYOUT OF THE DISSERTATION

In order to achieve the objectives of the research discussed above, the following chapters and content of this research are structured as follows:

Chapter 2: THE LITERATURE REVIEW
The literature review is directly linked to the structure of the research question and the sub-questions.

The core fields of study included literature relating to:

- Level of involvement from the intended user group in the implementation of the mandatory software;
- Change management for the successful implementation of the mandatory software;
- Organisational factors influencing the acceptance of the mandatory software by individuals;
- Factors influencing the acceptance of the mandatory software by individuals; and
- The impacts of using alternatives to the mandatory software on expected business benefits.

Further fields of study may be revealed by cross-references or citations. These were followed up and studied for their relevance. The literature review related answers to the research sub-questions; and ultimately, the main research question. It has also provided a theoretical foundation for the subsequent empirical research, i.e. for constructing the data collecting instrument (including the design of the interview questions).

Chapter 3: RESEARCH DESIGN AND METHODOLOGY

Reviewing the academic roots, a detailed plan describing the method in which the research was conducted, will be discussed. This explains the research approach, based on the application of the approach to answering the research question. It concludes with a description of the instrument to be used, focusing on content validity and reliability.

Chapter 4: THE PROCESSING, ANALYSIS AND INTERPRETATION OF THE DATA

This chapter presents the results of the empirical study, beginning with an analysis of the demographic control variables. This is followed by a qualitative thematic content analysis. It concludes with statistical analysis that includes the basic statistics and measures of central tendency.

Chapter 5: CONCLUSIONS AND RECOMMENDATIONS

In this chapter, the empirical data are interpreted in the context of the study – ensuring that the objective of the research has been met. It concludes with a discussion of the findings in the light of the research questions, and provides recommendations for the gaps that were identified.

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Chapter One has introduced the background and context of the research, as well as the primary and secondary research objectives, which were discussed. In addition, it provides insight into the concepts introduced, jargon, technical terminology and the fields of study explored.

The chapter concluded with the layout of the dissertation, to provide a high level understanding of the subsequent chapters for clarity, and preventing any possible misunderstandings.
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The literature review in the following section will provide background and insights into the research statement and permit an in-depth analysis. The literature review included:

- A study of the relevant journals, books, newspapers, electronic publications, websites, and all other forms of published material;
- The use of keyword searches in the full text academic research databases of Emerald, EBSCO Host and ScienceDirect; and
- The application of web search engines, such as Google.

CHAPTER 2

2 THE LITERATURE REVIEW

2.1 INTRODUCTION

The following literature review assists in answering the main research question: *Does the implementation and use of mandatory software derive the intended business benefit for the IT department? If not, what would be the optimal way to derive benefits from the use of the mandatory software?*

This was done through studying the relevant literature related to the research questions and sub-questions in order to answer them, at least partially. In order to do so, it was necessary to explore:

- Factors considered to facilitate the successful implementation of mandatory software into a department in order to derive the intended business benefits:
    - Level of involvement from the intended user group in the implementation of the mandatory software;
    - Change management for the successful implementation of the mandatory software;
    - Measurement of business benefits.
- Factors influencing individual the usage of the mandatory software:
    - Factors influencing the acceptance of the mandatory software by individual users;
    - Organisational factors influencing the acceptance of the mandatory software by individuals.
- Impacts of using alternatives to the mandatory software on expected business benefits.

The literature review related answers to the research sub-questions; and ultimately, to the main research question. It also provided a theoretical foundation for the subsequent empirical research, i.e. for constructing the data collecting instrument (including the design of the interview questions).

2.2 FACTORS CONSIDERED TO FACILITATE THE SUCCESSFUL IMPLEMENTATION OF THE MANDATORY SOFTWARE INTO A DEPARTMENT IN ORDER TO DERIVE THE INTENDED BUSINESS BENEFITS

No organisation has an endless and unlimited supply of money, especially in a recessive economy. Consequently, decisions have to be made as to which areas the organisation will invest in. According to Devaraj and Kohli (2003), investments in IT are seen as a way to improve the productivity, the profitability and the quality of operations as ways to outperform one's competitors. This situation applies to the YZ organisation as well.

In 1998, the USA Department of Commerce estimated that approximately 46% of all equipment spending in that country was for IT equipment and software, and that IT spending was expected to increase, even in a period of economic slowdown (Devaraj & Kohli, 2003). In 2011, the estimated total budget for the USA National Institute of Standards and Technology, which includes Industrial Technology Services, Scientific and Technical Research Services and Technology Innovation Programs, rose from an actual spending of $820m in 2009 to $862m in 2010 up to $922m in 2011 (Department of Commerce, 2011). So, the trend of an increased spending in IT has escalated since 1998.

However, despite the understanding that investment in IT is necessary and is acquiring the necessary funding, it was found that if any group of senior executives in Europe or the USA were invited to a session on IT, they would typically identify five problem areas, namely:

- *IT investment is unrelated to business strategy;*
- ***Payoffs from IT investments are inadequate**;*
- *There's too much 'technology for technology's sake';*
- *Relationships between IT specialists and IT users are poor; and*
- *System designers are not considering users' preferences and work habits* (Bensaou and Earl, 1998).

In 1998, these problems had been around for fifteen years; and thus based on this, have continued for another twelve years. As organisations are focused on seeing returns on their investments, any implemented software that is not being used would not – and could not – render any benefits to the organisation. This view is supported by Argawal (2000:85), who

states that: *"Organisations (i.e., leaders and managers) make primary adoption decisions, yet it is individuals within the firm who are the ultimate users and consumers of IT. Thus, it is evident that true business value from any information technology would derive only through appropriate use by its target user group. In other words, systems that are not utilised will not deliver the returns anticipated by managers."*

In order to understand the relationship between the use of software and the achievement of business benefits, it was considered necessary to review the relevant literature – in the search for models or theories that have already explored this relationship. That search has returned a number of results, including the benefits realisation capability model (Ashurst et al., 2008), Jacob's ladder (Bytheway, 2003) and Zachman's framework (1987). These frameworks highlight the relationships between the infrastructure and the business processes with the emphasis being placed on value-creation and value-realisation.

However, Zachman's framework contains thirty-six points of interaction, and was thus too complex and time-consuming for this research. Jacob's ladder expresses the same concepts in a simpler manner; and this was expanded by Bytheway (2004) in the Information Body of Knowledge. In addition, the key areas identified in the benefits realisation capability model (Ashurst et al., 2008) such as, benefits planning, benefits delivery, benefits review and benefits exploitation, were very similar to the ones found in the Information Management Body of Knowledge.

Therefore, it appeared that the Information Management Body of Knowledge (IMBOK) was adequate for this study, as this framework defines the relationship, described above, between IT and the realisation of business benefits, and ultimately, the achievement of a business strategy.

In this regard, it is important to note that when using the IMBOK framework, the 'business', in the case of this research, refers to the IT department only, and not to the YZ organisation as a whole (Bytheway, 2004).

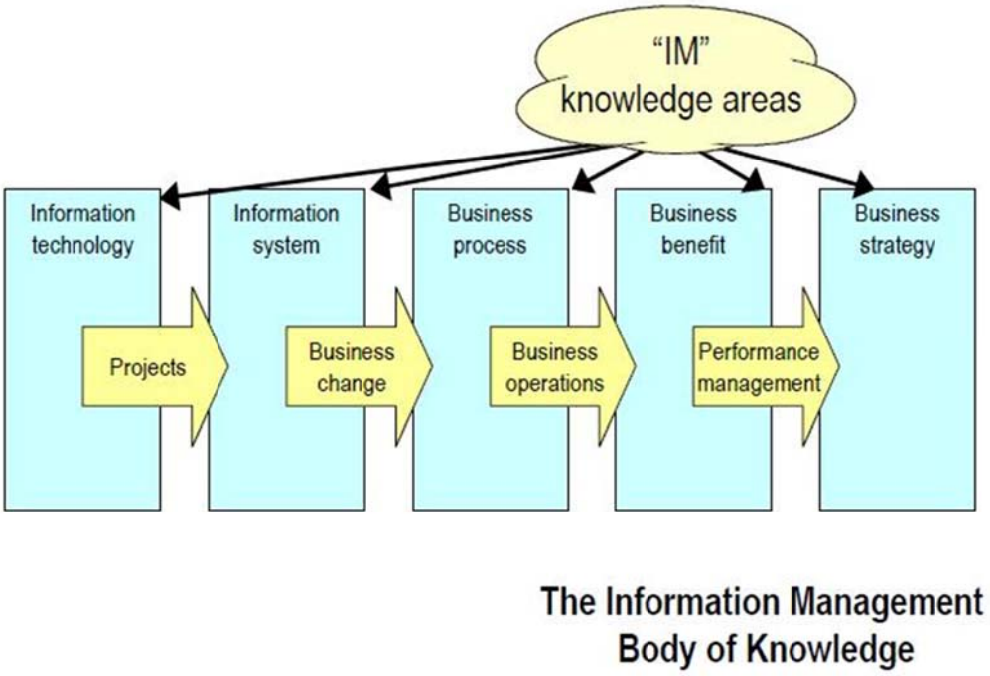


Figure 1: Information Management Body of Knowledge (IMBOK) (Source: Bytheway, 2004)

According to IMBOK, *information technology* refers to the physical components, for example, the hardware (servers), software, networking equipment and the like. Together, these items constitute the primary components of any information system (Bytheway, 2004). FPS and the infrastructure on which it resides is an essential part of IT, but in the YZ organisation, this is managed by an outsourcing agreement, and not by the IT department.

In contrast, *information systems* (IS) refer to the technological and human components that work together to produce services that an organisation needs, and that can process information for some organisational purpose (Bytheway, 2004). Given that the research examined FPS and MPP (technological components), which together with PMs (human components) provide the service of delivering projects to the organisation, according to the documented processes, the term IS was used as opposed to IT in this study. This was decided on because FPS (software) -- a centralised repository (containing documented processes) – and PMs constitute part of the IT department's IS.

IT investments are made to improve business processes. A *business process* may be defined as, *"a logical envelope that co-ordinates and gives purpose to business activities; generally where an activity delivers an output, a process delivers an outcome – a result that is evident to stakeholders outside the business, as well as those within,"* (Bytheway, 2004). YZ's IT department defines processes, in a central repository, to which PMs have to adhere, to ensure

efficient and quality project management deliverables. Therefore, in the case of the IT department, the business process is to deliver good quality IT solutions in a consistent and standardised manner to their internal clients, and ultimately to the clients who purchase YZ organisation's products.

These improvements in business processes are supposed to result in improved business operations. The concept of *business operations* refers to the way in which the organisation operates – once its information systems have been implemented and its business processes have been improved by having new functionality available. However, this is still dependent on how users of the information system accept the changes that the new IS introduces. If the change is adopted positively then business benefits can be realised (Bytheway, 2004).

The realisation of business benefits is described as, *"The process of organising and managing, such that the potential benefits of an investment of time and effort are actually realised"* (Bytheway, 2004). Another definition of benefit realisation was cited in Ashurst et al. (2008), *"…'the process of organising and managing, such that the potential benefits arising from the use of IT are actually realised'" (Ward & Elvin, 1999).*

An approach to manage business benefits has already been formulated. This approach is summarised below:

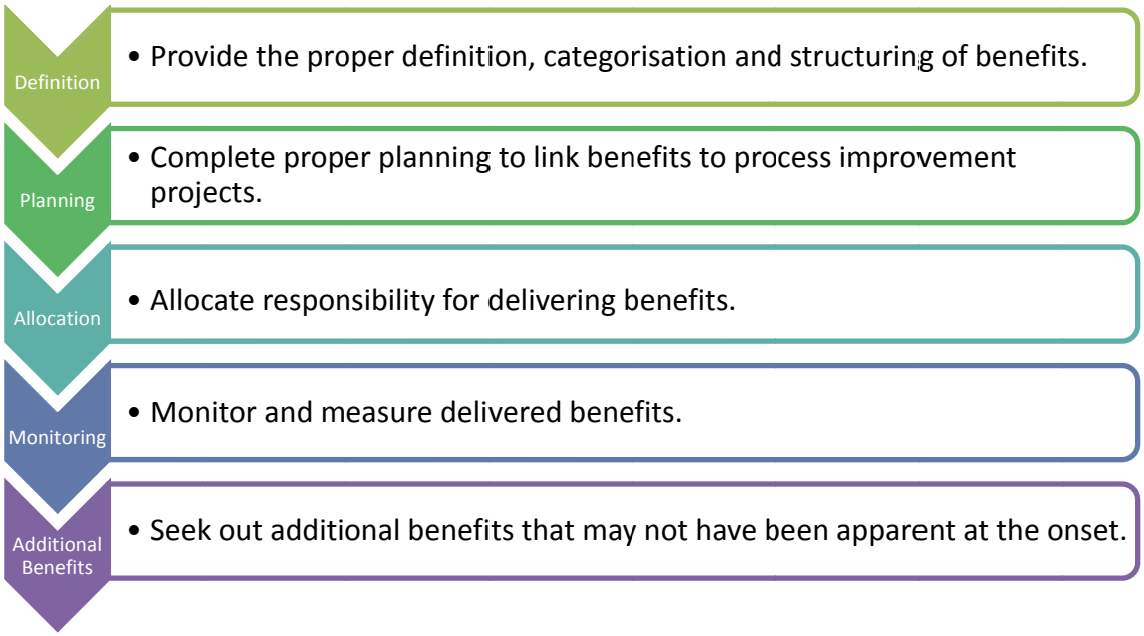


Figure 2: Business benefit management (Source: Bytheway, 2004)

The structuring of benefits is based on a system of dependencies (of benefits upon new systems and of organisational strategy on the successful delivery of benefits) that closely align to the structure of the IMBOK.

However, a survey into benefits management showed that less than 10% of organisations make a conscious effort to manage the intended delivery that is supposed to come from implementing software, and in a global study of 659 CEOs by the London School of Economics, only 25% expressed satisfaction with the performance of their IT investments (Compass Group, 1999).

Unfortunately no further survey results were available to compare results and to assess whether any improvement has been made. Hence, this research will provide insight into a South African organisation's benefits management. It can be used as a basis for further study.

In addition, Bensaou and Earl (1998) noted that the Japanese and the West are different in the way in which they manage IT, but according to IMBOK, the term IS should rather be used as IT refers to the technological components only.

One difference highlighted is the concept of strategic alignment, which arose in the West because many organisations were discovering that their software development did not support their business imperatives (Bensaou & Earl, 1998). In addition, development projects were given priority status, based on technical criteria rather than on how the technology would facilitate organisational objectives ("doing technology for technology's sake"). In Japan, the organisation functions drive the IT investments; and hence, seeing business benefits is much clearer.

The different approaches are highlighted in the table below:

Table 1: How Japanese and Western managers frame IT (IS) (Source: Bensaou & Earl, 1998)

Issue	Western framing	Japanese framing
How do we decide what information systems our business needs?	*Strategic alignment* We develop IT strategy that aligns with our business strategy.	*Strategic instinct* We let the basic way we compete, especially our operational goals, drive IT investments.
How will we know whether IT investments are worthwhile?	*Value for money* We adapt capital-budgeting processes to manage and evaluate IT investments.	*Performance improvement* We judge investments based on operational performance improvements.
When we're trying to improve a business process, how does technology fit into our thinking?	*Technology solutions* We assume that technology offers the smartest, cheapest way to improve performance.	*Appropriate technology* We identify a performance goal and then select a technology that helps us achieve it in a way that supports the people doing the work.
How should IT users and IT specialists connect in our organisation?	*IS user relationships* We teach specialists about business goals and develop technically adept, business savvy CIOs.	*Organisational bonding* We encourage integration by rotating managers through the IT function, collocating the specialists and users, and giving IT oversight to executives who also oversee other functions.
How do we design systems that improve organisational performance?	*Systems design* We design the most technically elegant system possible and ask employees to adapt to it.	*Human design* We design the system to make use of the tactic and explicit knowledge that employees already possess.

The issues stated above are closely related to the five issues executives had with IT/IS investments, that IT was unrelated to business strategy (Bensaou and Earl, 1998), and should rather be aligned to IMBOK areas, such as business process and business strategy (Bytheway, 2004). The YZ organisation closely aligns to 'Western framing', as this organisation has an IT strategy that aligns with its business strategy, and utilises IS to improve individual, and thus organisational performance, provided that users adapt to the change-management.

If 'Western framing' proves to be ineffective in YZ organisation, 'Japanese framing' may be an alternative worth considering.

2.2.1 LEVEL OF INVOLVEMENT FROM THE INTENDED USER GROUP IN THE IMPLEMENTATION OF THE MANDATORY SOFTWARE

According to Zang et al. (2002), *"User involvement refers to participation in the system development and implementation processes by representatives of the target-user groups. (Information) System implementation represents a threat to users' perceptions of control over*

their work and a period of transition occurs during which users must cope with the differences between the old and new work systems. User involvement is effective because it restores or enhances perceived control through participating in the whole project plan."

The definition of Zang et al. (2002) of user involvement was taken in the context of implementing Enterprise Resource Planning (ERP) systems. ERP is defined as *"…configurable information systems packages that integrate information and information-based processes within and across functional areas in an organisation"* Kumar et al. (2003). ERP (information) systems are implemented in order to improve customer service, to facilitate better production scheduling, and to reduce manufacturing costs.

ERP (information) systems include software which can be viewed as mandatory, as it is integrated across the organisation. Therefore, users do not have a choice as to whether they want to use the system or not, as in the case of FPS software. Therefore, ERP implementations were used as the basis for establishing the best practices for successfully implementing the mandatory software in areas such as user-involvement.

Based on the implementation of the mandatory software, there are two areas for user involvement when an organisation decides to implement, namely:

- User involvement in the stage of definition of the organisation's mandatory software needs; and
- User participation in the implementation of the mandatory software.

The extent of user involvement in the implementation of a new system and the adaptation to technological change has been seen as one of the main reasons for the success or failure of IS adoption (Oudahi, 2008). According to Zang et al. (2002), organisations often do not recognise the importance of choosing the right internal employees with the right set of skills. This skill set includes not only being experts in the organisation's processes, but also having an awareness of software applications in the industry.

The view is that involving users in the stage of defining organisational information system needs can reduce their resistance to the potential mandatory software, since users may feel that they are the people who chose and made the decision themselves. This makes it easier in practice for them to actually implement such decisions.

User involvement is not only limited to the decision-making process and employee involvement in utilising the mandatory software. As expected, this has a significant impact on the realisation of business benefits. According to Bytheway (2004), research has cautioned not expect too much too quickly. People need time to adapt to new working practices associated with new software; and due to the nature of change, this could take several months before the full range of benefits can be expected.

Based on work by Saroj Patel in Bytheway (2004), the achievement of benefits can be split into two phases:

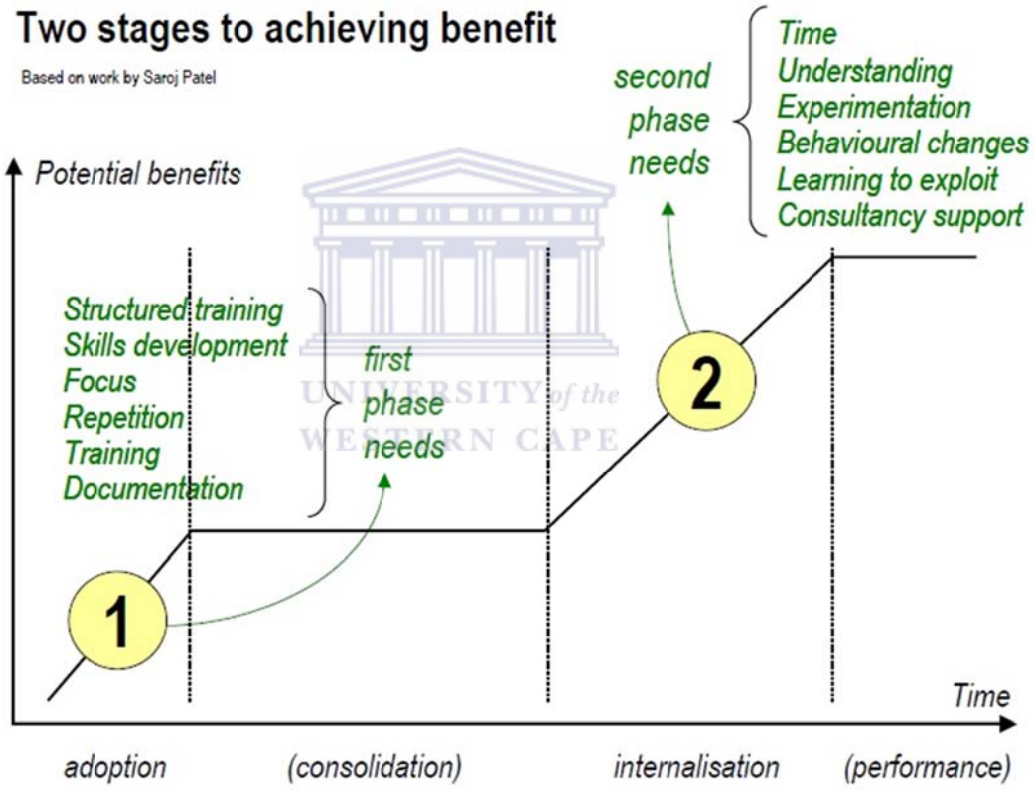


Figure 3: Phases in achieving business benefits (Source: Bytheway, 2004)

1. Phase 1 is the phase immediately after implementation (adoption), when benefits are realised through elements such as reduced time to deliver the same output. At this point, users learn to use functionality in the information system through training and routine practice. This phase needs clear documentation and a general level of working that may be defined as 'skills development'. This phase may take a few weeks; and in

the best case scenario, users will wonder how they ever managed without the current information system (consolidation).

2. Phase 2 begins when users become familiar with the system, and behaviour starts changing (internalization). Users discover that they can change the way they work, and this can result in improved efficiency and effectiveness (performance). This phase requires 'education' rather than training, as users are no longer 'working from the book' and are learning to exploit the functionality of the system for themselves. This can be facilitated by consultancy support.

It is clear that the management of benefits needs to be completed proactively. This should be completed, at latest, during the analysis and design phase, when the software is being developed (Bytheway, 2004). Alternatively, it should be considered before the request for information phase, when the software is being purchased.

Doll (2002) cited Ives and Olsen (1984), Barki and Hartwick (1994) and McKeen et al. (1994). These authors stated that user participation is widely accepted as being critical in the development of successful information systems. Barki and Hartwick (1994) were also cited by Terry et al. (2001) in their research of the value of user participation in the development of E-commerce systems. According to both articles, user participation in deriving system requirements, through interviews and surveys, is thought to improve the quality of design decisions and ultimately to improve the satisfaction and productivity of end-users.

This is despite the cost, as the number of user man-hours spent in participating can result in considerable expense (Doll, 2002).

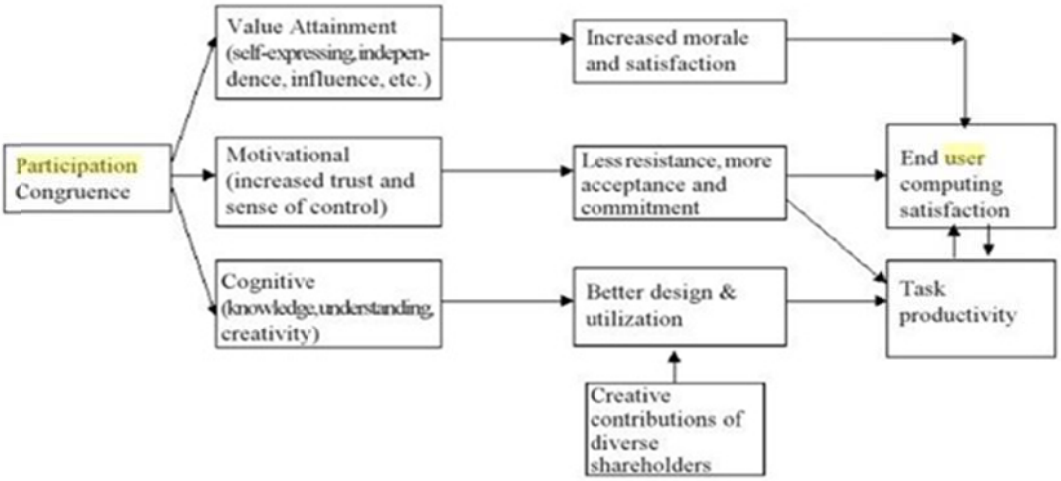


Figure 4: Psychological mechanisms linking participation congruence to task productivity and end-user computing satisfaction (Source: Doll, 2002)

Given the costs involved, user participation may be limited. In this instance, users would not obtain participation congruence. They would not be participating as much as they would like. Participation congruence utilises value attainment (accomplishing their goals or attaining their values through participation), motivational (enhanced acceptance and commitment to decisions and changes) and cognitive (increased creativity and knowledge that improve design and system utilisation) mechanisms. All of these factors ultimately reduce resistance and improve task productivity and user satisfaction (Doll, 2002).

These factors will be covered in more detail in the following sections.

2.2.2 CHANGE MANAGEMENT FOR THE SUCCESSFUL IMPLEMENTATION OF THE MANDATORY SOFTWARE

As stated above, users need to be involved; and once software is implemented, users need to be introduced to changes that will come about as a result of this implementation. According to Ashurst et al. (2008), research over the past 20 years (e.g. Markus & Robey, 1998; Markus, 2004) has confirmed that IT implementations, such as the implementation of ERP systems, are associated with very significant amounts of organisational change (for example, changes to processes, structure, culture and enterprise level performance). As a result, these changes need to be properly managed, as the impact can result in user resistance and system rejection (Ashurst et al., 2008).

Change management has been defined as *"the process of continually renewing an organisation's direction, structure, and capabilities to serve the ever-changing needs of external and internal customers"* (Moran & Brightman, 2001: 111).

By (2005) compared three models for emergent change. Change that is unpredictable should not be perceived as a series of linear events within a given period of time, but as a continuous, open-ended process of adaptation to changing circumstances and conditions that develop through the relationship of a multitude of variables within an organisation. Apart from only

being a method of changing organisational practices and structures, change is also perceived as a process of learning.

Table 2: A comparison of the three models for emergent change (Source: By (2005)

	Kanter et al's Ten Commandments for executing change (1992)		Kotter's Eight-Stage process for successful organisational transformation (1996)		Luecke's seven steps (2003)
1	Analyse organisation and its need for change				Mobilize energy and commitment through joint identification of business problems and their solutions.
2	Create a vision and a common direction		Develop a vision and strategy		Develop a shared vision of how to organise and manage for effectiveness
3	Separate from the past				
4	Create a sense of urgency		Establish a sense of urgency		
5	Support a strong leader role		Create a guiding coalition		Identify leadership
6	Line up political sponsorship				
7	Craft an implementation plan		Empowering broad-based action		
8	Develop enabling structures		Communicating the change vision		
9	Communicate, involve people and be honest				
10	Reinforce and institutionalize change		Anchoring new approaches in the culture		Institutionalize process through formal policies, systems and structures
			Generating short term wins		
			Consolidating gains and producing more change		
					Focus on results, not activities
					Start change at the periphery, then let it spread to other units without pushing it from the top
					Monitor and adjust strategies in response to problems in the change process

The comparisons between these models illustrate common key activities that should be included in change management, namely: creating a vision, establishing a sense of urgency, identifying leadership, communication and reinforcing the change. However, By (2005) concluded that there was not sufficient empirical evidence to support the view that any of these change management approaches delivers results; and that there is a need for new change management approaches. Consequently, the change management approach used by the IT department was examined as part of this research.

One element that is noticeably missing from the three models above is the reaction of individuals to the change, as IT project teams generally focus on delivering a technical

solution and only worry about its organisational impacts once it is operational, rather than managing the organisational change as an integral part of the project (Ashurst et al., 2008).

According to Craine (2007), when organisations choose to implement IT, they frequently overlook one influential factor: the emotional reactions of individuals when things change. Most individuals prefer things to be comfortable and familiar; and they like to feel capable and confident in their work. Change affects people's ability to feel comfortable, capable, and confident – due to the fact that they must learn new systems, work in new ways, and accept new responsibilities.

Individuals facing change often go through a cycle of emotions similar to those experienced when faced with the death of a loved one. Understanding of the "grieving" process used by individuals to deal with change may make it possible to reduce some of the potentially damaging consequences, such as sabotage. "The change cycle" is a four-step cycle of emotions that individuals are likely to experience when faced with change (Crain, 2007). Any change, even positive change, results in a loss of something – tangible or intangible.

Managers can alleviate the effects of reactive depression by recognising how change impacts an individual, and by understanding that all individuals will go through the change cycle at various rates, and that their reactions will be dynamic – rather than at a steady progression (Crain, 2007).

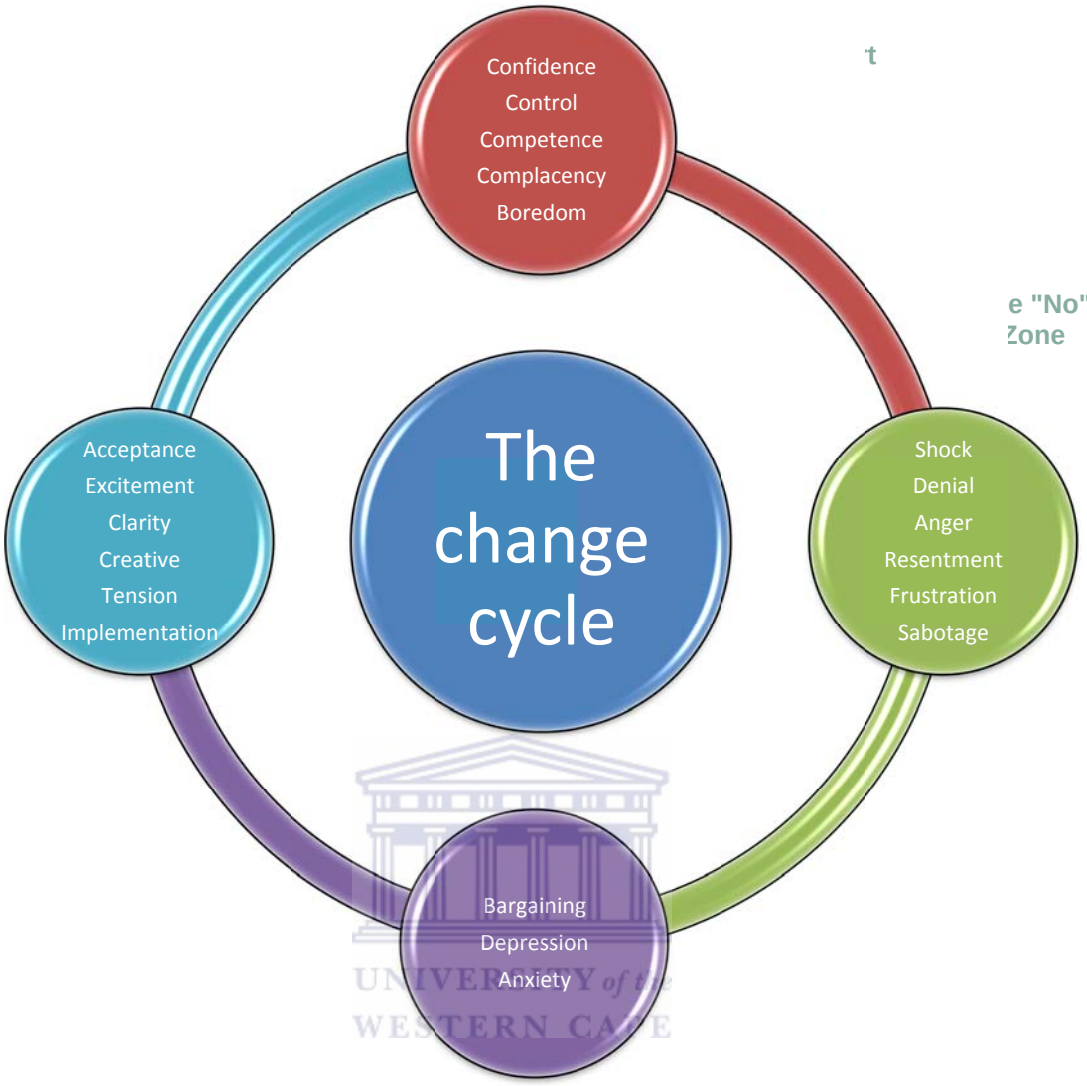


Figure 6: Managing the cycle of change (Source: Craine, 2007)

By (2005) suggests the following advice to aid individuals in each cycle of change:

Table 3. Advice for managing the cycles of change (Source: Crain, 2007)

Phase	Assist yourself	Assist others
The Comfort zone	• Notice the situations in which you experience ease and comfort. • Notice the situations in which you experience stagnation and a lack of growth. • Create a development plan for the situations you want to change.	• Encourage creativity and cross-functional innovation. • Acknowledge, celebrate, and reward success. • Plan for future changes.
The 'No' zone	• Identify the reality of the current circumstances. • Acknowledge the losses you are experiencing. • Identify your feelings about the situation. • Reframe "danger" into "opportunity."	• Give information about the purpose for the change. • Provide a picture of the expected outcome. • Provide clear, specific expectations. • Provide a historical context. • Be there for others in small, supportive ways. • Listen to worries and fears.
The Chasm	• Discover what you want for the future. • Get necessary information and support. • Don't let the naysayers drag you down.	• Create "rites of passage." • Create temporary procedures • Create new ways for people to communicate and share information and feelings.
The 'Go' zone	• Take action on issues within your area of control • Let go of what you cannot control. • Visualize yourself (positively) in the new paradigm.	• Clarity purpose and desired outcomes {again). • Involve the people affected by the change in planning and implementation. • Celebrate small successes; publicly recognize new ideas and how they have been implemented. • Provide on-going feedback, training, and information.

Rapid innovation in technology is enabling change to occur faster; and as a result, individuals are forced to face change at a faster pace. If the change is not successfully managed, it is likely that even the best technology strategies will be unsuccessful. This is because individuals tend to resist change, finding ways to sabotage efforts; alternatively, they become angry or withdrawn.

Resistance to change often gives rise to a pattern of resistance that has become a norm in corporate culture. Since individuals automatically resist change, it is necessary to mitigate the negative effects of these reactions, while implementing changes in technology, processes, and workflow (Craine, 2007).

Finding methods to bypass what is mandatory may be related to user resistance. This has been identified as a dominant reason for the failure of new implementations. The causes for user

resistance and its linkages to relevant constructs are listed in the table below (Kim & Kankanhallie, 2009). These constructs will be discussed in more detail in 2.3.2.

Table 3: Mapping causes of user resistance and relevant technology constructs (Source: Kim & .Kankanhallie, 2009)

	Cognitive Misperception	**Rational Decision Making**			**Psychological Commitment**		
Previous Research	Loss Aversion	Net Benefits	Transition Costs	Uncertainty Costs	Sunk Costs	Social Norms	Control
DeSanctis and Courtney (1983)			Change in job content and relative power				
Hirshcheim and Newman (1988)	Innate conservatism		Resource redistribution, poor technical quality	Uncertainty			Lack of Management support
Jiang et al. (2000)			Changes in job, loss of power and status	Uncertainty			
Joshi (1991, 2005)		Net inequity	Decrease in outcomes (reduced power), increase in inputs (more effort)	Increase in inputs (fear)	Decrease in outcomes (loss of value of marketable skills)		
Keen (1981)		Greater costs than benefits					
Krowi (1993)			Perceived threats to job security and power	Uncertainty			Lack of Management commitment
Lapointe and Rivard (2005, 2007)		Perceived threats (inequity)	Perceived threats (loss of status and power)	Perceived threats (fear)			
Marakas and Homick (1996)	Rigidity (inflexible behaviour)			Resentment (fear)			
Markus (1983)	Inertia	Greater costs than benefits	Loss of power, poor system quality				
Martinko et al. (1996)	Attributional style	Outcome expectation	Poor technical characteristics			Coworker behaviour	Efficacy expectation, lack of Management support
Constructs from TAM/TPB/UTAUT		Attitude	Effort expectancy, perceived ease of use	Behavioural beliefs (but not yet included in models)		Social influence, subjective norm	Facilitating conditions, behavioural control beliefs

The table above is based on the status quo bias theory that aims to explain people's inclination to maintain their current status or situation, relating to the 'comfort zone' in the cycle of

change discussed above. The status quo bias is explained in terms of three main categories: (i) rational decision-making, (ii) cognitive misperceptions, and (iii) psychological commitment.

Rational decision-making entails an evaluation of the relative costs and benefits of change (i.e., net benefits) before changing to a new alternative. A status quo bias would exist if the costs exceed the benefits. Two types of costs are considered from a rational decision-making viewpoint; and these are: transition costs and uncertainty costs. *Transition costs* are the costs incurred in adapting to the new situation; and these are further categorized into different sub-types of transition costs. The subtypes include transient costs that happen during the change (including learning costs) and permanent costs (including loss of work due to the new IS) that are a result of the change.

Uncertainty cost, represent the psychological uncertainty or perception of risk associated with the new alternative and can also cause status quo bias. This is due to users being anxious and unsure about the resulting changes when switching to a new IS, relating to the 'No zone' in the cycles of change.

The *cognitive misperception* of loss aversion refers to a psychological principle that may be observed in human decision-making (Kahneman & Tversky, 1979). Even small losses in changing from the current situation could be perceived as larger than they actually are. The third category of status quo bias explanations is based on *psychological commitment;* and this includes three main controls (Samuelson & Zeckhauser, 1988). *Sunk costs* refer to previous commitments, which cause reluctance to switch to a new alternative.

In the context of their study, these costs include skills related to the previous way of working, which would be lost as a result of switching to the new IS.

Social norms refer to the norms prevailing in the work environment about the change, which can either reinforce or weaken an individual's status quo bias. For example, a colleague's opinion may influence people to accept or resist a system. Efforts to feel in *control* stem from individuals' desires to direct or determine their own situation (Samuelson & Zeckhauser 1988). This desire can result in status quo bias, because individuals do not want to lose control by switching to an unknown system or an unfamiliar way of working.

Social norms and controls in the status quo bias theory are comparable to normative and control beliefs respectively in the technology acceptance literature (Ajzen, 1991). This will be covered in more detail in section 2.2.4.

It is important to note that organisations change consistently, and resistance is likely. As a result, standardisation is preferred as a method to deliver a consistent outcome and reduce costs. FPS software, as part of the IT department's IS, was implemented to ensure alignment of PMs to processes defined in the Project Management Body of Knowledge (PMBOK), relating to business process in the Information Management Body of Knowledge (IMBOK) to ensure standardised and consistent project management in the IT department.

When software, like FPS, is implemented, users may not be able to choose whether they accept the software; however, they can resist it or decide to be variable in their usage, as explained previously. However, if users need to perform mandated behaviour (i.e. using FPS) but have the opportunity to load their own software, this could result in compliance, although termed 'mandatory' by the organisation, being bypassed. This is an example of a poorly managed *business change*.

Business change was examined as part of this research to determine whether the method of change management had adversely affected the usage, and hence, the benefits realisation of the mandatory software.

2.2.3 SUMMARY

In order to answer the first sub-questions in this research: '*Which factors were considered to successfully implement mandatory information systems into a department in order to derive the intended business benefit?*' – it was found that organisations do not have an endless supply of money; and therefore, will have to decide what to invest in. However, despite the understanding that investment in IT (hardware, software etc.) is necessary, senior executives in Europe or the USA felt that the payoffs from IT investments are inadequate, and that only 10% of organisations make a conscious effort to manage their intended delivery that is supposed to result from implementing IS (technological, IT, and human components that work together to provide the services an organisation requires).

In order to understand the relationship between the use of software and the achievement of business benefits, the IMBOK framework which describes the relationship between IT, of which software forms a component, and the ultimate achievement of business strategy was selected for this research. However, the relevant literature, discussed previously, emphasised that when IT is not utilised it will not deliver the expected benefits; and therefore, user involvement in the stage of defining the organisation's IS needs and implementation can decrease the level of resistance, and hence, improve the chance of deriving the intended benefits over a period of time.

In order to reduce the level of resistance and introduce users to the changes that will result from to the implementation, change management is required. The creation of education and change programmes that will support and facilitate the required changes should be included in the benefits delivery plan, as will be discussed in section 2.4.

In summary, IS (of which FPS is a component), whether mandatory or not, can only succeed in delivering business benefits if the IS has helped in improving the business processes, which should bring about improvements in business operations. This suggests that if business change is not managed correctly, business benefit realisation will be negatively affected. Therefore, the method of implementing mandatory software, for example, the level of user involvement and the change management approach when implementing FPS, was examined in this research in order to explore whether these factors impacted the realisation of the intended business benefits in the IT department.

A comparison between the actual practices in the IT department and the literature review will highlight any gaps and provide recommendations for organisational improvements.

2.3 FACTORS THAT INFLUENCE THE USAGE OF THE MANDATORY INFORMATION SYSTEMS BY INDIVIDUALS

As stated previously, information systems will not render any benefit if they are not being utilised; and thus it is important to note, that users differ in the ways in which they utilise information systems. Some have the capability to exploit the functionality of the system to their advantage; and thus, are able to achieve higher levels of productivity compared with others. By contrast, some people tend to limit their interaction with the system to the

minimum extent possible; and consequently, they are unable to leverage the system resources available to them (Jain & Kanungo, 2005). Others may choose not to co-operate, and this could be related to poorly managed change in the IT department.

If business change in the IT department is managed correctly, the usage of information systems would not only be limited to increasing productivity, but also be used as a form of competitor advantage, as in the case of Amazon.com and Dell Computers (Agarwal, 2000).

Given that IT productivity (time) is linked to profitability, since clients are invoiced for time worked (time multiplied by a resource rate) on IT projects for the business, it is important that the implemented information system is used as prescribed, in order to produce the intended business benefits. However, this statement assumes that PMs have a choice as to whether they want to utilise FPS or not; but this is untrue for a mandatory-use environment, where the use of FPS is required to perform the project-management job function.

The differences between a voluntary and a mandatory use environment will be covered in more detail in a later section, as well as the organisational factors that affect usage by individuals. It is important to explore these factors to gain an understanding of the impact of usage on the realisation of business benefits (Devaraj & Kohli, 2003).

2.3.1 ORGANISATIONAL FACTORS INFLUENCING THE ACCEPTANCE OF MANDATORY SOFTWARE BY INDIVIDUALS

The impact to business benefits realisation, as described above, may be influenced by organisational factors which affect the acceptance of mandatory software. This view was supported by White (1990). This author expressed the need to consider the organisational context, as well as the factors associated with the users and their personal characteristics which would inevitably influence their willingness to adapt.

In a study of the organisational factors affecting Internet technology adoption, Del Aguila-Obra (2006) identified the following:

- *IT users' community;*

- *The organisational structure;*
- *The firm's processes;*
- *The firm's size;*
- *The technological capabilities of the organisation's members;*
- *The technological and financial resources available;*
- *The culture of the organisation;*
- *The process of selecting and implementing the IT;*
- *Management backing and support for the project; and*
- *The project leader.*

Although the above study is limited to Internet technology adoption, it may be possible to extend these areas and find similarities between these factors and ones affecting the introduction of FPS software. For example, the organisation's processes and culture may be key indicators as to whether the mandated software is utilised in the way intended. These factors are supported by Ouadahi (2008). In his study, he examined the factors that lead employees to endorse or resist the introduction of a new IS.

Other organisational factors identified by Cooper and Zmud (1990), Iacovou et al. (1995), Kuan and Chau (2001), Teo et al. (1997), Teo and Tan (1998), Fink (1998), Igbaria et al. (1998), Premkumar and Roberts (1999), Mehrtens et al. (2001) are:

- *Internal technical support;*
- *Top-Management support;*
- *IT experience;*
- *IT in use;*
- *IT knowledge of top Management;*
- *IT expertise among employees;*
- *IT expertise among supervisors;*
- *IT training;*

- *A positive attitude to IT use; and*
- *The organisational structure.*

However, these factors were used to determine the organisational factors affecting Internet technology adoption, and have been applied to this research. For example, a lack of training may be a reason for not fully optimising usage of information systems, whether it is mandated or not. The organisational structure, which in this instance allows an executive to decide which IT will be implemented, which may or may not include the intended users of the IS (as business processes will need to be updated to accommodate changes in IT) needed to be examined as part of this research – to ascertain whether these factors were applicable to the IT department.

Other factors identified by Zang et al. (2002) for achieving ERP (another form of mandatory software) implementation success included:

- Top-management support;
- Strong business justification for the project;
- Employee training;
- Project communication;
- Properly defined roles for all employees, including the chief information officers (CIOs) and functional managers: and
- User involvement (covered in section 2.2.1).

Mandatory IS implementations almost always require business process re-engineering, which is an organisational exercise, because of the need to adapt the organisational processes to match the capabilities of the software. This means there is a need to go beyond traditional project management principles (Zang et al. 2002).

Zang et al. (2002) also identified organisational factors that caused failure of mandatory IS implementations. These areas included:

- Business process change is required during the implementation of mandatory software;

- Lack of top management support, data accuracy, and user involvement can contribute to (information) system implementation failures;
- Education and training are frequently underestimated; and are thus, given less time – due to schedule pressures, and an inadequate understanding of cross-functional business processes;
- When adopting mandatory IS, there is a need to recognize the unique South African context, since the embedded business models typically reflect Western practices; and
- Wilson et al. (1994) claimed that lack of top management support, changes in personnel, lack of discipline, resistance, and lack of any broad-based organisation commitment. These are the major factors that slow down the process of implementation.

The common factors identified in the literature above needed to be tested in the IT department, to ascertain whether these factors are applicable, especially in a South African context, as the literature studied was based on China and the USA. Therefore, there may be additional organisational factors not mentioned here that have had an impact on the realisation of business benefits, as well as other factors, such as system quality, These issues will be covered in the following section.

2.3.2 FACTORS INFLUENCING THE ACCEPTANCE OF MANDATORY SOFTWARE BY INDIVIDUAL USERS

FPS is used in a mandated environment where the use of FPS is required for the job performed by PMs. It is therefore important to distinguish between a voluntary use and a mandated environment. As cited by Brown et al. (2002:284), a voluntary environment is one in which users perceive the adoption of the software and the decision to use it as a choice, rather than in a mandated environment, where users perceive its use to be organisationally compulsory (Hartwick & Barki, 1994; Agarwal & Prasad, 1997; Venkatesh & Davis, 2000).

According to Brown et al. (2002:284), even though there appears to be a clear distinction between mandatory and volitional usage behaviour, a number of issues have been raised in the literature. Brown (2002) highlights some research which suggests that there is a range of voluntariness (Moore & Benbasat, 1991; Hartwick & Barki, 1994; Karahanna et al., 1999), so that a decision to adopt particular information systems may seem more or less voluntary to the individual users involved (Karahanna et al., 1999). Agarwal and Prasad (1997) show that there can be a wide variation in user perceptions of voluntariness, even when the system and setting remain unchanged. However, Hartwick and Barki (1994) contest the assumption that there will be little variation in the use of technology when its use is mandated. Instead, they suggest that usage behaviour is variable, since employees can vary their extent of use. This is what appears to be the case in the YZ organisation.

The extent of use can be dependent on how integrated the mandatory information systems are to the job function that needs to be performed. For example, this can occur when the decision to implement a new IT architecture within an organisation results in individual users having limited, if any, control over the implications of this decision. This could result in only certain information systems being available in the future (for example, Microsoft Vista rather than Microsoft 7 or implementing enterprise resource planning (ERP) software). This can result in forced compliance with the decisions made by others (Brown et al., 2002).

Zang et al. (2002) identified measures for mandatory software implementation success. They cited Delone and McLean (1992) who identified six categories of software success, including:

- System quality;
- Information quality;
- Use;
- User satisfaction;
- Individual impact; and
- Organisational impact.

User satisfaction is utilised to measure the interaction of users with the software. Ginzberg (1981) adopted user satisfaction to measure software implementation success. This is based on Powers and Dickson (1973), who used user satisfaction to measure the success of Management Information System (MIS) in a project (Zang et al., 2002).

The contribution of software to users and organisational performance will determine the individual and organisational impact. It is apparently difficult to assess the contribution of information systems to performance in a real world situation, since a large portion of the costs and benefits will be qualitative or intangible, such as sunk, uncertainty and transitional costs discussed previously.

In addition, the assessment of the value of unstructured or ad hoc decision-making enabled by information systems may be difficult to calculate; and organisations typically, will not record these costs and benefits.

According to Delone and McLean (1992), when the use of software is mandatory, the measures of system quality, information quality, and use become less reliable, because there is no choice for users – whether the quality of the system and of the information outputs are adequate or not, and whether users actually want to use the system or not. Users must accept and use the software as it is part of their job and they need to use it in order to stay employed.

Since employees must use the system to perform their job functions, there may not be any alternatives to actually using the software. However, while employees may use the technology, their job satisfaction, and their feelings toward their supervisors, as well as their loyalty toward the organisation can be severely and negatively affected. A further motivation for understanding mandated use lies in the desire to minimise any possibility of sabotage and the illegal expropriation of technology -- with the resulting costs to organisations associated with such behaviour (Brown et al., 2002).

Brown et al. (2002) cite a number of studies that demonstrate that employees will use a technology -- for example software -- to perform (and keep) their jobs, but they may also engage in alternative destructive behaviours, which may or may not even be intentional (Markus, 1983; Leonard-Barton, 1988; Zuboff, 1988; Davis et al, 1992) – as in the case of YZ organisation, where PMs use FPS in a limited way only.

There are existing theoretical frameworks to address factors influencing usage, but such usage is based on users having a choice to use a particular information system; and it does not cater for instances where the usage of particular information systems are mandated, as in the case of a Financial Services organisation. Further research is being conducted to extend these

models to cater for mandated environments (Brown et al., 2002), but the link between the usage of mandatory information systems and the realisation of business benefits for the IT area of business has not yet been properly explored.

Once information systems have been introduced, Venkatesh et al. (2003) have identified seven models and theories for the individual acceptance of information technology.

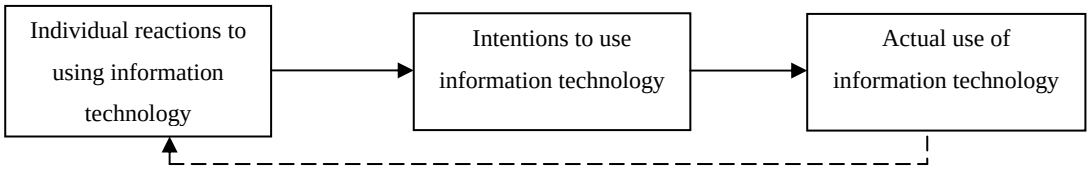


Figure 5: Basic Concept Underlying User Acceptance Models (Source: Venkatesh, et al, 2003).

Figure 2 illustrates the basic conceptual framework underlying the models that explain individual acceptance of information technology. This is based on research that demonstrated that individuals' reaction to information technology drives their intention to use the information technology, and then ultimately determines the actual use. Research also proves that the actual use of information technology influences individuals' reactions (Venkatesh et al., 2003).

For example, if using the information technology is slow and cumbersome, this may influence individuals to use it less frequently and to a lesser extent (Venkatesh et al., 2003).

The models that examines user acceptance include:

- The Theory of Reasoned Action (TRA) – Is drawn from social psychology, and has been used to predict a range of behaviours. Its core constructs focus on attitudes toward behaviour (*"…an individual's positive or negative feelings about performing the target behaviour"*) and subjective norms (*"…the person's perception that most people who are important to him think he should or should not perform the behaviour in question"*). This theory may be used to understand how users interact with IT that has been mandated for use, as it focuses on behaviour which may be a key driver to determine whether a system will be utilised or not. However, the TRA has been extended in the Theory of Planned Behaviour (TPB); and therefore, will not be used in this research.

- The Technology Acceptance Model (and TAM2) – This was designed to predict information technology acceptance and usage on the job; but it does not include attitudes – unlike TRA. TAM focuses on the perceived usefulness and the perceived ease of use. TAM2 was extended to include subjective norm as an additional predictor of intention in the case of mandatory settings. Based on this extension, this research will utilise TAM2, as opposed to TAM.

- The Motivational Model – This is based on research in Psychology; and it includes factors, such as extrinsic motivation *("…perception that users will want to perform an activity because it leads to activities, such as improved job performance, pay or promotions"*), as well as intrinsic motivation *("…perception that users will want to perform an activity for no apparent reinforcement other than the process of performing the activity"*). Productivity and the use of FPS is linked to extrinsic rewards. Consequently, the motivational model was used instead of the TRA model in this research.

- The Theory of Planned Behaviour (TPB) – This focuses on attitudes towards behaviour, subjective norm and perceived behavioural control (*"…perceived ease or difficulty of performing the behaviour"*). Three of these areas are covered in TAM and TAM2; and therefore, they will not be utilised in this research, as this would represent possible duplication.

- Combined TAM-TPB – This combination includes attitude toward behaviour, subjective norm, perceived behavioural control and perceived usefulness. These areas will be adequately covered by the utilisation of TAM2.

- The Model of PC Utilisation (MPCU) – This is largely derived from Triadis' theory of human behaviour; and it presents a competing perspective to TRA and TPB. This model includes areas, such as job-fit, complexity, long-term consequences, affect towards use, social factors and facilitating conditions. These specific areas are not covered in any other models mentioned thus far; and therefore, it was explored in this research – specifically in regard to facilitating conditions and long-term consequences.

- The Social Cognitive Theory (SCT) – The core constructs include outcome of expectations-performance, outcome of expectations-personal, self-efficacy,

affect and anxiety. Similar areas have been adequately covered in MPCU; and therefore, will not be utilised in this research – to avoid duplication.

The relationships mentioned above have been consistently supported in volitional environments (Ajzen, 1991; Sheppard et al., 1988), but it is unclear whether the same relationships would hold true when the behaviour is mandatory. According to Brown et al. (2002): *"When individuals must perform specific behaviours, the importance of their beliefs and attitudes as antecedents to the performance of those behaviours is likely to be minimised. They might not like performing the mandated behaviour, but they do it anyway, because they are required to do so."* This view was tested in this research.

Extended TAM's (TAM2) core constructs (perceived usefulness, ease of use and subjective norm) predict an individual's usage intention. In this research, MM (extrinsic and intrinsic motivation) will replace TPB and MPCU (job fit, complexity, social conditions, facilitating conditions etc.) was used instead of UTAUT. Based on the findings of these core constructs in this study, an approach to minimise resistance to change is recommended, since users would be more likely to adopt IS (software and processes); and hence, to improve the return on investment (ROI).

2.3.3 SUMMARY

Summarising the literature review findings thus far, it may be stated that:

- Organisations (i.e. leaders and managers) make primary decisions to adopt, yet individuals are the ultimate users and consumers of IS; and therefore, IS would only derive intended benefits when it is actually being used (Argawal 2000:85).
- This has led to the identification of a framework, IMBOK, that links information systems (via improved business performance) to business benefits, and ultimately to business strategy (Bytheway, 2004).
- IT only refers to physical components, as opposed to IS that refers to the technological components, as well as human interactions; and in order for benefits to be realised, the IS needs to be actually used by the end- users.
- The organisational areas affecting usage, that are constant in all of the literature above, were used in the design of the interview questions, namely:

- Organisational structure;
- Organisational processes;
- Organisational size;
- The culture of the organisation;
- The process of selecting and implementing the information system, for example, FPS and associated processes;
- Internal technical support;
- Top management support of FPS;
- Training of FPS; and
- The technological and financial resources available to support the use of FPS.

- Venkatesh (2003) has identified seven models and theories for individual user acceptance. Three models were used for this research based on its unique constructs, namely:
  - The Extended Technology Accepted Model (TAM2)
  - The Motivational Model (MM); and
  - The Model for PC Utilisation (MPCU).

The factors identified above will be form the basis for the interview questions.

2.4 IMPACTS OF USING ALTERNATIVES TO MANDATORY SOFTWARE ON EXPECTED BUSINESS BENEFITS

In order to assess the impact of using alternatives to mandatory software on expected business benefit, it is first necessary to explore a method to determine business benefits. The table below summarises the approach to benefits management in a logical order (Bytheway, 2004).

Table 4: Benefits management cycle (Source: Bytheway, 2004)

Stage		Actions
1	Identify and structure benefits	• Analyze drivers behind investment decisions , and reconcile with stakeholder expectations • Determine the different types of benefits and how they will be measured • Establish ownership and agree responsibilities for delivery • Identify business changes and stakeholder impact • Develop and stabilize benefits dependency network
2	Plan benefits realisation	• Determine change actions required at the level of enabling changes • Review with current project activities and map benefits to projects that will deliver the enabling changes. Revise project plans where necessary • Finalize and disseminate benefits realisation plan: responsibilities, timetables, measures and targets
3	Execute the plan	• Monitor project progress and check against expected business changes and primary benefits • Review and refine benefits realisation plan as may be necessary • Manage the business change programme(s) and organise post implementation reviews
4	Evaluate and review	• Assess achievement of enabling changes, business changes, primary benefits and investment objectives • Review potential learning arising at all levels: from projects, business change programmes and business Management • When done with planned benefits, use the project/programme team to drive through and leverage further potential benefits that could not have been anticipated at the start, based on learning achieved

This stage is completed by conducting a *benefits identification workshop* (Bytheway, 2004). The objectives of the first workshop can be summarised as follows:

- Identify the key drivers and objectives from the organisational strategy;
- Identify all stakeholders (an individual or organisation that has an interest in an organisation and can impact on its performance; and
- Compile the derivation of the dependency network and the structure of benefits in a method that will suit the presentation -- for approval by senior management.

On a more detailed level, Stage 1 includes the following sub-steps:

- *Building the network* by working through a dependency network that identifies the investment objectives. Investment objectives are the reasons why things must change, but the conversion of these high-level objectives into particular benefits to which executives can commit, may require some brainstorming. The dependency network needs to be stable and agreed to by all. It is found that at least three iterations will be needed to scope out and to stabilize the benefits dependency network (Bytheway, 2004).

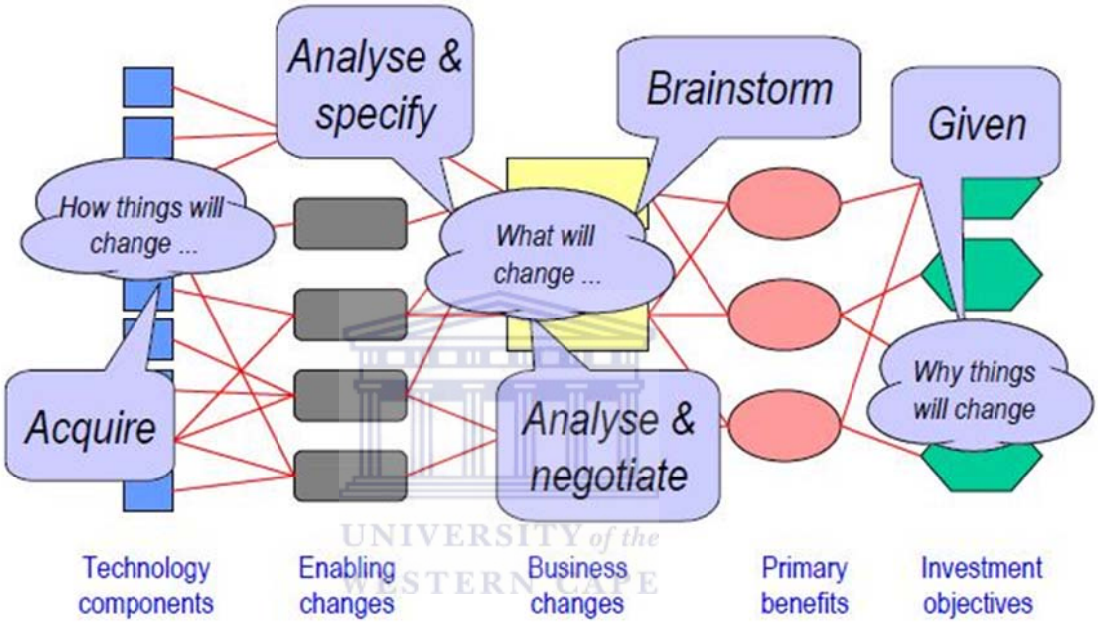


Figure 6: Dependency network (Source: Bytheway, 2004)

- According to Bytheway (2004), *classifying the benefits* includes the following:
  - At the beginning, benefits must be regarded as 'tentative', and must be validated to ensure that they are realistic;
  - Having agreed that the benefit is realistic, a mechanism for observing it must exist;
  - One must ensure that there is a mechanism to measure it; and
  - Finally, try to convert the measurement into a financial outcome, but at this point, it is important to have an existing measure against which to benchmark.
- The first workshop leads to stakeholder interviews, a deeper analysis and some understanding of what is proposed. The *identify and structure benefits stage* is concluded by obtaining senior management's approval, as well as any possible disadvantages that may need to be managed (Bytheway, 2004).

This stage is followed by the *Plan benefits realisation* stage and works on the premise that the benefits dependency network has been stabilised and approved.

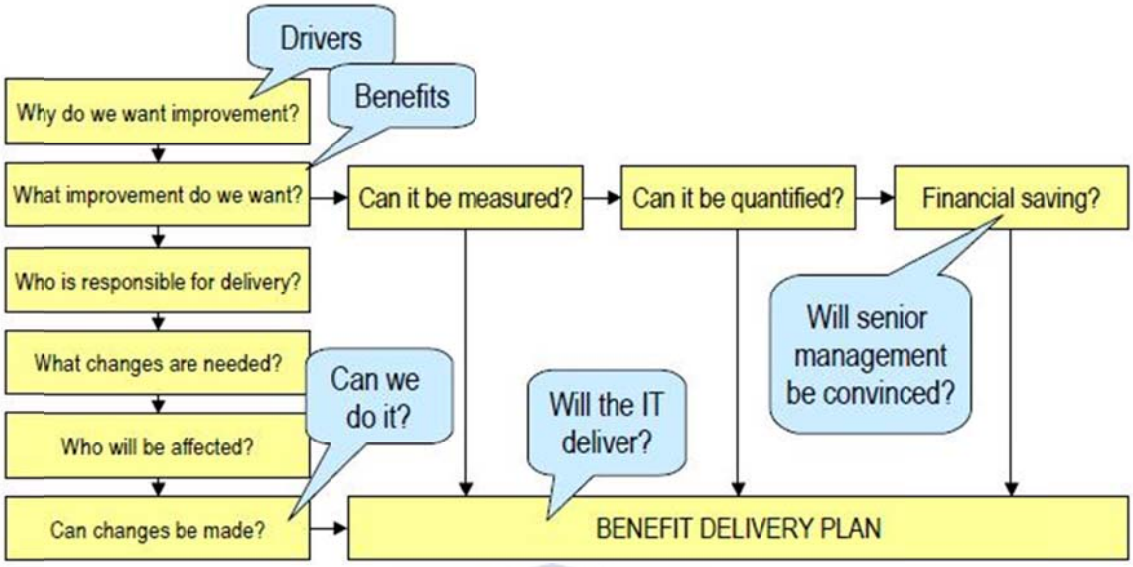


Figure 7: Benefit delivery plan (Source: Bytheway, 2004)

This stage is completed by conducting a *benefits planning workshop* (Bytheway, 2004). The objectives of the first workshop may be summarised as follows:

- The refinement of objectives and the ways whereby measures will be achieved;
- A clearer and more detailed understanding of the business changes that are needed and the identification of enablers at the level of new information systems, or changes to existing systems;
- The finalisation of the benefits plan, including targets, responsibilities, timescales, and the resources to be committed to the execution of benefits management and delivery; and
- The setting up of the actual measurement and tracking of business performance, in order to deliver the evidence that is needed (Bytheway, 2004).

The benefits delivery plan ultimately leads to the distribution of the plan and the creation of education and change programmes that will support and facilitate the required changes. Managing business change is not an easy process; and therefore, there need to be contingencies in place to deal with any difficulties. A periodic review of progress also needs to be included – to ensure that delivery is on track (Bytheway, 2004).

Stage 3 involves the *execution of the benefits delivery plan.* The project will be managed by the project manager, and benefits will be managed by the business project manager. At this stage, potential problems with stakeholders may arise; and therefore, it is important to complete a stakeholder analysis (Bytheway, 2004).

STAKEHOLDER GROUP	PERCEIVED (*DIS*)BENEFITS	CHANGES NEEDED	PERCEIVED RESISTANCE	Stop it / None / Allow it / Help it / Do it — COMMITMENT
Customers	Configuration tailored exactly to needs	None	None	
Sales & marketing managers	Improved customer service and product quality image	New incentive to get sales reps to use system with customers	Reluctance to change reps reward system	current: C; required: R
Sales rep	*(extra work in preparing requirements and quotations)*	To use system and improve quality of quotes	No time available to use system. Loss of autonomy	C; R
Manufacturing & distribution	Removes need for configuration checking - fewer returns.	Stop current checks - to put onus on reps to get it right	Do not trust sales reps' accuracy in requirements and quotations	C; R
IT specialists	New advanced system - old system goes	Skills in expert systems development	None	C; R

Figure 8: Stakeholder analysis example (Source: Bytheway, 2004)

The stakeholder analysis shows stakeholders' current level of commitment, and what level of commitment is required. This can be used as a basis to manage the changes required, as well as to mitigate the risk of any perceived disadvantages (Bytheway, 2004).

The final stage in the benefits management cycle includes *benefits review* against the benefits-delivery plan, as it is important to assess what has been achieved and to exploit any additional opportunities recognised (Bytheway, 2004).

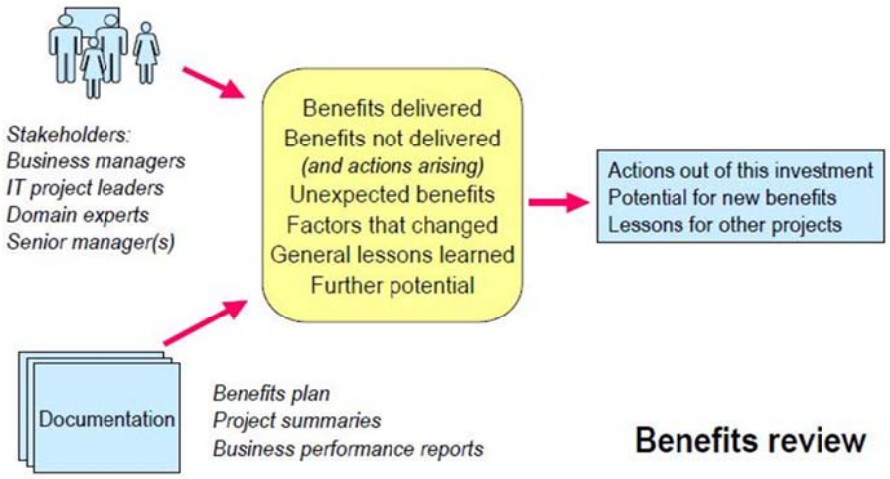


Figure 9: Benefits review (Source: Bytheway, 2004)

The review takes into consideration input from stakeholders and business performance reports. This facilitates 'lessons learnt'; and hence, identifies methods of improving the management of benefits in the future (Bytheway, 2004). However, IMBOK does not explicitly mention the need to consider the key risks inherent in IT investments and their impact on costs and benefits. This view is expressed by Benaroch (2002) in the table below:

Table 5: Key risks inherent in IT investments and their impact on investment payoffs and costs (Source: Benaroch, 2002)

		Add to the variability of	
Risk category	**Risk Area**	**Payoffs**	**Costs**
Firm specific risks	Monetary – the firm cannot afford the investment, the financial exposure may not be acceptable and/or the project investment costs may not remain in line with the project investment benefits	+	-
	Project – the target application is too larger or too complex, the IS staff's technical skills may be inadequate or it may lack experience with a target IT, or the firm's existing IT infrastructure may be inadequate.	+	-
	Functionality – the firm may build the application right according to the required specification, but still fail to realise the anticipated benefits because the requirements were wrong to begin with	+	-
	Organisational (political) – the IT application can be undermined by vested interest of people in the firm, or it may be adopted too slowly by people in the firm	+	-
Competitive risks	Competition – competitors could take an unanticipated preemptive action or simply respond by developing a better application	+	
Market risks	Environmental – unanticipated favorable or unfavorable reaction of bodies that can effect or be effected by the application; these reactions could come from regulatory bodies, customers, vendors and business partners	+	-
	Systemic – the IT application may so dramatically change the environment (i.e. market or industry) that the expected benefits vanish	+	
	Technological – the technology used to develop the application may be immature (e.g. no experience exists with it), or the application could become obsolete with the introduction of a new superior technology	+	-

As a result, Benaroch (2002) developed an approach for managing IT investment risk that would assist organisations in choosing which options to embed in an investment, so that they achieve the necessary balance between risk and reward. Based on this information, it is important to note that IT investments may be deferred, abandoned and scaled up or down in order to achieve the desired business-performance improvement.

This is based on the way that the Japanese manage IT and IS (IT and human components) investment. It has already been discussed in an earlier section.

In addition, IMBOK also does not specifically mention the need to calculate the cost of IT investments when completing benefits management assessments, as cost is a significant input when calculating benefits. David et al. (2002) suggest the following list of costs that need to be considered:

Table 6: Examples of total cost of ownership (TCO) (Source: David et al., 2002)

Cost category	Cost factor	Examples
Acquisition costs	Hardware	Monitors, CPU, servers
	Software	Operating systems, database Management systems, word processes
Control costs	Centralization	Specialized hardware (such as intelligent self-monitoring components that notify a network Management console when a problem occurs) and software (such as directory services and desktop Management interfaces) are needed to implement and maintain a centralised system. Support staff has to be trained to use these systems.
	Standardization	Initially non-standard hardware and software may have to be replaced by hardware and software conforming to the selected standards. Users may have to be retrained on the standard software and the standard hardware, and the standard hardware may be more expensive than non-standard hardware.
Operational costs	Support	Either in-house staff or a support contract is required to address hardware and software problems, as they arise.
	Evaluation	New/upgraded versions of applications, operating systems and hardware are constantly being released. Before new hardware or software is installed, it must be evaluated to determine: Does it do what it is supposed to do? And is it compatible with the existing IT environment?
	Installation/upgrade	After a new technology has been evaluated, it must be installed and upgraded. Hardware and software upgrades are often related, new software generally requires more powerful hardware, forcing hardware upgrades.
	Training	Training allows end-users to get the most

		from their work-stations. Training can take two forms: formal training in a classroom setting and self-training as end users learn how to work new applications. Software and hardware installations/upgrades generally require some retraining of the end user population.
	Downtime	Downtime arises not only when software or hardware failure occurs, but also when software or hardware installations/upgrades occur. When a system fails, the organisation incurs costs for the non-working system, the nonworking employee(s) and whatever repairs are necessary to make the system functional again.
	Futz	Bill Kirwin of Gartner Group defines the "futz factor" as "using corporate technology for your own personal use." This cost lies not in the system but in the time employees spend using the system for non work-related activities.
	Auditing	This is a cost of keeping track of an organisation's technology assets. Computers are moved around a lot, especially in large corporations. To determine which department has which assets, some type of record keeping is required.
	Virus	Viruses increase a computer's TCO in two ways: they can destroy important data expensive to recreate and they can cause a computer to crash completely, resulting in downtime.
	Power consumption	Published estimates put electric power consumption at $240 per year per workstation. In addition computers generate heat which increases air-conditioning costs.

According to David et al. (2002), every IT system incurs acquisition costs due to hardware and software requirements; however, control costs are discretionary. Control costs are incurred in an attempt to reduce operational costs and/or to improve service levels. Operation costs are defined as the costs associated with the ongoing operation of an IT system, and, like acquisition costs, are non-discretionary. Some examples are listed in Table 6. This concept is aligned to IMBOK's business operations.

One would assume that once the benefits management cycle is understood, that it would be undertaken as part of the investment cycle, but this has not been the case (Bytheway, 2004). Several managerial issues regarding benefits measurement have been identified. These include the following (Bytheway, 2004):

- Effort is required for a benefits management regime. Management education is required to highlight the reasons for benefits management and to explain how the additional work required delivers benefits (communication of a cost/benefit analysis).
- Different kinds of business benefits arise from different kinds of information system. These benefits must be used appropriately to justify an investment in information systems-related change. There are qualitative benefits, as well as quantitative ones, but qualitative benefits are more difficult to manage.
- Business benefits can be seen in non-financial, as well as in financial terms, although financial measures are more convincing for senior management. If there is a proven record of successful benefits management, then it becomes possible that successful non-financial arguments will be more readily accepted.
- Changes to management information and reporting systems, as well as procedures for reporting may be required to show the achievement and delivery of business benefits. It is particularly beneficial when the reports of benefits can be compared to reliable cost reports, so that the net return on the investment can be clearly seen.
- Additional management responsibility will be required to ensure the delivery of business benefits. This must be determined and communicated in a clear manner, and must be willingly accepted by those concerned.
- Benefits management must address risks and any disadvantages that are identified as part of the process. Stakeholder analysis will identify the disadvantages, and occasionally will indicate the need to stop those activities that are no longer productive.

This view is supported by Ashurst et al. (2008). They conducted an empirical investigation into 25 IT projects, as they believed that there are many prescriptions as to how the planned benefits from IT may be realised, but there was very little empirical evidence as to whether this advice was actually being used. They found in the analysis that there was no evidence of benefits realisation practices being adopted in a comprehensive, consistent and coherent manner. Ashurst et al. (2008) concluded that benefit realisation requires an ongoing commitment to, and focus on, the benefits, rather than the technology, throughout a system's development, implementation and operation.

In addition, they noted that benefits realisation practices were underpinned by knowledge, skills, experience and behaviours; as mentioned in previous sections. (Refer to Appendix 2 for further information.)

In order to assess the impact of using alternatives to FPS on the intended business benefit, it was important to first assess the method of calculating the business benefit of utilising FPS, and then to assess the impact of using alternatives to this business benefit, taking into consideration the business benefit approach defined in IMBOK, as well as factors such as the TCO and the cost of business change activities.

2.4.1 SUMMARY

Ultimately, the benefits of IS should be witnessed through improved business performance. This includes the cost of training and the educational programmes for users – so that they can adapt to changes in business operations. The delivery of benefits will always be uncertain, without performance management that makes these improvements visible. Interestingly, IS delivers management information that makes business-performance management a reality. Without management information systems to substantiate performance measures, the situation would be discouraging (Bytheway, 2004).

All the factors mentioned above determine how IT and IS investments are made, and how business benefits will be realised. These issues were discussed with the target population in this research, to determine whether this or another logical approach been applied. If not, recommendations will be made to address the gaps found.

2.5 SUMMARY OF THE LITERATURE REVIEW

In order to answer the main research question, through answering research sub-questions, the pertinent literature has been extensively reviewed. The linkages between IMBOK and research are specified below, to ensure that all necessary areas have been addressed, so that the research objectives can be successfully met. The linkages are as follows:

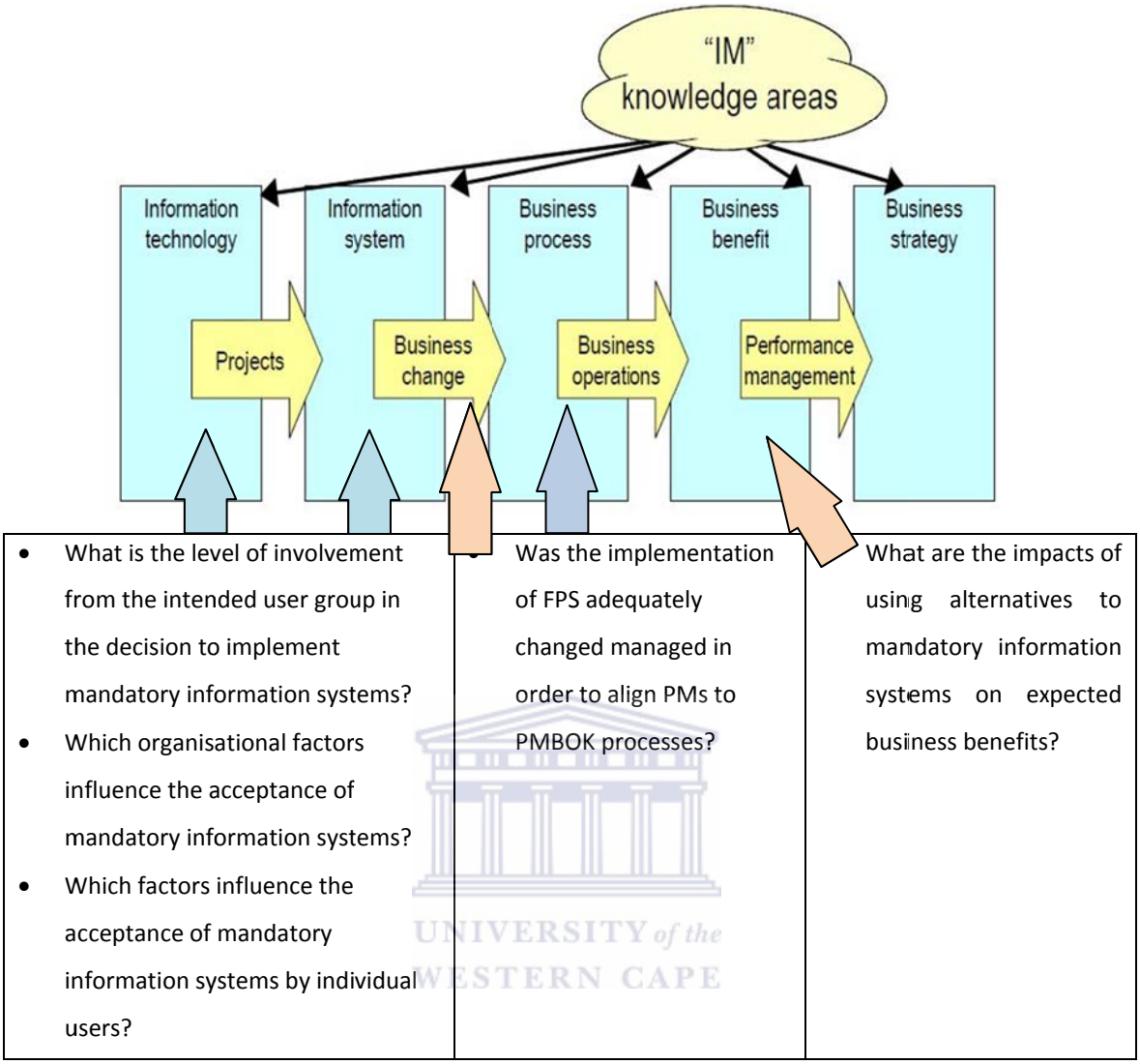


Figure 10: Linkages between research questions and IMBOK

As these theoretical concepts had to be tested in the empirical setting of this research (organisation YZ), it was necessary to select an appropriate research methodology. This will be discussed in the next chapter.

CHAPTER 3

3 RESEARCH DESIGN AND METHODOLOGY

3.1 INTRODUCTION

This document has made a case thus far for the need to determine whether implementing mandatory software derives the intended business benefit that the IT department had intended. Thus, the research design which is a *"blue print or detailed plan for how a research study is to be conducted"* (De Vos, 1998) stems from the main research question: *Does the implementation and use of mandatory software derive the intended business benefit for the IT department? If not, what would be the optimal way to derive benefits from the use of the mandatory software?*

3.2 RESEARCH APPROACH

Research approaches can broadly be categorized as quantitative and qualitative. Quantitative research incorporates facts to study the associations between different sets, while qualitative research deals with understanding perceptions (Myers, 1997). Qualitative research is more appropriate for the understanding of social and cultural contexts and organisational functioning (Strauss A. and Corbin J. 1990). Qualitative analysis refers to the non-mathematical process of interpretation – for the purpose of discovering concepts and relationships in the raw data and then organizing these into a theoretical explanatory scheme.

However, Schwandt (2000, 2006) refers to the distinction between qualitative and quantitative research as a *"paradigm wars"*; and he questions the need for the differentiation between the different types of research. Schwandt (2000, 2006) also stated the following:

"All research is interpretive, and we face a multiplicity of methods that are suitable for different kinds of understandings. So, the traditional means of coming to grips with one's identity as a researcher by aligning oneself with a particular set of methods (or being defined in one's department as a student of "qualitative" or "quantitative" methods) is no longer very useful. If we are to go forward, we need to get rid of that distinction (p. 210)."

A case study, the research method employed by this research project, is an empirical inquiry that investigates a contemporary phenomenon within its real-life context, especially when the boundaries between the phenomenon and its context are not clearly evident (Yin, 2002). According to Benbasat and Goldstein (1987), a case study examines a phenomenon in its natural setting, employing multiple methods of data collection, to gather information from one or a few entities (people, groups, or organisations); and it is thus not limited to only the qualitative or the quantitative approach, but can utilise a mixed method instead.

Johnson et al. (2007) examined published research and found that Greene, Caracelli, and Graham (1989) identified five broad rationales of mixed methodological studies:

- *Triangulation - seeking convergence and corroboration of results from different methods studying the same phenomenon;*
- *Complementarity - seeking elaboration, enhancement, illustration, clarification of the results from one method with results from the other method;*
- *Development - using the results from one method to help inform the other method;*
- *Initiation - discovering paradoxes and contradictions that lead to a reframing of the research question; and*
- *Expansion - seeking to expand the breadth and range of inquiry by using different methods for different inquiry components.*

The case study approach is extensively used for information systems research (Alavi & Carson, 1992) where the focus is often concerned with the effects and impact of information, rather than the technical aspects of information system per se. (Myers, 1997). The timescale required for the case study approach is short; and the method has been used successfully to investigate the interaction between factors and events.

Case studies provide descriptive research which implies that the end-product is a rich *"thick description"* of the phenomenon under study (Merriam, 1998). This kind of description attempts to capture the meaning in an interactional experience. In this research, the interactional experience refers primarily to the interaction between the PMs and the FPS software in the IT department.

The nature of this research problem is to explore whether the implementation and utilisation of mandatory software within an IT department of a particular financial services organisation

derives the intended business benefit. The data collection for a case study can utilise several different methods. The format and pattern of the research determines the nature of the data-collection methods, as well as how this is to be executed. Qualitative data collection utilises rich and diverse data to answer questions about the variability and complexity of human life. Yin (2003) illuminates six different sources of evidence, namely:

- Documents, for example, written reports;
- Archival records, for example, service records;
- Interviews, for example, a survey;
- Direct observations, for example, formal data;
- Participant observation, for example, a staff member in an organisational setting; and
- Physical artefacts, for example, a tool or instrument.

This phenomenon was examined in its natural setting, employing the following methods of data collection:

- Semi-structured interviews with PMs, including the use of a survey;
- An interview with management;
- Observation of FPS helpdesk; and
- Data from QA.

The literature review shows that the quantitative methods were used for this kind of research (Venkatesh et al., 2003), but these studies embraced much larger samples (more than 200) compared to the sample of 30 in this study. Thus, it was concluded that the small sample in this research, would not lead to conclusive results, but would rather be useful in complementing the qualitative findings. It was therefore appropriate to adopt a mixed-methods approach, as this research elaborates, enhances and clarifies the results from the qualitative research through the results of the quantitative analysis.

This study is exploratory in nature, as the purpose of this research is to gain new insights and a better understanding of the use of mandatory software and the benefits derived from its usage in a particular organisation. The explorative nature of this research is to be emphasised by the fact that one of the objectives of this research was to contribute to the understanding of the dynamic relationship between the utilisation and the realisation of benefits, especially when alternatives to mandatory software are being used.

The structure of the interview was focused on specific questions first; and it then introduced additional probing questions on an ad hoc basis as needed, to cover aspects not sufficiently addressed by the original general question or to gain further insight into the comments provided.

The validity in the quantitative research is based on the fact that the survey questions were obtained directly from previous studies that proved the *"extent to which an empirical measure adequately reflects the real meaning of the concept under consideration"* (Babbie et al. 2001:122).

The validity in the qualitative research is based on the extent to which an account seems to fairly and accurately represent the data collected, as well as the ability of the findings to represent the 'truth', granted that this may not be appropriate if we accept multiple 'truths' (constructivism) (Babbie et al. 2001:122). This research used model (TAM2, MM and MPCU), as well as user (PM, FPS helpdesk and Management) triangulation to ensure validity, as this showed that there is compatibility between the constructed realities in the minds of the respondent.

Confirmability was assured by reviewing the recorded comments with respondents after the interview, to ensure that the inquiry was not based on the biases of the researcher and to assure the accuracy of the information (credibility). Confirmability was strengthened by the fact that a pilot survey was done with a small group – to highlight any inconsistencies and biases in the survey that could have affected the findings.

Research into benefits realisation for mandatory software has not been completed previously; hence, quantitative research was used to expand the qualitative research component – and to give a more holistic perspective, while satisfying the stated research objectives.

3.3 INSTRUMENT ADMINISTRATION

The survey was created with items validated in prior research, adapted to the software and organisation studied in this research. TAM scales were adapted from Davis (1989) and Venkatesh and Davis (2000); MM scales were adapted from Davis et al. (1992), while MPCU

scales were adapted from Thompson et al. (1991), in addition to other areas identified in the literature review.

PMs were identified from an email group list created by the FPS team, available in the organisation's global address list (GAL). It was assumed that the list has been maintained since inception; and that it is therefore, an accurate representation of all FPS users due to the fact that important information regarding FPS is sent via email. It was determined that the GAL list did not only contain PMs, but also Project Support Administrators (PSAs) as well. The task of entering data into FPS was found to be delegated.

3.4 POPULATION MEMBERSHIP RULES

The population sample was obtained from the GAL, as described above. The research was limited to a single financial services organisation in the Western Cape, with a head office in Cape Town; and it was limited to the use of specific software – due to the resource and time constraints existing in this research.

3.4.1 SAMPLING FRAME

Case studies concentrate on a small sample (Miles & Huberman, 1994: 24), with the context of the participants and the saturation of collected data being the most important factors. It is often possible to identify all the subjects of interest.

Kerlinger (in De Vos, 1998:190), states that *"sampling means taking any portion of the population or universe as representative of that population or universe"*. De Vos (1998:190) quotes Seaberg, who defines sampling, *"as the total set from which the individuals or units of study are chosen"*.

For the purpose of this study, purposive sampling was used. Merriam (1991:48) defined purposive sampling as sampling based on the assumption that *"one wants to discover, understand, and gain insight; therefore, one needs to select a sample from which one can learn most"*. Patton (in Leedy 1997: 162) added that *"Purposeful sampling is done to increase the utility of information obtained from small samples. Participants are chosen because they*

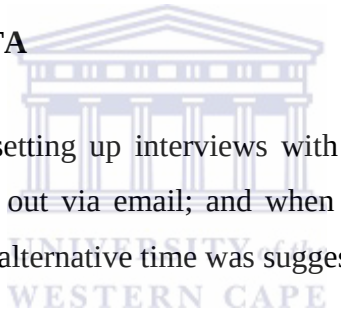
are likely to be knowledgeable and informative about the phenomenon the researcher is studying."

The population for this research was chosen from sources available in the organisation. The sources used to compile a list of PMs to obtain primary data are as follows:

- A list of FPS users from the Global Address List (GAL); and
- A list of PMs from the QA team as they engage with PMs for verification purposes.

These lists were cross-checked to ensure accuracy. The GAL list contained users that were PMs, but had subsequently changed jobs. These individuals were no longer PMs, but were still users. Given the limited number of PMs in the organisation, it was decided to include these individuals for purposeful sampling – due to their level of experience and insight into the organisation.

3.5 GATHERING OF DATA



Data gathering was done by setting up interviews with PMs on the FPS list on the GAL. Meeting invitations were sent out via email; and when no response was received within a week, PMs were called and an alternative time was suggested and arranged.

PMs were asked to answer the survey prior to the meeting, in order to make the meeting time more productive, and to provide more time to probe the responses. Where this was not done, the survey was completed in the semi-formal meeting. In the event that a meeting could not be attended, the survey was sent via an email attachment and a follow-up session was set up to discuss the responses.

In the pilot study, the instrument was first administered to a randomly selected sample of 10% of the population. The pilot group felt that the survey was comprehensive, but that there would not be enough time to answer the questions on FPS and MPP, given their time constraints and project deadlines. As a result, the quantitative questions, based on the Likert scale for MPP, were removed, and emphasis was given to the FPS.

Respondents were committed and motivated to attend the interviews, as they probably did not receive many opportunities to have their opinion on FPS heard. However, the view may have

contained a level of bias, as using FPS is required by the job function; and failure to use it could result in disciplinary action. Based on the responses, this was not found to be prominent, as respondents admitted to not using FPS for all the PM functions.

3.6 DATA ANALYSIS

Data were collected from the respondents using semi-structured interviews, based on the areas identified in the literature review. The data gathered included employees' reactions to the use of FPS software, perceived effects of the software, and users' evaluation of the change management practices used by their employers to encourage the usage of software.

The structure of the interview was focused on specific questions first; and it then introduced additional probing questions on an ad hoc basis as needed, to cover aspects not adequately addressed by the original general question, or to gain further insight into the comments provided.

This approach allowed for codes on interview topics to be extracted in a transversal manner, according to certain attributes, such as the positive or negative value of employees' attitudes towards the mandatory software, FPS.

The second step of the content analysis involved categorising the employees whose attitudes towards FPS usage were either clearly positive (calculated by adding the number of responses for ‘strongly agree’ added, and responses for ‘agree’) or clearly negative (calculated by adding the number of responses for ‘strongly disagree’ added, and responses for ‘disagree’). The categorisation of employees' attitudes toward FPS as positive, negative, or moderate was done on the basis of an overall evaluation, whilst taking into consideration the possible bias in social desirability (i.e., employees attempting to avoid displaying a negative image).

Therefore, special attention was paid to the degree of sincerity, enthusiasm, and coherence that employees expressed when evaluating FPS, to account for the possible social desirability bias. In cases where there was doubt, the employee was classified as moderate. This categorisation was simplified, due to the fact that most employees clearly expressed their attitude towards FPS, as stated above. (Please refer to Table 23 for more detailed information.)

The third step focused on employees with either a positive attitude (27%) or a negative attitude (67%), instead of focusing on “the moderates” (1%). This process allowed for a clear distinction between those factors associated with opposing attitudes toward the usage of FPS software. To best achieve this contrast, the content of each code was extracted, once for the "positives" and once for the "negatives." Within each of the "negative" and "positive" categories, redundancies were eliminated by merging perceptual elements (such as views about FPS implementation) where the meanings were comparable or convergent.

Organisational factors influencing usage and the impact on business benefits realisation phenomena were described, measured and analyzed, via quantitative analysis, without the manipulation of treatments or subjects. The quantitative analysis used descriptive statistics which described the data sample obtained.

Data may be defined as one of the following:

- Categorical (qualitative):
    - Nominal – this variable has more than two categories, mutually exclusive and unordered, for example, black, white, coloured and others, as it does not matter in which order each variable is placed;
    - Ordinal - this variable has more than two categories, mutually exclusive and ordered, for example, a 5-point scale, typically a Likert scale (Gasim, 2010).

The survey for this research was based on a five-point, odd Likert scaling with options including:

1. Strongly disagree;
2. Disagree;
3. Neither agree/disagree;
4. Agree; and
5. Strongly agree (Gasim, 2010).

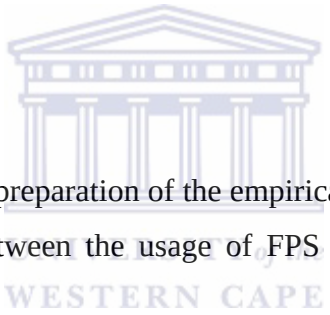
- Numerical (quantitative):
    - Discreet – this variable often represents counts (integer values), for example, the number of months in the current position; and

- Continuous – this variable can take any value within a range of values, for example, length in cm. etc (Gasim, 2010).

Quantitative data in this research was limited to the following discreet variables:

1. The number of hours spent using FPS;
2. The number of hours spent using MPP;
3. The amount of time employed in the organisation; and
4. The number of months in the current position (Gasim, 2010).

As a result, the qualitative data of this research have supported the qualitative analysis. Descriptive statistics was preferred, in which the frequency, such as percentage and counts, was determined rather than the mean (for a normally distributed sample) or median (for an abnormally distributed sample) value – due to the fact that the variables are predominantly ordinal.



3.7 SUMMARY

This chapter has discussed the preparation of the empirical phase of the study – with a view to exploring the relationships between the usage of FPS and the benefits realised, using the IMBOK framework.

Research into benefits realisation for mandatory software has not been completed previously; hence, a case study was used to examine this phenomenon in its natural setting, employing multiple methods of data collection to gather information from one or a few entities (people, groups, or organizations). Therefore, this research was not limited to either a qualitative or a quantitative approach, but utilised mixed method instead. Quantitative research (descriptive statistics) was used as to expand the qualitative research (thematic content analysis) component to give a more holistic perspective and to satisfy the stated research objectives.

The population for this research was chosen from the list of FPS users from the Global Address List (GAL) and the list of PMs from the QA team, as they engage with PMs for verification purposes. These sources were used to compile a purposive sample of PMs in order to obtain primary data. A pilot study was first administered to a randomly selected sample of 10% of the population.

However, the view of respondents may have contained a level of bias, as using FPS is required by the job function, and failure to use it could result in disciplinary action. However, this was negated by paying special attention to the degree of sincerity, enthusiasm and coherence that employees expressed when evaluating FPS – to account for the possible social desirability bias.

The next chapter will analyse qualitative and quantitative data and provide the results, as well as the findings of the study.

CHAPTER 4

4 PROCESSING, ANALYSIS AND INTERPRETATION OF THE DATA

4.1 INTRODUCTION

The previous chapter placed the survey instrument in its context and discussed its application to the population.

This chapter presents the results of the empirical study, beginning with an analysis of the demographic control variables. This is followed by a thematic content analysis and concludes with a statistical analysis that includes the basic statistics, as well as the measures of central tendency.

4.2 DEMOGRAPHIC ANALYSIS (CONTROL VARIABLES)

The demographic control variables include the following:

- The response rate was 53.5% from the cross checked list from GAL;
- The respondents' functional level comprises mainly middle management; and details of this can be found in Figure 14; and the
- Type of business was restricted to YZ's IT department.

The demographics of the sample population may be summarised as follows:

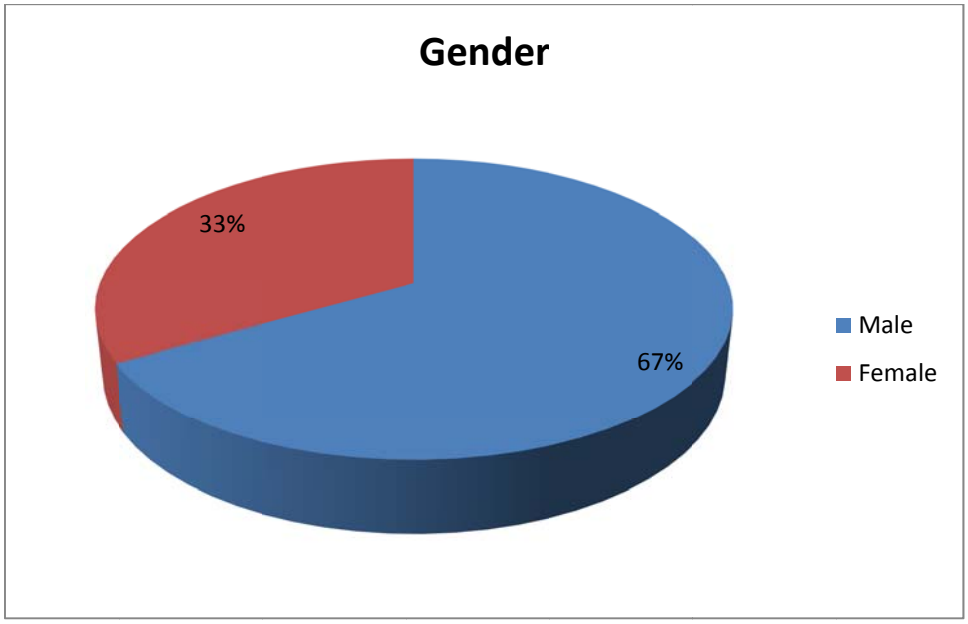


Figure 10: Gender distribution (Source: Author)

It was found that 50% more males responded to the survey than did females, but this was due to the fact that a greater percentage of PMs in YZ organisation are males; and this should therefore, not be taken to represent a material difference in the findings between the two sexes.

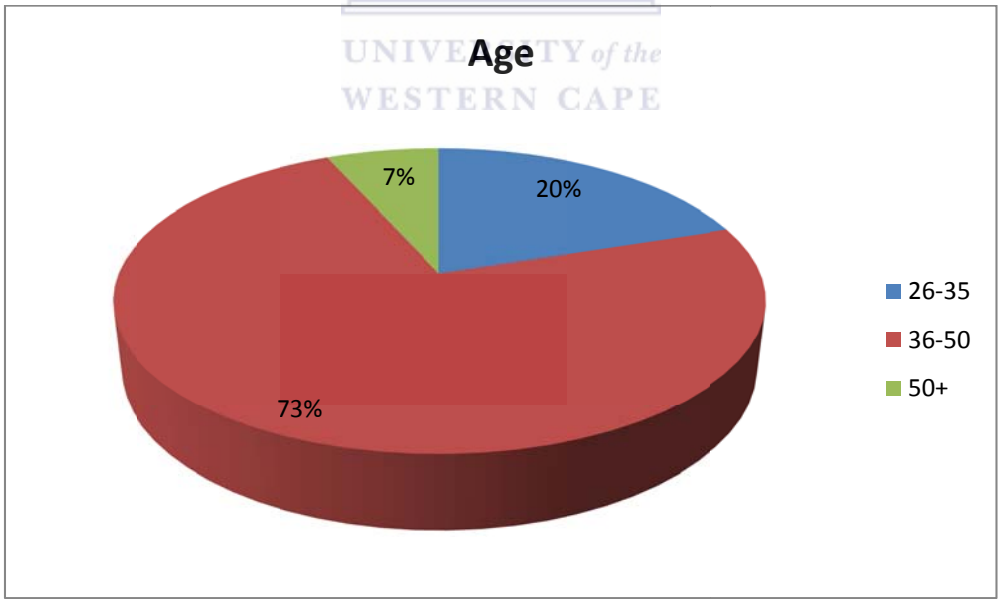


Figure 11: Age distribution (Source: Author)

The majority of respondents (73%) were aged between 36 and 50 years old, with 20% of the respondents being between 26 and 35 years old; the minority (of 7%) of the respondents were older than 50 years. This was discussed with Management, and the view was that succession planning and

talent management initiatives are currently in progress, since there are a number of PMs that will be reaching retirement age in the near future.

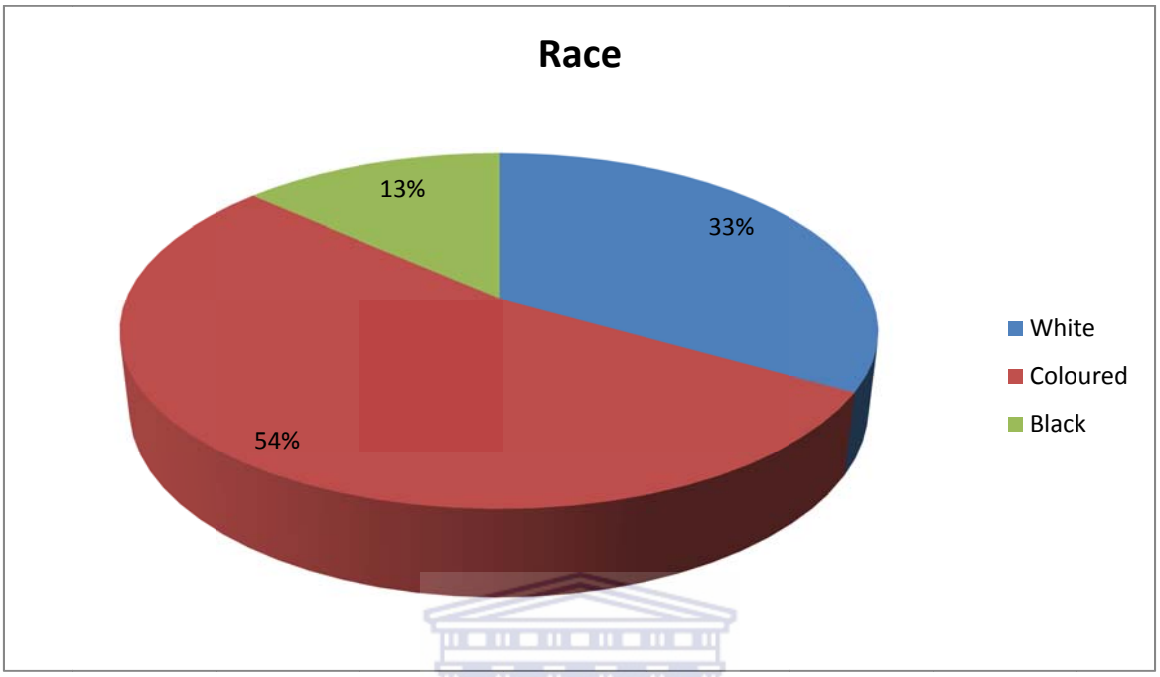


Figure 12: Race distribution (Source: Author)

More than half the sample population were Coloureds, 34% being White, and the smallest percentage of respondents comprising Blacks. This is due to YZ organisation's commitment to employment equity, with the emphasis still being given to increase the number of Black employees in management positions, of which PMs are defined as being one such role.

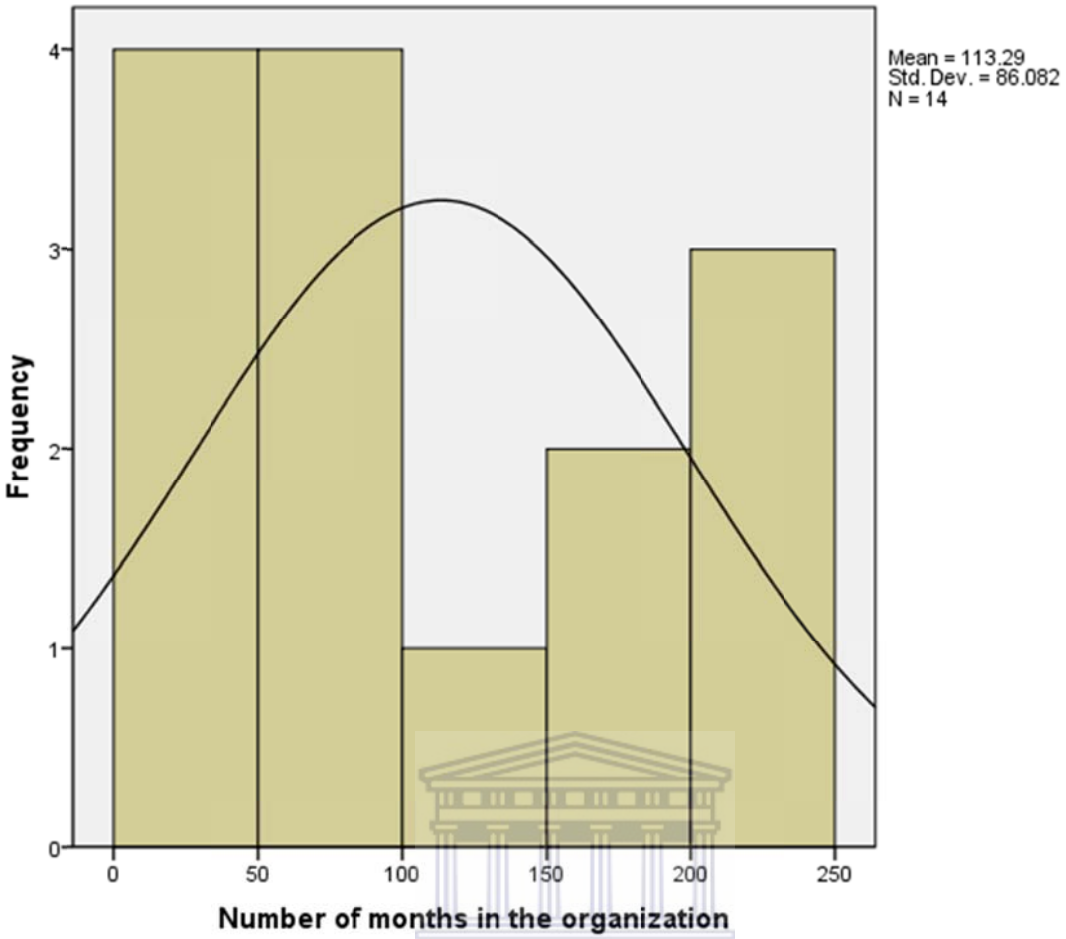


Figure 13: Number of months in the organisation (Source: Author)

The number of months employed in the organisation ranged from 12 to 241 months. Given that the sample is not normally distributed, seen from the normal curve in the histogram above, calculating the median should provide a far more representative view of the average number of months in the organisation, due to the positive skewness.

The median for the number of months in the organisation was calculated at 78 months, compared to the mean of 113.29 months. A total of 25 percentile of the sample population had been in the organisation for 44.25 months, with the 75 percentile being 204 months.

From these data, it may be established that the sample population remain employees in YZ organisation for a long time, with a relatively low employee turnaround; and this was confirmed by YZ Human Resource metrics.

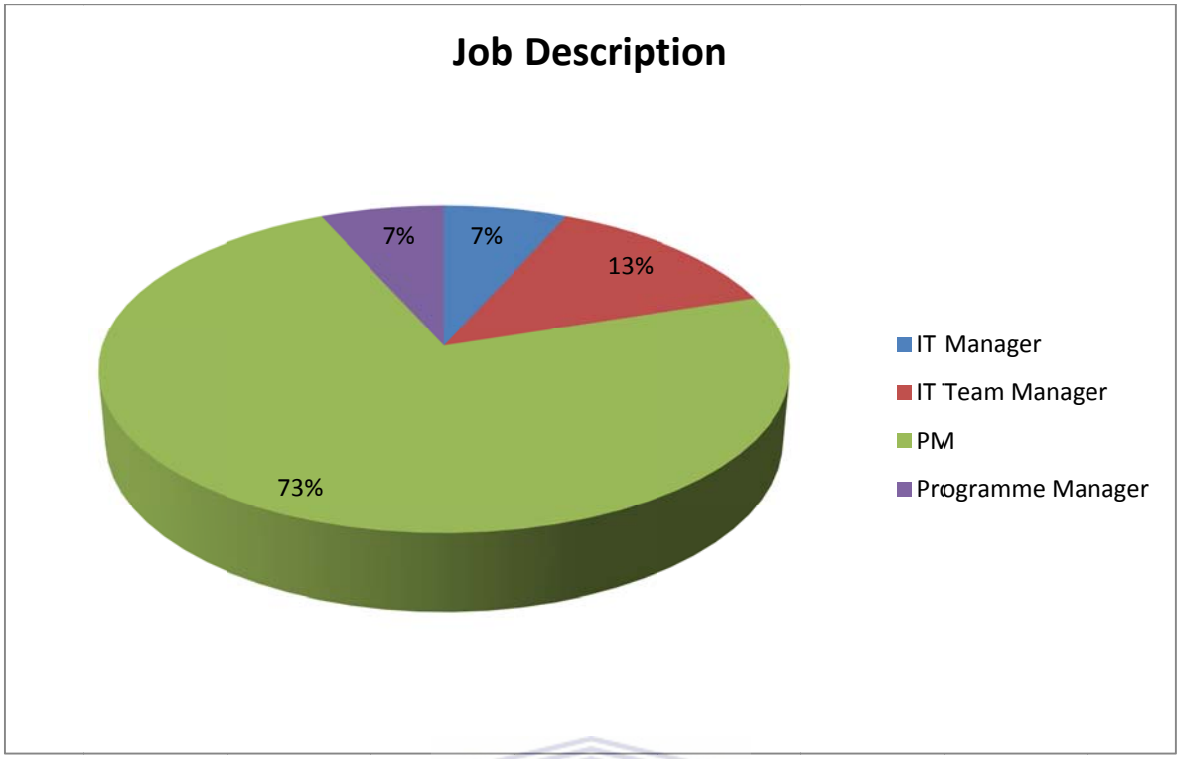


Figure 14: Job description distribution (Source: Author)

Given the trend above, it was found, in a discussion with management, that employees at YZ organisation stay for many years, but frequently change jobs and/or departments. As a result, 73% of all the respondents interviewed are currently in a PM position, with 27% of them having changed job positions recently, but they were all still users of FPS. They were interviewed because of their insight into the use of FPS and the YZ organisation, as well as the small size of the total population.

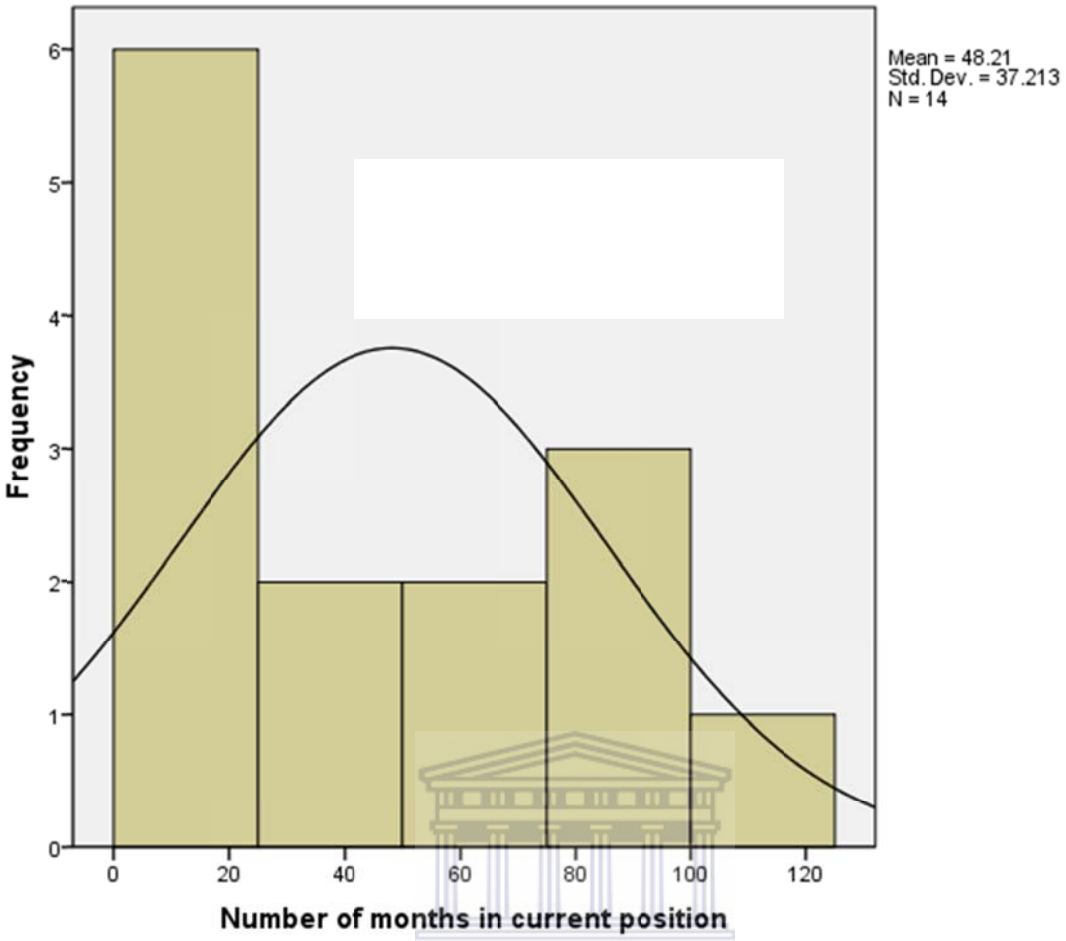


Figure 15: Number of months in current position (Source: Author)

The number of months employed in the current position ranged from 7 to 120 months. Given that the sample is not normally distributed, seen from the normal curve in the histogram above, calculating the median in this instance as well should provide a far more representative view of the average number of months in the organisation, due to the positive skewness.

The median for the number of months in the organisation was calculated at 34.5 months, compared with the mean of 48.21 months. A 25 percentile of the sample population had been in their current position for 15 months; while, the 75 percentile had been in the organisation for 84 months.

From these data, it may be established that the sample population are experienced in their current position; and hence, it may be assumed that they have a high level understanding of how the IT department operates.

4.3 FINDINGS

To establish whether respondents were using the YZ IT department's information systems, as required, respondents were asked whether they used MPP and any other alternatives to FPS.

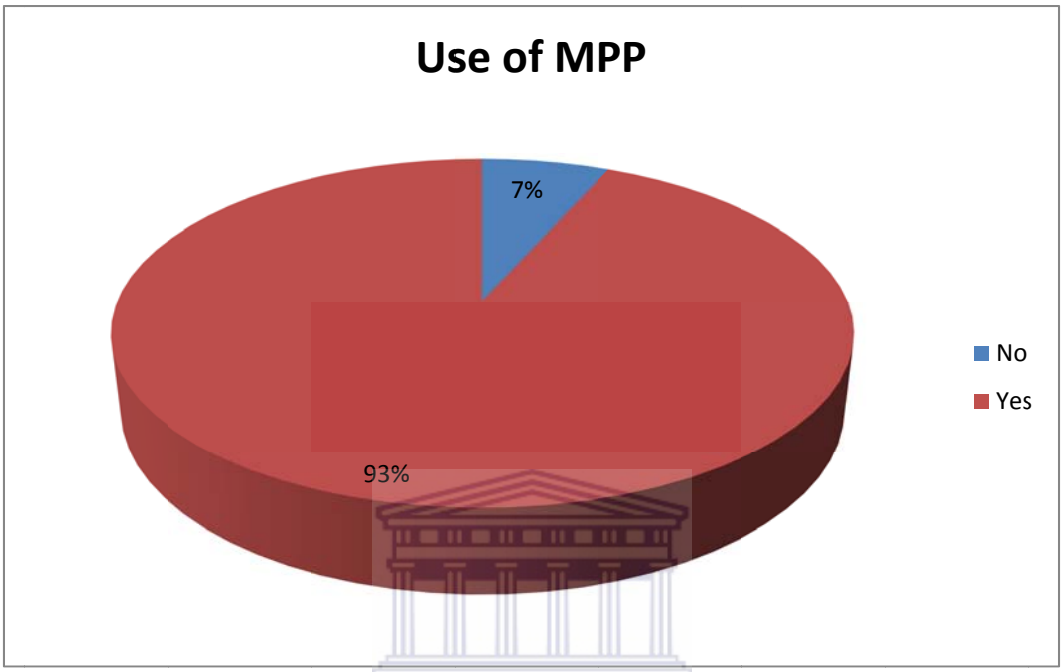


Figure 16: Use of MPP (Source: Author)

All the respondents interviewed used FPS, while 93% of them also used MPP. In discussions, it was noted that all the respondents used FPS, since this was a requirement for producing project financial reports – and ultimately the IT department's financial reports. As a result, it was used at a minimum, and for that purpose only. This phenomenon will be discussed in subsequent sections.

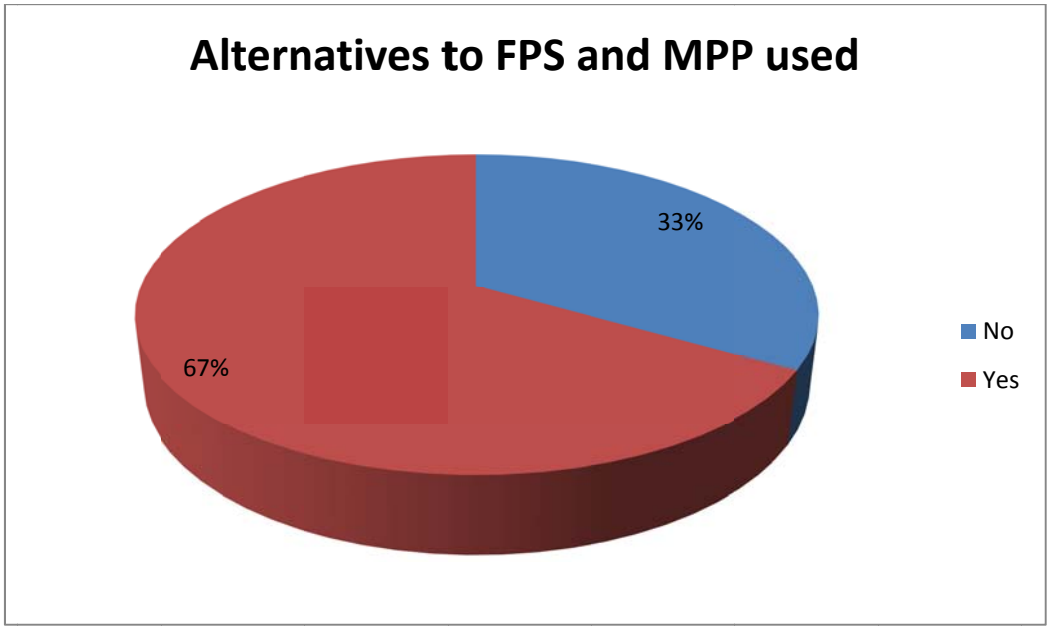


Figure 17: Use of alternatives to FPS and MPP (Source: Author)

In addition to using FPS and MPP, 67% of the respondents also used alternatives, such as spreadsheets, as their view was that FPS did not provide them with all the features that they required. In one interview, a PM used spreadsheets to add start/finish times, personal notes such as holidays and sick days and auditable documentation across all his clients for the South African Revenue Services (SARS). Spreadsheets were also used for forward resource planning for a three-month period, as FPS does not allow for this functionality.

4.3.1 WHAT IS THE LEVEL OF INVOLVEMENT FROM THE INTENDED USER GROUP IN THE DECISION TO IMPLEMENT MANDATORY SOFTWARE?

The respondents were asked to describe how mandatory information systems (of which FPS software is one constituent) are introduced into YZ organisation as a whole, and not the IT department specifically, as it would then be possible to assess the differences in implementation strategies. The results are summarised as follows:

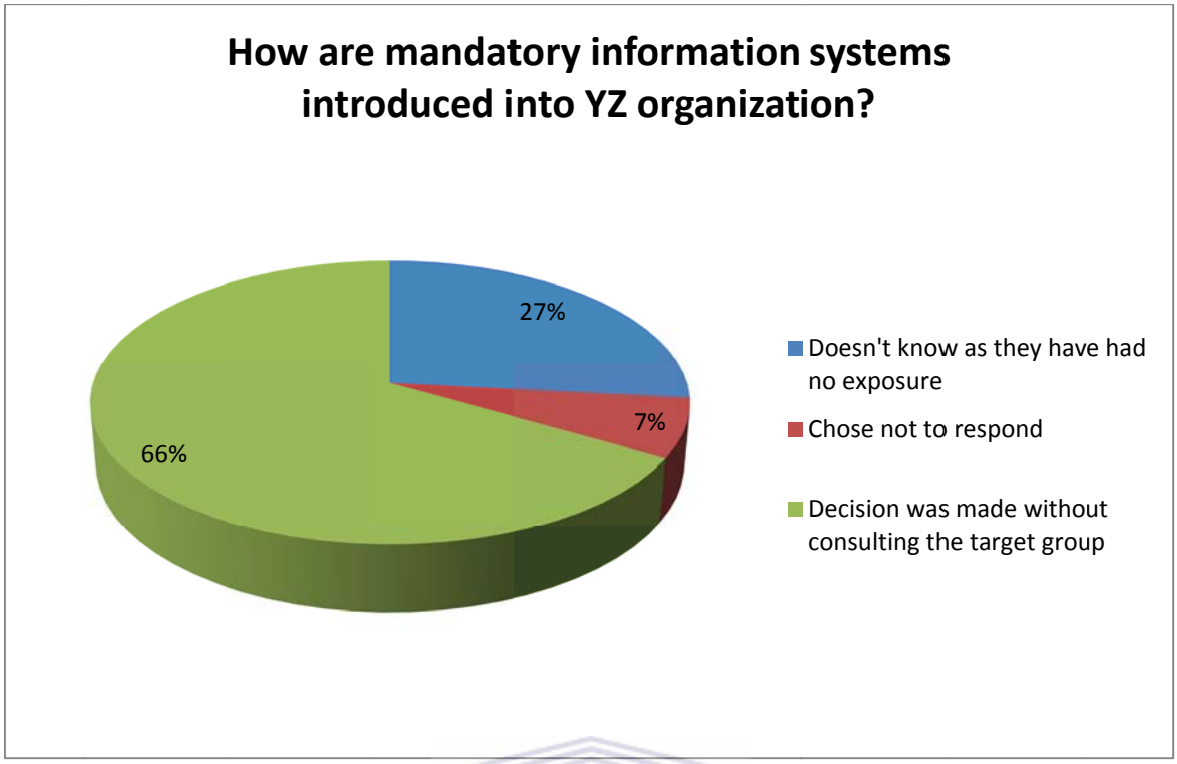


Figure 18: Introduction of mandatory information systems into YZ organisation (Source: Author)

Attitudes towards IS implementation in YZ organisation including the following:

A positive attitude towards IS implementation in YZ organisation was evident in the following comment:

- *"(Implementing FPS) It was the right decision at the time. We were looking for a corporate type reporting tool and FPS was that tool. FPS was identified as being in the right Gartner quadrant to meet our needs."*

Prior to FPS, there was an old timesheet system in place, but individual IT areas had their own mechanism and tools for capturing time and costs, and this led to inconsistency and a lack of standardisation. As a result, 7% of the sample populations believed that it was the right decision at the time, as YZ's IT department was looking for a centralised corporate reporting and PM tool, and FPS was identified as being the right software to meet their needs.

A negative attitude towards IS implementation in YZ organisation was evident in the following comment:

- *"(shakes head) A request of proposal, a feasibility assessment and an evaluation were not done. (A) senior executive decided without consultation."*

At the time, MPP did not exist and FPS was the forerunner; however, senior executive management saw FPS presented at a conference – and a decision was made to purchase it – before the requirements of YZ's IT department had been considered. It was found that 7% of the respondents explained that IT projects could not be implemented without a proper requirements analysis being done; yet this was done, and that it was implemented badly as well. Based on the views of the respondents, it is evident that all the users were not involved in defining the mandatory software's requirements (Zang's et al., 2002).

It was found that as many as 66% of the sample population also believed that the decision to implement was taken without consulting the target-user group. This was confirmed with a PM who was the business analyst on the FPS project at the time that it was implemented; and hence, user participation in the implementation of the mandatory software was fairly low.

In addition, 7% of the sample population, who were present at the time of implementation, stated that workshops were held with key individuals, but they did not take all the stakeholders into consideration. It is understood that consulting all the target users of the system to be implemented would take time; and this could possibly result in longer implementation times; hence, the participation congruence was low (Doll, 2002).

However, it was not possible to confirm this sentiment with management, as the relevant managers were not employed at the time of implementation.

It is probable that the organisation chose employees the sample population felt had the right skill set. This skill set includes not only being experts in the organisation's processes, but also having an awareness of information systems application in the industry (Zang et al., 2002). The view is that involving users in the stage of defining organisational software needs can decrease their resistance to the potential mandatory software, since users may feel that they are the people who chose and made the decision, despite the fact that an executive had actually made the decision.

It was found that 13% of the respondents mentioned that there is a technology acquisition process that needs to be adhered to when new technology is implemented in YZ organisation, especially from an architectural perspective – and to ensure that duplicate technology, i.e. purchasing two Project Management software tools and licences, is not implemented in the environment. However, it was

maintained that this process should not be publicised, and as a result, this information is not accessible to all.

In a discussion with management, it was discovered that the technology acquisition process had not been enforced by the architecture team since 2009 – due to resource constraints -- as a result of which, the implementation of new software was not being done in a formalised manner. Management actions are currently in place to address this gap.

User involvement should not only be limited to the decision-making process and their involvement in implementation and utilising the mandatory software as expected has a significant impact on the realisation of business benefits. Bytheway (2004) warns not to expect too much too quickly, due to the fact that people need time to adapt to new working practices associated with new information systems. Because of the nature of change, this could be several months – before the full range of benefits could be expected, but this process should be proactively managed.

The phases of adoption, consolidation, internalization and performance, which ultimately lead to improved efficiency and effectiveness, can only be achieved through training, routine practice – and ultimately education, when users learn to exploit the functionality of the system rather than having the 'work-from-a-book' approach.

FPS was implemented several years ago; and therefore, the range of benefits described above could be expected only if the above or a similar approach was followed. However, given that this is not the case; the method of change management was questionable, as the approach to the realisation of benefits could not occur without adequate change management. (The process of selecting and implementing information systems is covered in more detail in section 4.3.3.)

4.3.2 WAS THE IMPLEMENTATION OF FPS ADEQUATELY CHANGE MANAGED?

As stated previously, if the business change is poorly managed, then the business process is negatively impacted; and hence, the expected improvement in business operations could not be delivered. Therefore, this would negatively impact the realisation of any business benefits.

Based on the fact that the utilisation of FPS is limited, respondents were asked about the change management process to ascertain whether the change process ultimately impacted on the realisation of business benefits, as stated above.

Comments include the following:

- "*I wasn't here when FPS got introduced, but I don't think it was introduced very well. Change management isn't done well. A decision on an information system gets made and then it gets implemented. It gets decided and it gets done*."
- "*Badly (laughs). They tend to not consider the end-users properly. Don't evaluate suitability for use and apply a top-down approach, driven by narrow interests. It also doesn't identify all stakeholders*."
- (Shakes head) "*Senior exec decides without consulting. There is minimal involvement from the intended user group in the decision-making process*."
- "*This is the tool; you will use it! We got classroom training with a demo, but this was not adequate, as we did not get to view the reports*."

Based on the literature review of three emergent change models, namely: Kanter et al.: The ten commandments for executing change (1992); Kotter's eight-stage process for successful organisational transformation (1996) and Luecke's seven steps (2003), common key activities that should be included in change management, namely: creating a vision, establishing a sense of urgency, identifying leadership, communication and reinforcing the change were all discussed.

However**,** the view by all respondents was negative, in that a top-down approach was taken, and change management was not done well, as the intended user group had minimal involvement in the decision-making process and training was minimal or only on request. However, due to resource constraints training could be delayed.

In addition, the top-down approach does not take into consideration the reactions of individuals to the change; and according to Craine (2007), when organisations choose to implement IT, they may overlook one influential factor: the emotional reactions of individuals when things change. Therefore, in the IT department at YZ organisation managers did not appear to take into consideration the cycle of emotions: confidence, shock, bargaining and acceptance. Consequently,

they could not or did not provide advice to assist individuals in each cycle; and they therefore, could not decrease the amount of resistance to the change.

This is aligned with literature that states that rapid innovation in technology is enabling change to occur faster; and as a result, individuals are forced to face change at an ever-quickening pace. If the change is not successfully managed, and does not take individuals into consideration, which was the view of the sample respondents, it is likely that even the best technology strategies will be unsuccessful (relating to IMBOK). This is due to individuals resisting change, finding ways to sabotage efforts (in the case of the IT department, using software that is an alternative to FPS), or becoming angry or withdrawn (relating to cycles of change).

Resistance to change often gives rise to a pattern of resistance that has become a norm of corporate culture; and the IT department does not appear to be an exception to this rule. Due to the fact that individuals automatically resist change, it is necessary to mitigate the negative effects of these reactions when implementing changes in technology, processes, and workflow (Craine, 2007). Inevitably, changes in business processes were necessary when FPS was implemented. Finding methods to bypass what is mandatory may be related to user resistance; and this has been identified as a prominent reason for the failure of new implementations. Consequently, a method to deal with user resistance should have been identified in the IT department's change management approach. However, the formal approach could not be located; and based on the views of respondents, there is a serious doubt that such an approach even exists.

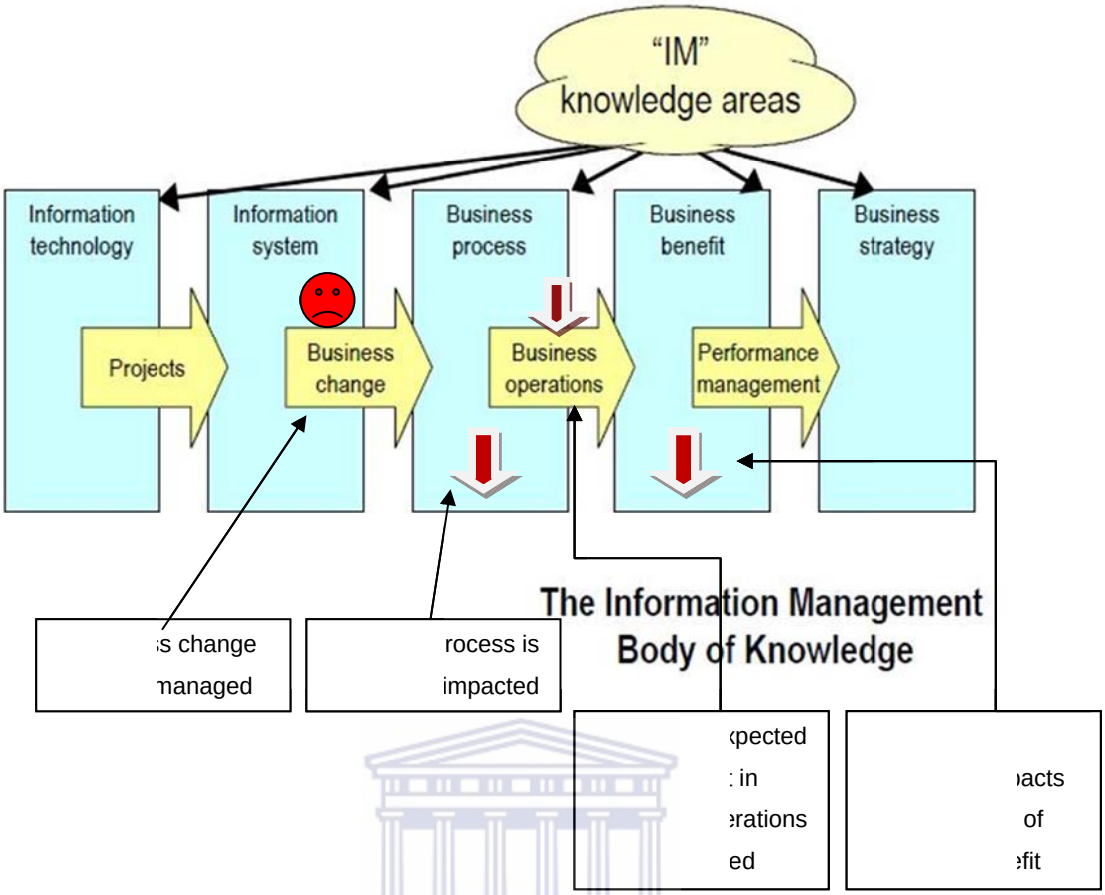


Figure 19: Impact of poorly managed business change on benefits realisation (Source: Author based on Bytheway, 2004)

Therefore, change management appears to be an area of concern that needs urgent attention in YZ organisation if any benefits from the mandatory software are to be achieved.

4.3.3 WHICH ORGANISATIONAL FACTORS INFLUENCE THE ACCEPTANCE OF MANDATORY SOFTWARE?

In the initial discussions with respondents, there appeared to be several organisational factors that influence the usage of FPS. In order to answer the research question above, respondents were given a list of ten factors, obtained from the literature review, namely:

1. Organisational structure;
2. Organisational processes;
3. Organisational size;
4. The culture of the organisation;
5. The process of selecting and implementing the information system, for example, FPS;
6. Internal technical support;
7. Top management support of FPS;
8. Training of FPS;
9. The technological and financial resources available to support the use of FPS; and
10. The individual user's technological capabilities.

Respondents were asked to rate the ten factors on a scale of 1 to 10, with 1 being the most important factor and 10 being the least important. Each number could only be used once, and each number from 1 to 10 had to be used.

As seen in the table below, 20% of the respondents declined to answer this part of the survey, as they believed that none of the organisational factors mentioned influenced their usage of FPS. Instead, the only reason they used it was the fact that it was mandated, and an important key result area for ensuring financial information was thereby completed.

Table 7: Case summary, organisational factors (Source: Author)

Case Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Organisational factors	12	80.0%	3	20.0%	15	100.0%

Of the remaining 80% of the respondents who chose to answer, 41.7% believed that organisational processes were the most important factor.

Table 8: Organisational factor rated number 1 (Source: Author)

		Responses	
		N	Percentage
Organisational factors rated number1[a]	Organisational structure	1	8.3%
	Organisational processes	**5**	**41.7%**
	Organisational size	1	8.3%
	Process of selecting and implementing the information system	2	16.7%
	Top Management support	2	16.7%
	Technological and financial resources available	1	8.3%
Total		12	100.0%

Processes for PMBOK in the centralised repository require that projects be logged on FPS, prior to any resource being able to bill time against project activities and tasks. This ultimately means that projects need to be assigned an FPS ID before resources can be allocated, and users are allowed to book time against allocated tasks in the project schedule.

In addition, projects need an approved project contract, detailing project objectives, deliverables, high level requirements and project costs to be handed to the Project Office team before the FPS ID can be assigned. Scope change documents defining a change in requirements, schedule and costs are required to be saved by the Project Office team. In order to close off FPS ID, a project-review report is required by the Project Office team.

In a discussion with the QA team, who verified that organisational processes had been followed, it was discovered that a large amount of documentation is required by the Project Office team, and that there have been a number of non-compliant projects that did not strictly adhere to the defined processes.

In addition, the information obtained from FPS for QA reporting purposes identified several key issues:

- Projects that were implemented in production and had completed their warranty period, still showed as 'work in progress', as project review reports had not been obtained and FPS IDs had not been closed, thereby allowing resources to still book time against completed projects;
- FPS project schedules did not correctly show in which phase of the lifecycle projects were involved, and thus did not assist QA with assessing which projects needed to be verified; and
- Projects were incorrectly logged in portfolios.

QA has highlighted these issues to management, but are still waiting for all of them to be addressed. Progress has been made by some PMs to close FPS IDs for work that has been completed, but there are still a large number of projects incorrectly logged with project schedules that do not correctly reflect a delivery to date. These issues are related to the motivation of PMs to use FPS, as one PM stated, "*FPS is required, so it's garbage in, garbage out (GIGO)*!"

This attitude will be covered in more detail in the following section.

Several respondents have stated that they will do the bare minimum necessary in FPS to adhere to the process -- that is, to capture high-level projects schedules, allocate resources and capture time – so that management can obtain project financials. This links to the second most important factor.

Table 9: Organisational factor rated number 2 (Source: Author)

		Responses	
		N	Percentage
Organisational factor rated number 2	Organisational structure	3	25.0%
	Organisational processes	3	25.0%
	Process of selecting and implementing the information system	1	8.3%
	Top Management support	**4**	**33.3%**
	Own technological capabilities	1	8.3%
Total		12	100.0%

Top management support was rated highly, since they measure respondents on the financial information they get from FPS, and use reports from it to track work delivery.

In addition, respondents whose financial information is not updated in FPS are penalized in performance appraisals, as there is a potential for under-recovery if client's are not correctly billed, as cost saving is a key strategic initiative, and without valid and complete information this cannot be tracked.

Top management support is also linked to the fact that executives made the decision to purchase the information system, and because of the large amount already invested would be unlikely to change, even when other options, such as MPP with an MPP enterprise project management tool became available.

Table 10: Organisational factor rated number 3 (Source: Author)

		Responses	
		N	Percentage
Organisational factor rated number 3	**Organisational structure**	**3**	**25.0%**
	Organisational processes	1	8.3%
	Organisational size	2	16.7%
	Culture of the organisation	1	8.3%
	Internal technical support	2	16.7%
	Top Management support	2	16.7%
	Training	1	8.3%
Total		12	100.0%

Organisational structure was listed by 25% of the respondents as the third most important factor. YZ organisation has many departments, with IT being one of them. The IT department has various specialist areas that focus on particular technologies.

Allocating resources across multiple projects, as well as managing financials at the enterprise level is facilitated by FPS, as this view cannot be obtained by capturing individual projects in MPP. In addition, FPS allows projects to be linked to high-level strategic objectives that should enable the YZ organisation to align more easily to IT projects being delivered.

Table 11: Organisational factor rated number 4 (Source: Author)

		Responses	
		N	Percentage
Organisational factor rated number 4	**Organisational size**	**4**	**33.3%**
	Culture of the organisation	2	16.7%
	Process of selecting and implementing the information system	1	8.3%
	Internal technical support	1	8.3%
	Top Management support	1	8.3%
	Training	2	16.7%
	Technological and financial resources available	1	8.3%
Total		12	100.0%

It was found that 33% of the respondents believed that organisational size is the fourth most important factor. This is linked to organisational structure, as the YZ organisation is big and complex and there needs to be an information system in place that allows senior management to obtain a consolidated view of delivery against costs and schedule.

Table 12: Organisational factor rated number 5 (Source: Author)

		Responses	
		N	Percentage
Organisational factor rated number 5	Organisational size	1	8.3%
	Culture of the organisation	**4**	**33.3%**
	Internal technical support	2	16.7%
	Top Management support	1	8.3%
	Training	1	8.3%
	Technological and financial resources available	3	25.0%
Total		12	100.0%

It was found that 33% of the respondents believed that the culture of the organisation affects their usage of FPS. This is because the emphasis is placed on cost and delivery on schedule. These factors are viewed at an enterprise level with FPS. However, the culture of the organisation is also driven towards delivery; and this it seems, should be done at the expense of quality, given the number of non-compliant projects and the incorrect data obtained from FPS by the Quality Assurance team.

Table 13: Organisational factor rated number 6 (Source: Author)

		Responses	
		N	Percentage
Organisational factor rated number 6	Organisational structure	1	8.3%
	Organisational processes	**2**	**16.7%**
	Culture of the organisation	1	8.3%
	Process of selecting and implementing the information system	**2**	**16.7%**
	Internal technical support	**2**	**16.7%**
	Top Management support	1	8.3%
	Training	1	8.3%
	Technological and financial resources available	2	16.7%
Total		12	100.0%

Organisational processes, internal technical support and the process of selecting and implementing the information system obtained the same number of votes for position 6. Given that organisational processes were already rated at number 1, and the process of selecting and implementing the information system obtained the same number of votes for rank 9, it was decided to rate internal technical support at position 6.

Internal technical support at this position is not rated very highly, but in discussions with respondents, it was stated that there are a limited number of resources available to provide technical support for FPS. Currently, there are two resources that provide technical support for the IT department, as well as other areas that have now been introduced to the information system.

The respondents felt that internal technical support was often unwilling to assist with their queries and technical difficulties. A few respondents believed that the FPS team was under-resourced, as they had lost a key resource; and this fact was confirmed by management. They also believed that the FPS team was not willing to support them, as questions were answered with: "*I'm busy now and don't have the time to deal with your questions*!" Management has agreed that their FPS helpdesk team is under pressure to deliver key reports, as well as to do an upgrade of the FPS system.

Another comment made was, "*FPS support makes users look like 'idiots'; and as a result, is only used to capture timesheets rather than for managing projects*."

Respondents also felt that their management was not well equipped to deal with FPS technical difficulties, and that the view was to get things done, but that they were not able to provide guidance on how this could be achieved. This is closely related to the skills level of FPS; and this issue will be dealt with in a successive section.

Table 14: Organisational factor rated number 7 (Source: Author)

		Responses	
		N	Percentage
Organisational factor rated number 7	**Organisational structure**	**2**	**16.7%**
	Organisational size	1	8.3%
	Culture of the organisation	**2**	**16.7%**
	Internal technical support	1	8.3%
	Top Management support	1	8.3%
	Training	1	8.3%
	Technological and financial resources available	**2**	**16.7%**
	Own technological capabilities	2	16.7%
Total		12	100.0%

'Organisational structure', 'culture of the organisation', 'technological and financial resources available' and 'own technological capabilities' tied for position 7. Given that Organisational structure and the culture of the organisation were already rated in higher positions, these issues were ignored. 'Own technological capability' achieved a higher number of votes in the last position. This will be discussed in the following section.

As a result 'technological and financial resources available' was given the seventh rank. This is due to the fact that financial resources are limited to mainly one resource from the finance department which reports on financials on a monthly basis to senior management. Respondents are often not provided with this detailed level of information, but are addressed by management when there are financials deemed to be exceptions.

Technological resources have improved as technical support in terms of hardware and antivirus support for the software has been outsourced to a third party.

Table 15: Organisational factor rated number 8 (Source: Author)

		Responses	
		N	Percentage
Organisational factor rated number 8	Culture of the organisation	1	8.3%
	Process of selecting and implementing the information system	1	8.3%
	Training	**4**	**33.3%**
	Technological and financial resources available	2	16.7%
	Own technological capabilities	4	33.3%
Total		12	100.0%

Training was surprisingly low on the rank of importance, obtaining only 33.3% of the votes, despite most of the respondents saying that training was 'inadequate'. This is closely linked to the 'skills level using FPS', This issue will be discussed in a subsequent section.

A PM stated the following, "*Training is not adequate. When I incorrectly pressed 'approve all' and approved my timesheet incorrectly, the response from the helpdesk was FRIGHTENING! There is no help and the training materials are missing*."

This view can be summarised by the PM who stated: "*Training needs to be improved. (Saying that) there is a limitation on training resources is just a pathetic excuse. Pull in another FPS resource and provide practical training, documentation and user notes. People implement things all the time and there are ways to get users to enjoy their job and the tool. We're not stupid, we can work it out, but we need some assistance!*"

Table 16: Organisational factor rated number 9 (Source: Author)

		Responses	
		N	Percentage
Organisational factor rated number 9	Organisational structure	2	16.7%
	Organisational processes	1	8.3%
	Organisational size	1	8.3%
	Process of selecting and implementing the information system	**2**	**16.7%**
	Internal technical support	2	16.7%
	Training	1	8.3%
	Technological and financial resources available	1	8.3%
	Own technological capabilities	2	16.7%
Total		12	100.0%

The process of selecting and implementing the information system only received 16.7% of the votes, as several of the respondents believed that they could do little to affect it, as decisions were made by a member of executive management.

This view is summarised by one PM who stated, "*Top Management wants FPS to be utilised, but the process of selecting and implementing the information system is not well done.*" This is linked to user-involvement and change- management which were both rated negatively; and therefore, contributed to this rating.

Table 17: Organisational factor rated number 10 (Source: Author)

		Responses	
		N	Percentage
Organisational factor rated number 10	Organisational size	2	16.7%
	Culture of the organisation	1	8.3%
	Process of selecting and implementing the information system	3	25.0%
	Internal technical support	2	16.7%
	Training	1	8.3%
	Own technological capabilities	**3**	**25.0%**
Total		12	100.0%

Own technological capabilities was rated as least important, as the respondents felt that being in IT equipped them with at least a basic understanding of information systems and how to use the functionality to deliver what was required.

It was stated that FPS was not the most intuitive information system to use, and given that they use some features, such as project Management functions seldom, it was easy to forget, and not that easy to relearn what was forgotten as the help function was not very user-friendly.

This aspect of '*ease of use*' will be discussed in greater depth in the following section.

4.3.4 WHICH FACTORS INFLUENCE THE ACCEPTANCE OF MANDATORY SOFTWARE BY INDIVIDUAL USERS?

FPS is used in a mandated environment where the use of FPS is required for the job performed by PMs. According to the literature review, when the use of an information system is mandatory, the measures of system quality, information quality, and use become less useful, because whether the quality of the system and the quality of the information outputs are adequate or not, and whether users actually want to use the system or not, there is no choice for them. Users must accept and use the information system, as it is part of their job – and they need to utilise it in order to stay employed.

However, while PMs may use the technology, their job satisfaction, feelings towards their supervisors and their loyalty toward the organisation can be severely and negatively affected. A further motivation for understanding mandated use lies in the desire to minimise sabotage and the appropriation of alternative technology, and the resulting costs to organisations associated with such behaviour (Brown et al., 2002). With increased costs, the realisation of benefits would be reduced.

In order to answer this question, it was important to understand the actual usage and skills usage of FPS, as these two factors impact benefits realisation – due to the fact that the lower the actual usage, the greater the impact on benefits realisation. In addition, skills levels may impact usage, as PMs with greater skills in MPP may prefer to use that software instead.

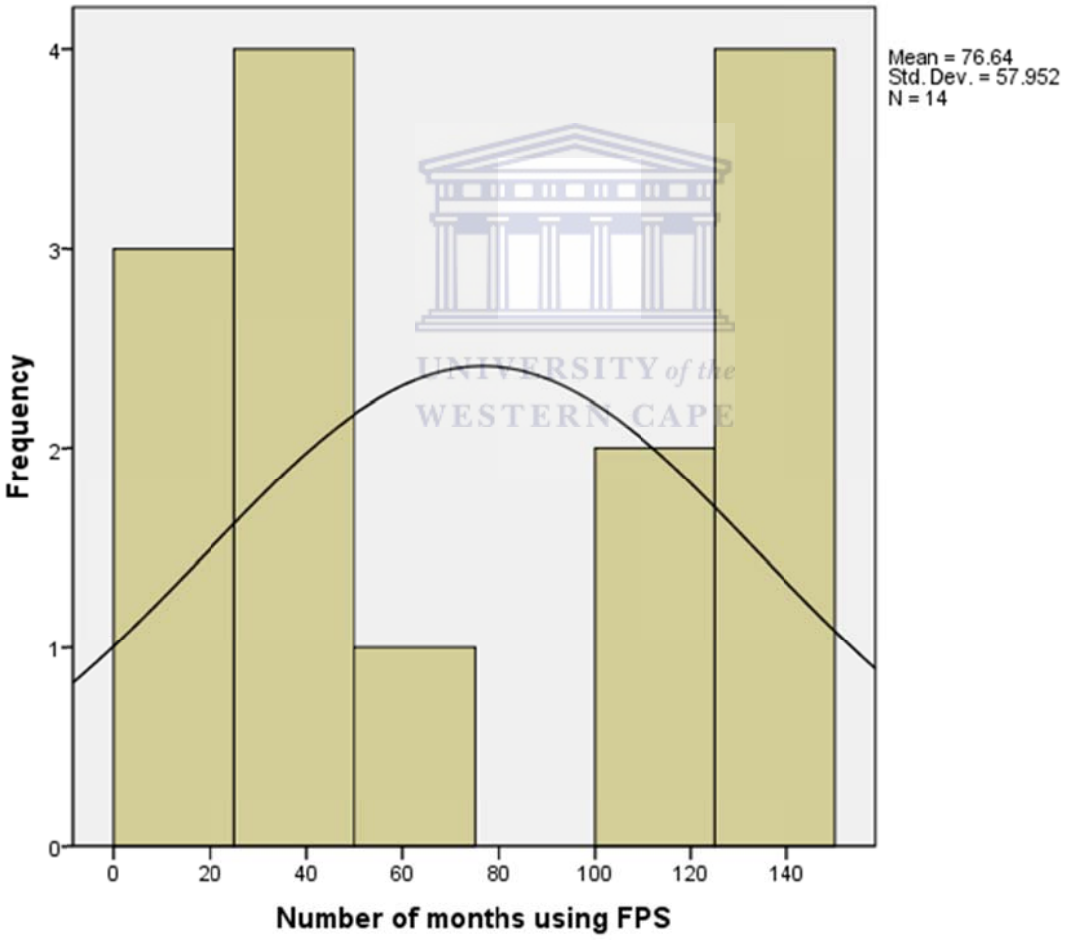


Figure 20: Number of months using FPS (Source: Author)

The number of months using FPS ranged from 6 to 148 months, with 26.7% of the sample population having used FPS since its introduction 148 months ago. Given that the sample is not normally distributed, and seen from the normal curve in the histogram above, calculating the median

in this instance would provide a far more representative view of the average number of months in the organisation, due to negative skewness.

The median for the number of months that FPS was used was calculated at 51 months, compared to the mean of 76.64 months. A 25 percentile of the sample population has used FPS for 28.75 months, and the remaining 75 percentile as used it for 148 months.

These data should demonstrate that the level of experience and skill of the sample population should be advanced, but the graph below indicates otherwise.

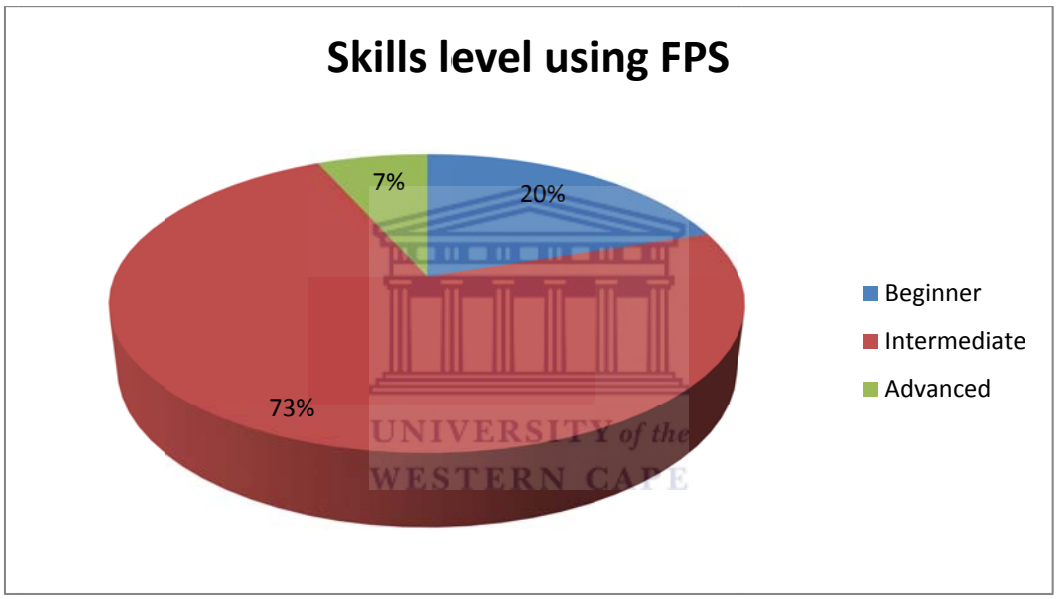


Figure 21: Skills level using FPS (Source: Author)

Despite the amount of time using FPS, only 7% of the population considered themselves advanced users, with the majority of users being intermediate, and 20% still being beginners. During interviews with the target population it was discovered that FPS was only used for certain key financial functions – but not for all project management functions. As a result, the lack of frequent use resulted in respondents forgetting how to perform functions; and they had to seek assistance from the FPS helpdesk team.

A PM stated the following, "*Using FPS adequately would make me do my job more optimally, but currently it does not improve my job performance*." This is based on his/her view that being a PM

involves more than just planning and reporting, and that his/her job performance is dependent on how well he/she manages all the exceptions – for example, any risks that might materialise.

To establish whether the lack of advanced skill was training-related, respondents were questioned on whether the training received was adequate; and the overwhelming response was, that it was it was not. Comments included, "*From [a] manager's point of view, training is reasonably adequate. Only one person gives training. Delays [are] due to resources and venues.*"

This view was supported by the respondents who said that they had waited since 2009 to get training. Another PM added the following comment, "*[I just] don't know how to 'fly' it to [its]) full potential*".

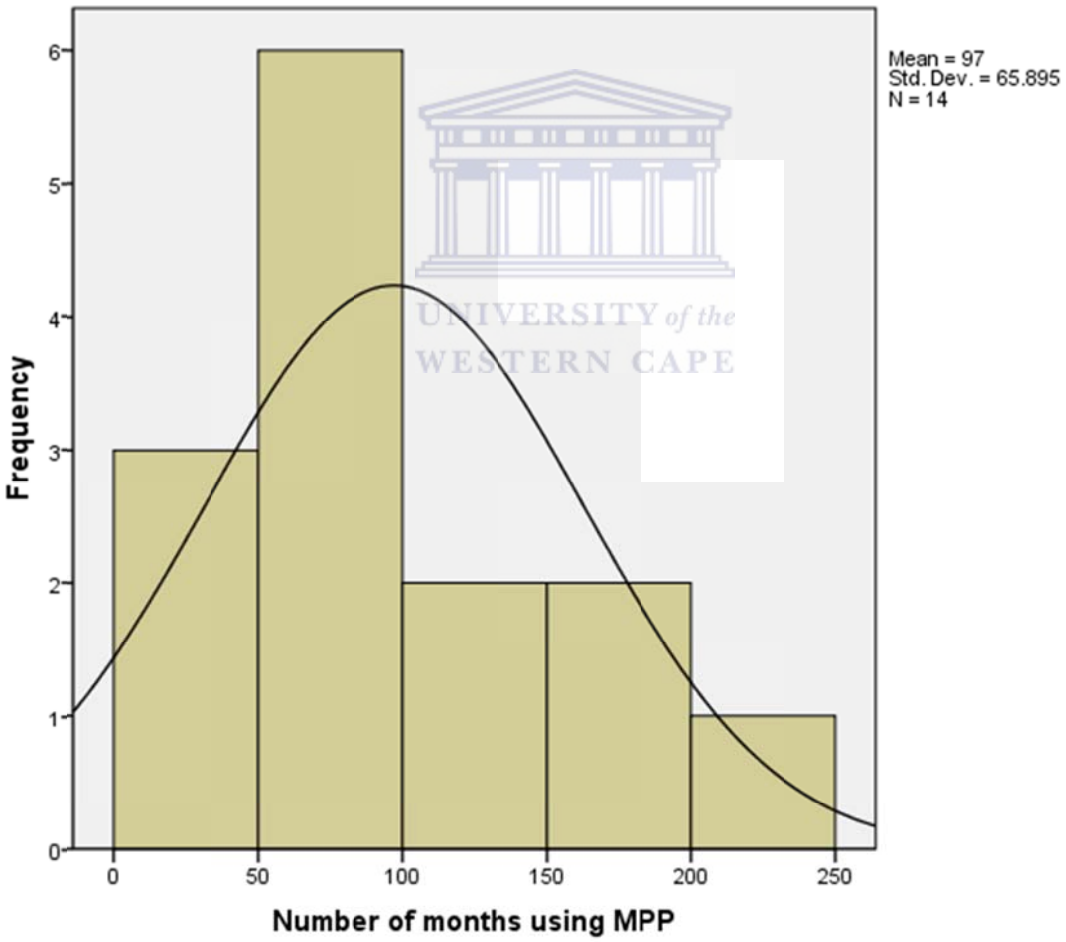


Figure 22: Number of months using MPP (Source: Author)

The number of months using MPP ranged from 3 to 240 months. Given that the sample is not normally distributed, and seen from the normal curve in the histogram above, calculating the median

in this instance would provide a far more representative view of the average number of months in the organisation, due to the positive skewness.

The median for the number of months using FPS was calculated at 88 months, compared to the mean of 97 months. A 25 percentile of the sample population had been using MPP for 60 months, while the 75 percentile had been using it for 144 months.

These data should demonstrate that the level of experience and skill of the sample population should be advanced; and this is proven by the graph below, unlike FPS.

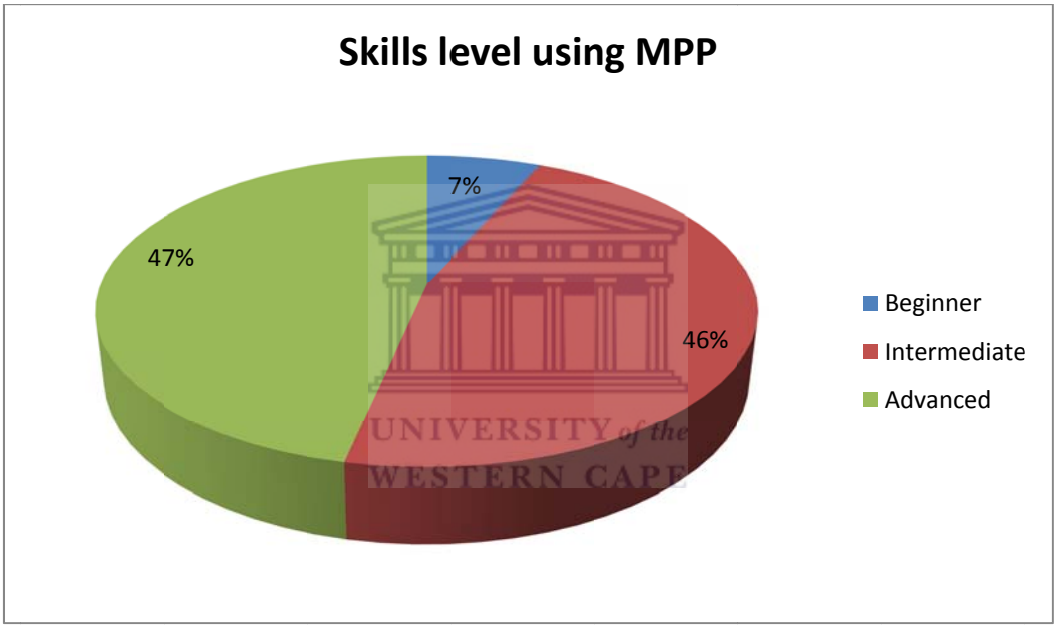


Figure 23: Skills level using MPP (Source: Author)

Despite less time using MPP, 47% of the population consider themselves to be advanced users, with the majority of users being intermediate, and only 7% being beginners. During interviews with the target population, it was discovered that MPP is far more intuitive to learn and that the Help function is easier and more user-friendly.

A PM stated, *"(I've) received training on MPP, (I'm) not held hostage by super users, as there are help files. The MPP Corporation is friendlier, offering guidance and assistance with queries. My interaction with MPP is far easier than with FPS."* This is covered in more detail in the section on perceived usefulness.

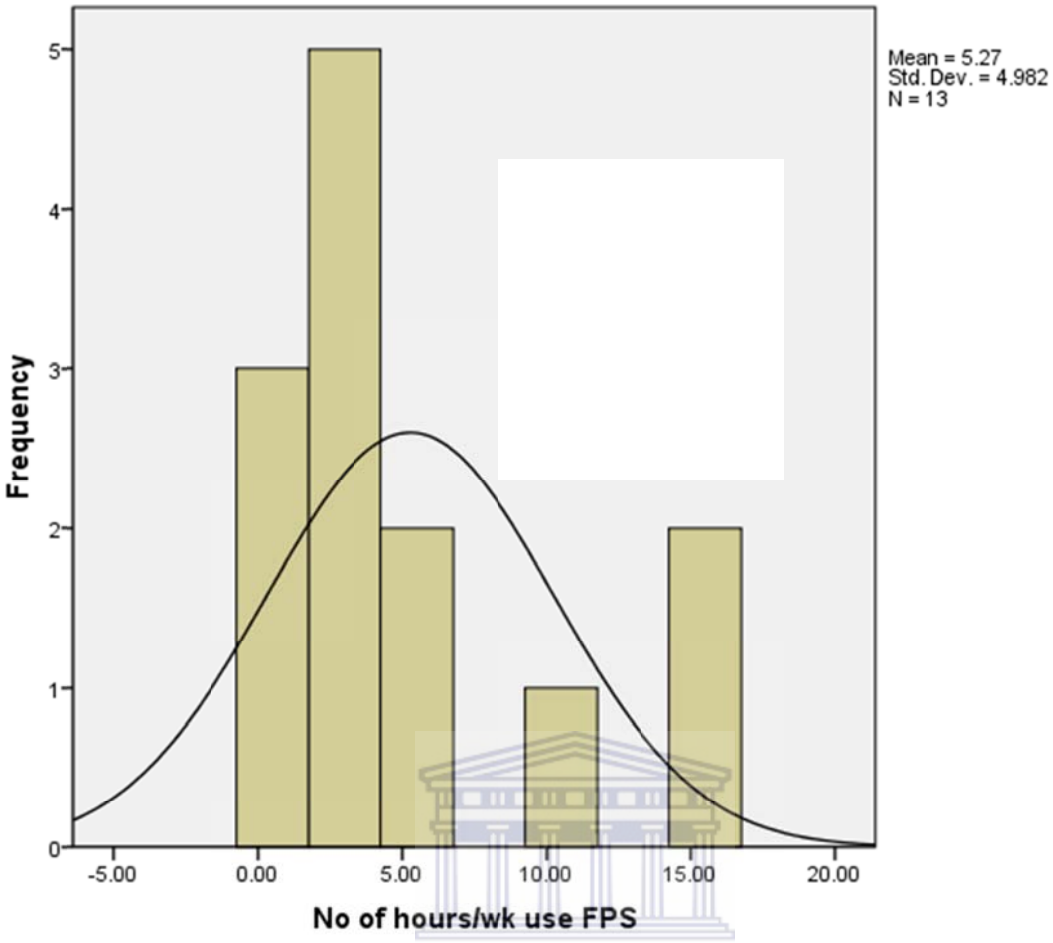


Figure 24: Number of hours per week, using FPS (Source: Author)

Only 13.3% of the respondents chose not to answer this question. Respondents use FPS between 0.5 hours and 15 hours per week. Given that the sample is not normally distributed, and seen from the normal curve in the histogram above, calculating the median in this instance as well would provide a far more representative view of the average number of months in the organisation, due to negative skewness.

The median for the number of hours per week using FPS was calculated at 3.33 hours, compared to the mean of 5.27 hours. A 25 percentile of the sample population is using FPS for 1.88 hours per week, while the 75 percentile was 7 hours per week. This does not contrast strongly with the graph for MPP below.

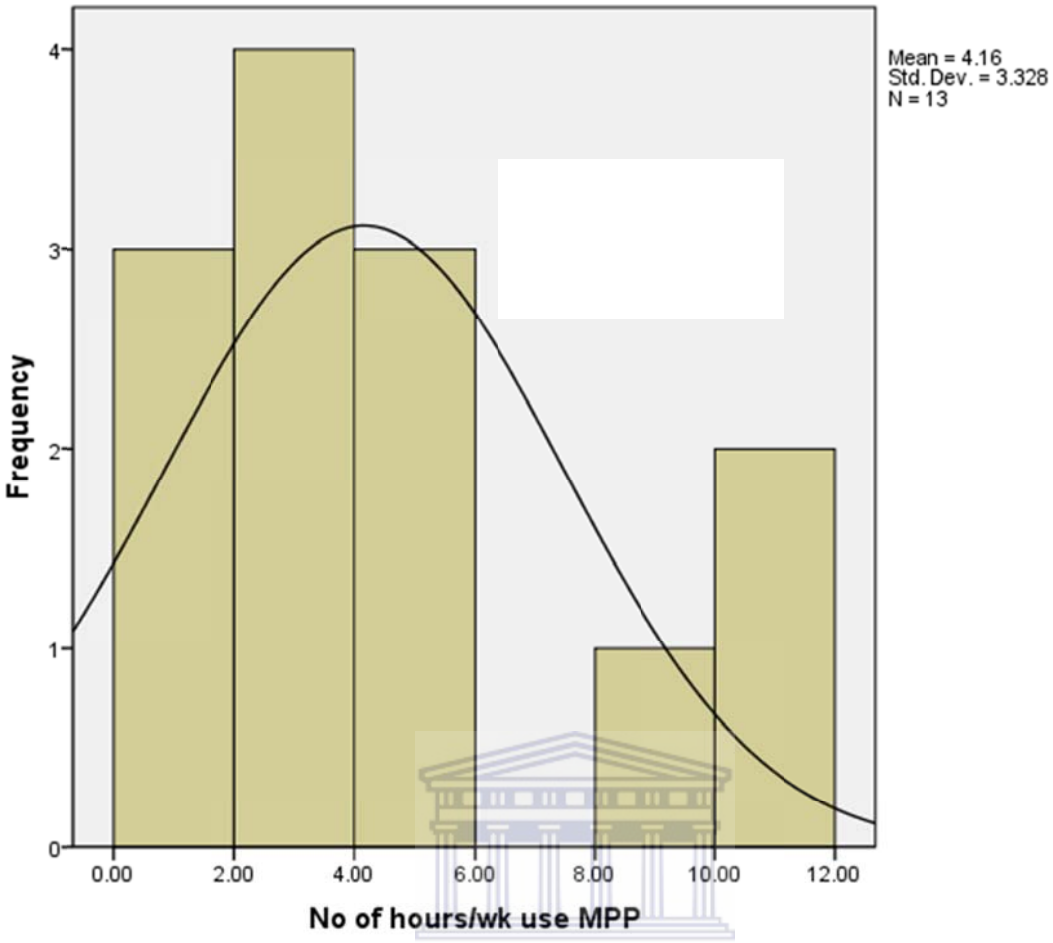


Figure 25: Number of hours per week, using MPP (Source: Author)

Respondents use MPP between 0.0 hours and 12 hours per week, which is less than FPS. Given that the sample is not normally distributed, and seen from the normal curve in the histogram above, calculating the median in this instance as well would provide a far more representative view of the average number of months in the organisation, due to negative skewness.

The median for the number of hours per week using MPP was calculated at 3.5 hours compared with the mean of 4.16 hours. A 25 percentile of the sample population is using MPP for 1.6 hours per week, while the 75 percentile was 5.75 hours per week. This is surprising, as respondents stated that they use MPP to perform PM functions, yet the medium does not show a significantly larger amount. However, this could be due to the fact that many of the respondents are more skilful using MPP; and it therefore takes less time to perform tasks.

In order to ascertain which factors influence the acceptance of FPS by individuals, a compilation was used on three models, namely: Extended TAM, the Motivational Model and the Model of PC utilisation.

The core constructs of the models can be summarised as follows:

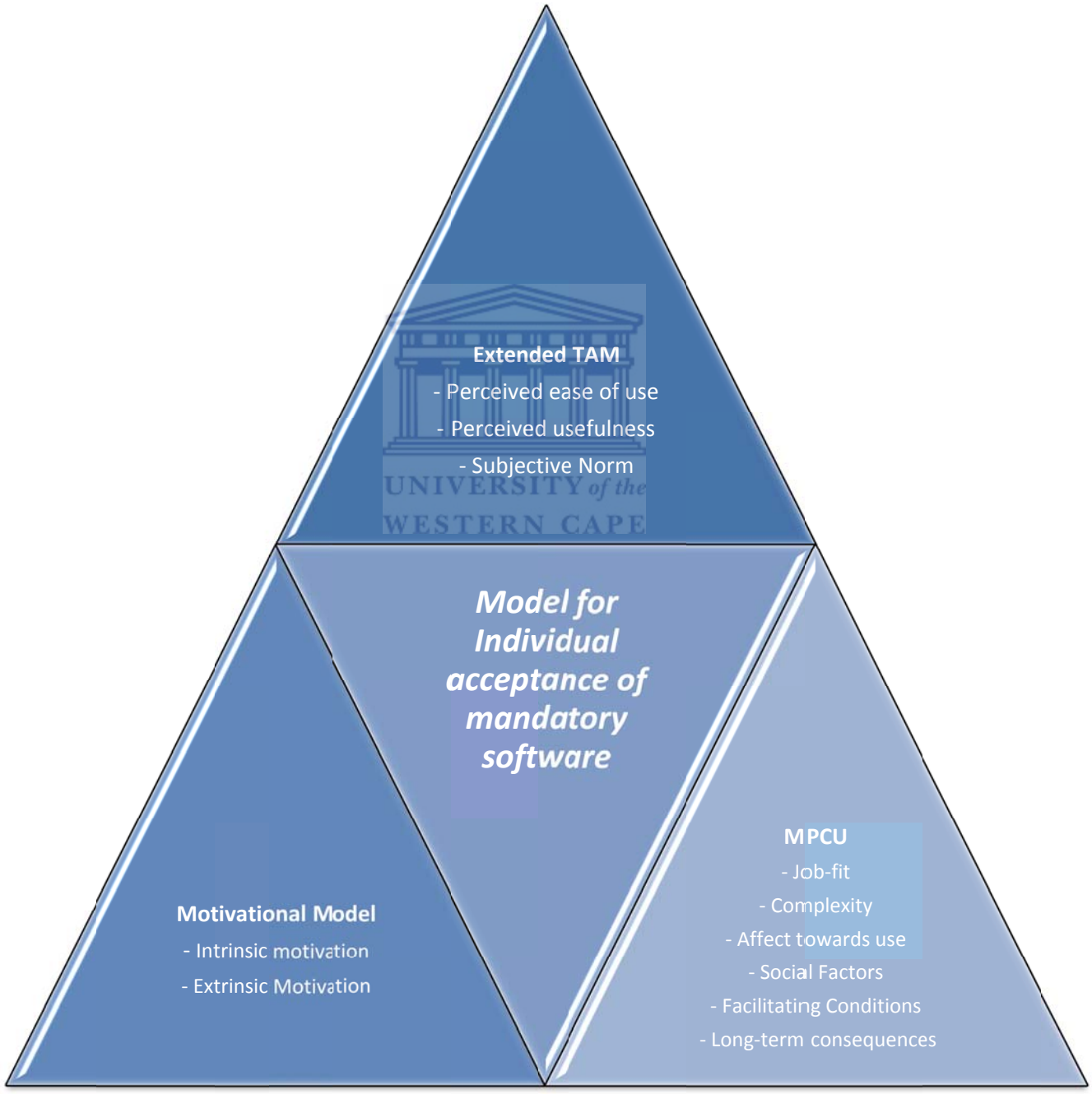


Figure 26: Compilation model for individual acceptance of mandatory software (Source: Author)

The responses for the Extended Technology Accepted Model (TAM2) constructs can be summarised as follows:

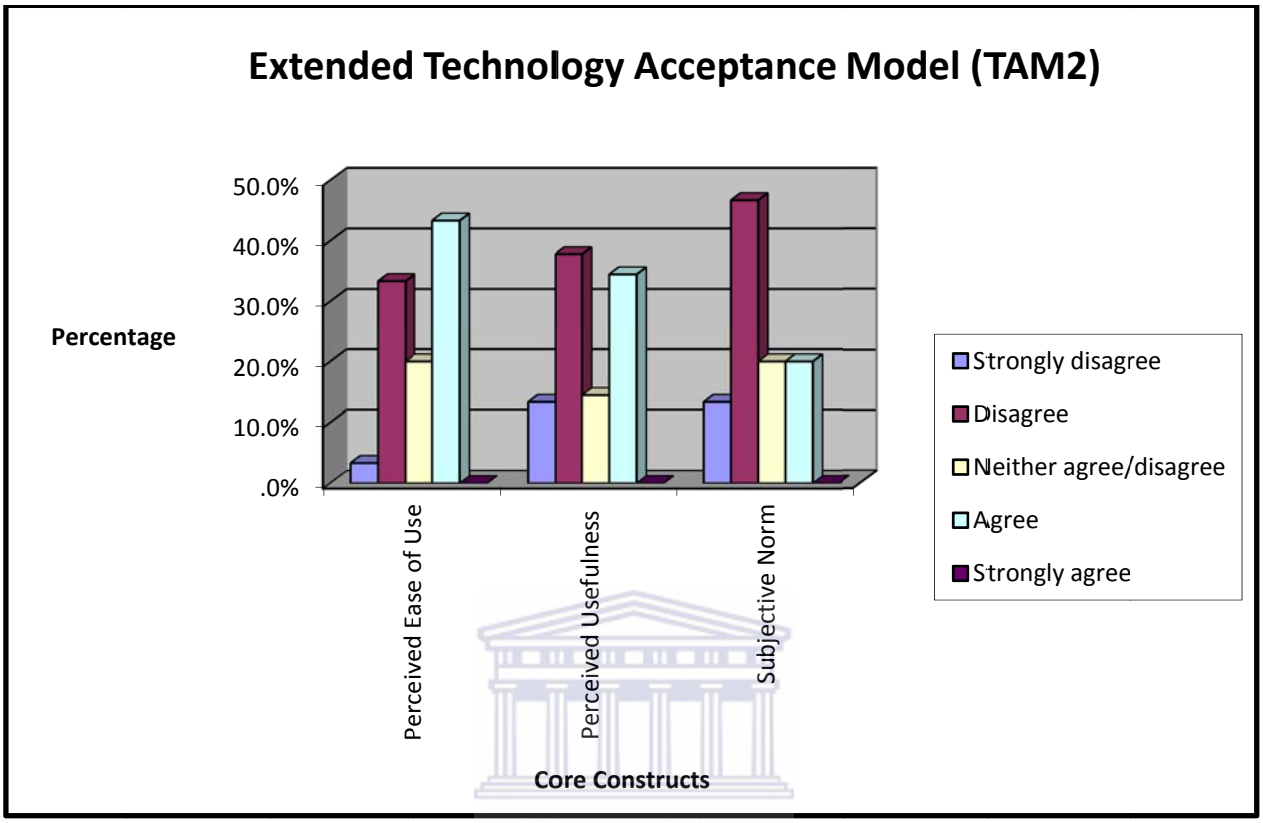


Figure 27: Extended Technology Acceptance Model (TAM2) results (Source: Author)

Perceived ease of use refers to the degree to which a person believes that using a system would be free of effort (Venkatesh et al., 2003). It was found that 43.3% of respondents believed that FPS was free from effort, but this was only due to the fact that they were using it predominantly for time capture and capturing high level project plans. This contrasts with the 33.3% of respondents who disagreed and the 3.3% who strongly disagreed with the view that FPS was free from effort, especially when having to capture detailed project plans.

It was found that 20% of the respondents neither agreed nor disagreed, as they were not utilising FPS to support their PM function and key activities, except for capturing time and financial purposes.

There were an equal number of respondents who disagreed and agreed (40%) that using FPS in their job was easy, as well as that the view that it is easy to become skilful in FPS.
Negative comments from respondents included the following:

- "*MPP is easier and far less complicated to use. (MPP) is easier to learn and you can learn it yourself without technical assistance. If you know the fundamentals of project management, then MPP ties in easily*."
- "*I find ways around (having to use FPS). I hire a project support administrator to do it, otherwise it would take at least a day a week to do it and that is a waste of a PM's time*."

This result is also related to the fact that those who found it easy to use were only using it predominantly for time capture, and not for detailed project planning. The 40% of respondents who disagreed were capturing high level project plans in FPS, but found detailed planning too difficult; and therefore, they used MPP.

It was found that 46.7% of respondents believed that their interaction with FPS is clear and understandable, but this was again limited to the time capture and financial reporting functionality used; and not all of the functionality was provided by FPS.

Positive comments from respondents included the following:

- "*If you understand what you want to use FPS for, it is easy e.g. extracting reports. MPP is not easier to learn, not too difficult in terms of complexity; it's just attitude-based*."
- "*I don't need to keep track of costs and understand the parts that I am using but don't understand the full functionality. I don't use things like risk management but can use FPS to draw the necessary reports."*

Perceived usefulness (Venkatesh et al., 2003) refer to the degree to which a person believes that using a particular system would enhance his or her job performance. It was found that 37.8% of the respondents disagreed with the view that using FPS would enhance their job performance.

During interviews with a respondent, s/he stated that using FPS '*hinders*' his/her job performance and laughed when s/he was asked if using FPS increased his/her productivity. This view was contradicted by another respondent, who stated that his/her productivity would increase if s/he monitored what he/she used time for and analysed his/her own productivity.

It was found that 13.3% of the respondents strongly disagreed, while 46.7% disagreed that using FPS would enhance their effectiveness on the job. They believed that having a tool that allows them to do

billing and financial reporting is required, but that their job as a PM required dealing with customers, project teams, dealing with risks and dependencies and that those functions were tool-independent.

An equal number of respondents agreed and disagreed (33%) that using FPS made their jobs easier.

Negative comments from respondents included the following:

- "*I agree that FPS is useful, as it is required for my job, but it is difficult to use. A tool is required, so FPS is utilised, as it is required and mandated by the organisation. MPP enables me to perform tasks more easily; it improves my job performance and makes me effective. On an individual level, MPP is streets ahead, but (at an) organisational level I don't know if FPS is more effective. I don't know the MPP enterprise tool, so I can't compare*."
- "*Using FPS adequately would make me do my job more optimally, but currently it does not improve my job performance*."

It is interesting to note that the 33% who agreed based it on billing and financial reporting, while the 33% who disagreed based it on the use of FPS to complete detailed project planning. A positive comment from a respondent included the following:

- "*I use FPS for reporting and financials as it gives me that information so I don't need to go and check anywhere else.*"

The split above is thus based on the *extent of use*.

Subjective norm (Venkatesh et al., 2003) This refers to a person's perception that people who are important to him/her think s/he should (or should not) perform the behaviour in question, in this case utilising FPS.

The view of respondents was largely negative, with 13.3% strongly disagreeing and 46.7% disagreeing. Respondents only used FPS, since it was required by their job function, especially for billing and financial purposes. Negative comments from respondents included the following:

- "*I don't care which of my co-workers use it. I just have to use it for finances*"
- *"I use it (FPS) because I don't have a choice.*"

A mere 20% agreed, as it was important to keep their jobs, and using FPS is an organisational requirement; however, they would still only use it for the minimum amount possible.

Based on this model, and the fact that the key constructs were all largely negative, it would seem unlikely that business benefits would be realised, as FPS was not being exploited to its full potential. (More details regarding this topic are given in Appendix 3a.)

The responses for the Motivational Model constructs can be summarised as follows:

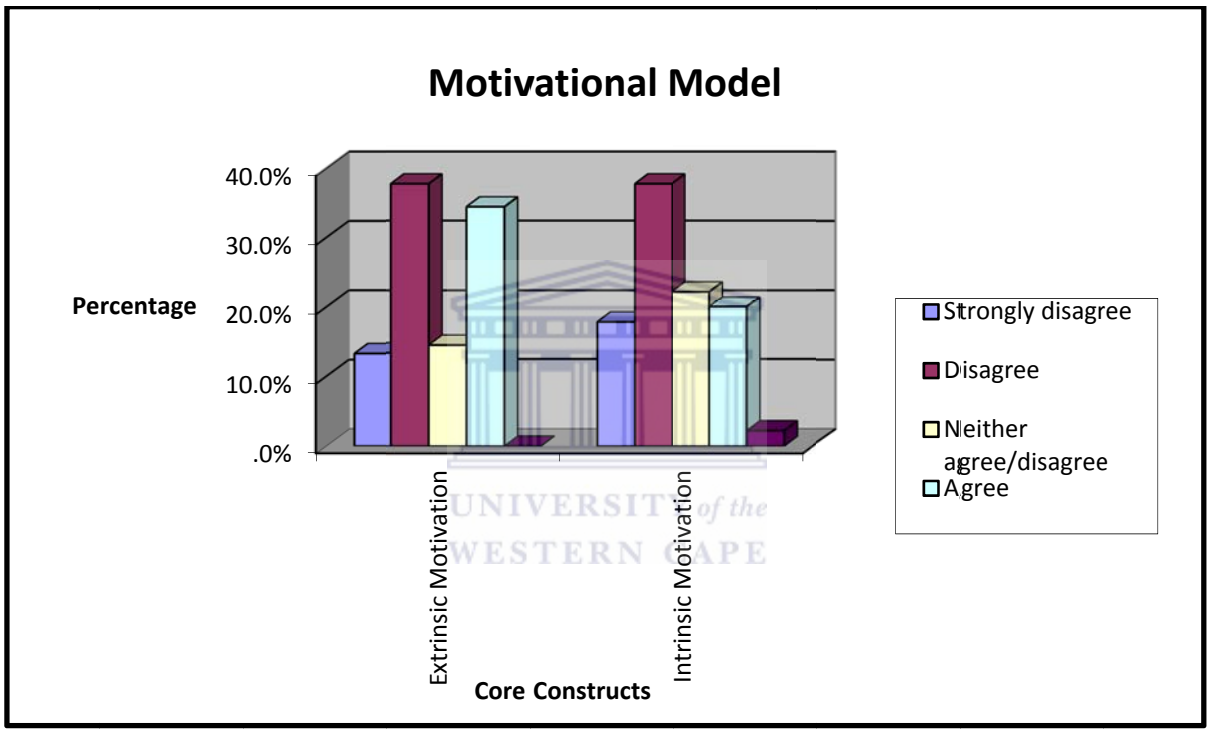


Figure: 28 Motivational Model results (Source: Author)

Extrinsic motivation (Venkatesh et al., 2003) This refers to the *"perception that users will want to perform an activity because it is perceived to be instrumental in achieving valued outcomes that are distinct from the activity itself, such as improved job performance, pay, or promotion."*

Extrinsic motivation is operationalised by using the same questions – as perceived usefulness from the Technology Acceptance Model according to Venkatesh et al. (2003). This is due to the fact that improved performance, productivity and effectiveness are included as key result areas (KRAs) in PMs performance contracts; and hence, achieving these outcomes are linked to pay and promotions.

However, given that 37.8% of respondents disagreed that using FPS would enhance their job performance, extrinsic motivation to use FPS is low; and in order to meet KRAs in their performance contracts, respondents are utilising whatever tool is available – in order to meet their objectives and not be penalised in performance reviews. Negative comments from respondents included the following:

- *"(FPS) is not nice to work with. If it was used properly, it could be a valuable tool, and if it was implemented correctly, then we would get benefits e.g. resource levelling.*"
- "*FPS is required, so it's garbage in, garbage out (GIGO)*!"
- "*MPP is very different so I can't compare. It's like trying to compare a 4X4 and a bakkie for fit-for purposes*."

KRAs state that projects should be 'within cost and schedule', but does not specify which tools need to be used to reach this objective. As a result, PMs are using FPS to measure within cost and MPP to measure within schedule – and are being rewarded with good performance appraisal ratings, if this has been done, regardless of the fact that they are not utilising one tool to perform both functions.

Positive comments from respondents included the following:

- "*Practically, I have a high level plan (in FPS) and keep the details in a spreadsheet, so that I can aggregate them. It's more useful to view overall tasks rather than breakdown to minute detail. I use five days as a minimum to enter task details*."
- "*I wouldn't use it if I had the option of using MPP enterprise tool, but FPS is more widely used to support YZ financials*."

As a result, there appears to be a misalignment between the organisational objectives of cost saving and incentives, as PMs are being incentivised to perform their jobs optimally, even if this involves utilising two tools, which ultimately increases organisational costs.

Intrinsic motivation refers to *'the perception that users will want to perform an activity for no apparent reason other than the process of performing the activity per se'* (Venkatesh et al., 2003). Intrinsic motivation relates to the feelings individuals have when working with FPS, such as the feelings of enjoyment, fun and pleasure.

Overall, the results were negative, as 17.8% strongly disagreed, and 37.8% disagreed with the key constructs of intrinsic motivation. The majority of respondents did not like working with FPS, as 13.3% strongly disagreed and 40% disagreed with the statement, 'Í like working with FPS.'A total of 33.3% of the respondents disagreed that using FPS to support their role as a PM was unpleasant; and again, this was based on the fact that time capturing and financial reporting could be done with minimal effort. However, 20% agreed, and 6.7% strongly agreed, that using FPS to support their role as PM was unpleasant; and this was based on the perception that capturing detailed project plans and managing projects using FPS, was more cumbersome than using MPP. Negative comments included the following:

- *"(FPS is an expensive way to record time. If I was free to choose, I wouldn't use it.*"
- *"Using MPP is definitely a good idea, as it is easy to create plans and track progress. I prefer working with MPP*."

It was found that 40% of the respondents strongly disagreed, while 40% disagreed, that working with FPS was fun. Despite the results being negative, respondents were still using FPS as it was mandated, rather than the fact that they enjoyed using the information system or obtained pleasure from it.

Positive comments from respondents included the following:

- *"Using FPS is better than nothing, because if there was no tool, my life would be more complicated."*
- *"(I) get a view of my team's productivity; with the assumption that time capturing was done correctly. For that use, I like working with it, but when you're faced with inconsistent data in reports then it's not supportive*."

More details regarding this topic are given in Appendix 3b.

The responses for the MPCU model constructs can be summarised as follows:

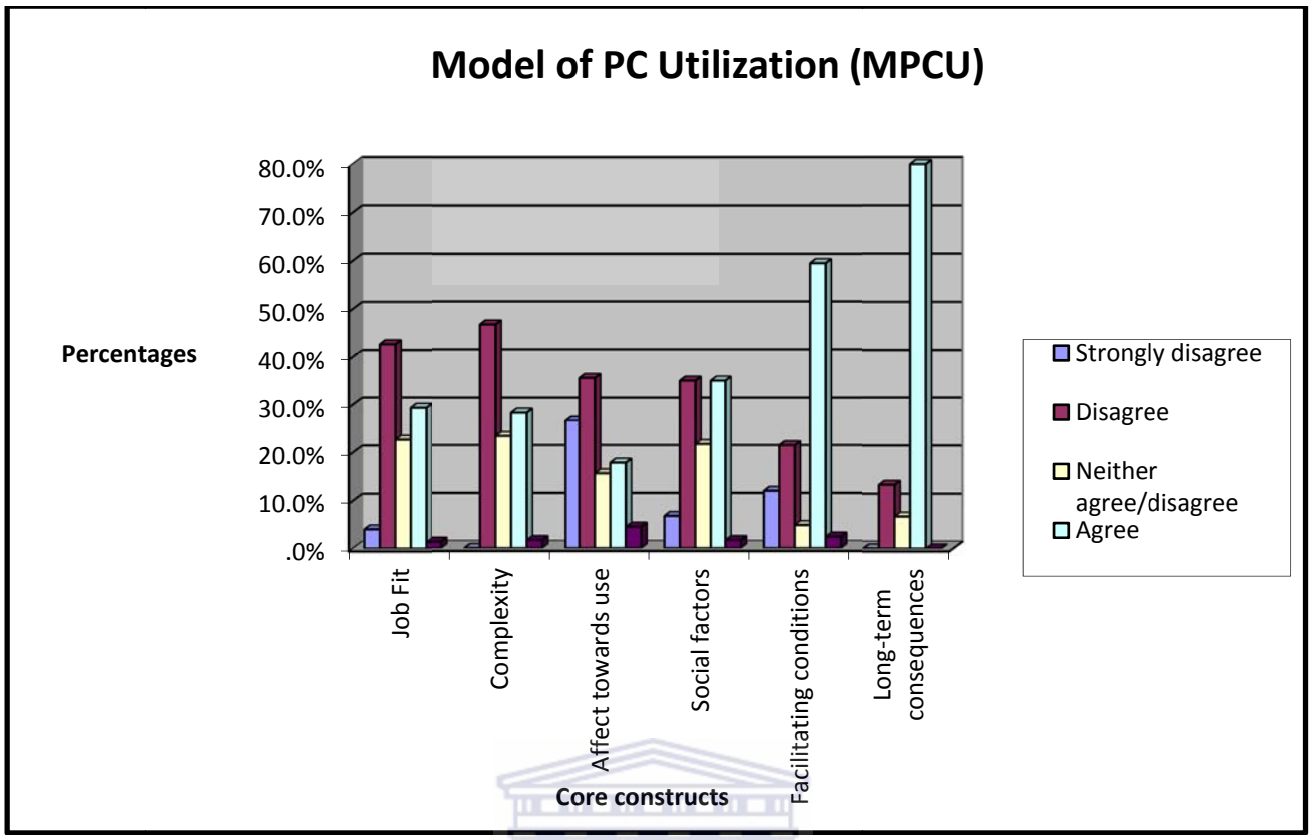


Figure 29: Model of PC Utilisation (MPCU) results (Source: Author)

Job fit refers to how the capabilities of a system enhance an individual's job performance. The responses for this category were largely negative, as 42.7% of the respondents disagreed, and 4% strongly disagreed (Venkatesh et al., 2003).

Respondents largely disagreed that the use of FPS would have no effect on the performance of their job, as it is a requirement for financial purposes. Their comments included the following, "(*There is) no effect on managing (a) project except for billing (but) you could use another tool. (The) number of hours spent on FPS is far greater, and it could be related to training.*" However, respondents that were using FPS for only time capture strongly agreed that the use of FPS would have no effect on the performance of their job, as they could easily capture time with another tool, and often did so.

The majority of respondents, who disagreed, used MPP for PM functions such as planning and executing work. One respondent stated, "*I only used FPS for time capturing and have never been shown any other use. (FPS) is not used for project planning, tracking and oversight. (I have) no high level plan (in there), but my programme manager may have plans in FPS. FPS may be useful for planning if used consistently by everyone in the organisation. (FPS) was never shown, suggested or explained and this could be because they don't believe in it.*"

This could be as a result of not inducting new PMs correctly and demonstrating the need and use of FPS.

Negative comments included the following:

- "*Time keeping doesn't improve my job performance or the quality of my output, but it is needed for financial purposes*."
- "*MPP is makes it easier to integrate a master plan and sub-plan. In FPS, resource allocation at a portfolio level (when integrating multiple projects) will not show over allocation. "*
- "*I don't know if FPS is any better than any other alternatives. Tools are not about a function but a whole job; it doesn't change the way the project or the project team are managed. Personally, I prefer the MPP enterprise tool, as it has a consistent look and feel of other MPP Corporation tools and the integration is seamless*."
- "*All this admin gets in the way of doing the real job*."
- "*MPP cannot be compared to FPS, as FPS can't be used for planning, or I'm not sure if we can*."

Another respondent extracts costs from FPS and puts it in Excel to calculate costs per week, as there is no summary for weekly spending. The respondent did it manually, as s/he didn't know of any report. S/he didn't use it for planning, scheduling and monitoring because s/he didn't believe that it would make him/her more effective. S/he didn't use it to perform PM activities, but only used it in order to conform to governance. It is evident that this approach significantly increases the amount of time it takes to perform PM activities, as there is duplication of time and effort.

It was found that 22.7% of the respondents neither agreed nor disagreed, as there is an expectation that all PMs use FPS. Respondents in this category only used it for time capturing, and could therefore not comment on how it supported PM functions; and therefore, could not tell how it improved their job performance at that level.

In addition, 29.3% of the respondents agreed that it enhanced their job performance, as compiling project financials manually could be time consuming. Another positive aspect highlighted is that resources can be allocated (at an enterprise level) and that actual vs. plans for resources could be compared. Respondents stated that FPS can increase the quality of output when compared with doing it manually; and that it provided useful reports, but that MPP was better and more effective for planning.

However, they stated that MPP improves performance, as it is easy to use and decreases the amount of time needed for important job responsibilities, as well as increasing the effectiveness of performing job tasks. A positive comment for the use of FPS included the following:

- "*FPS can increase the quantity of output for the same amount of effort if it's automated and used as intended. There is functionality to capture risks, but this is not used.*"

In summary, the job fit of FPS in the organisation is questioned – with its use being limited to financials. As a result, reaping any business benefits is severely limited.

Complexity refers to the degree to which an information system is perceived as being difficult to understand and use (Venkatesh et al., 2003). The overwhelming majority of respondents (46.7%) disagreed that FPS was difficult to understand and use, but agreed that it was not too complex.

It was found that 40% of the respondents disagreed that using FPS takes too much time from their normal duties, but this was due to the fact that PM functions are completed in MPP, in most cases. This is supported by 33.3% who neither agreed nor disagreed, as they did not use FPS for all intended purposes. The 20% who agreed and the 6.7% who strongly agreed are the respondents that essentially capture high level project plans in FPS.

In addition, 46.7% of the respondents disagreed that working with FPS is so complicated that it is difficult to understand what is going on. This is as a result of time capture being quick, but that it is frustrating and confusing when there is a need to perform other tasks, such as printing timesheet reports.

A respondent commented: "*People don't seek guidance with regard to particular tasks that they want to perform. You can figure it out fumbling through it and MPP is not easier to learn. With assistance you can learn to successfully complete tasks in both.*" However, this would not be ideal, as it would result in a duplication of time and effort.

The view above is contrasted by a respondent stating that it takes too long to learn FPS to make it worth the effort. A respondent stated, "*MPP is less complicated and that it takes the same amount of time to capture the information as in FPS, but getting the information out is more flexible. MPP is faster to learn and is easier to input data, even in Excel. MPP is less complex, as there are also MPP tutorials online that make learning far simpler and more efficient.*"

This view is supported by another respondent who stated, "(*MPP) is easier to understand and the GUI is more intuitive. Navigation in FPS is a pain in the arse and is used on a 'run-a-report' basis*!"

In general, the large majority of respondents are using FPS for only those tasks and activities they know how to perform, such as time capture; and for some, capturing a high level plan. MPP is preferred for detailed planning and does not require permission to move projects – unlike FPS.

As a respondent succinctly stated, "*The more you know, the longer you use it, the easier it becomes,"* but this is dependent on training, commitment to comply with governance and buy-in into the process – or FPS will never become an organisational asset, delivering intended business benefits.

Affect towards use refers to the feelings of joy or pleasure; or disgust or displeasure, associated by an individual with a particular act, in this case using FPS (Venkatesh et al., 2003). The majority of respondents strongly disagreed (26.7%) and disagreed (35.6%) that using FPS makes their job more interesting and fun. As many as 53.3% agreed that FPS is OK for some jobs, but not the kind of jobs that they want it to accomplish.

Negative comments from respondents included the following:

- "*MPP is more fun, it makes work more productive, as (you) don't need to focus on understanding it, but use it to do my job. (It is) easier to perform tasks*."
- "*Being (a) production tool (FPS) adds value, but it doesn't make it interesting. (There is) not always relevant reporting available and (you) need large amounts of approval and strong motivation (to get it done)*".
- "*It's not fun, it's a job. (I) have to use it! It's not OK for running IT delivery projects. There is functionality (but I) use limited aspects*."
- "*FPS would make work more interesting if I had enough time to learn the functionality. Sometimes, working with it is a pain, and it is only OK for finances, but can we use it for capacity planning*?"
- "(*FPS) is OK for billing but not OK for tracking and planning. (It is) only a subset of what you want. A work breakdown structure (WBS) can be populated in MPP, and then it automatically generates a detailed MPP plan, but this is not available in FPS*."

In summary, this again shows that FPS is not being utilised for the intended purposes; and one could infer that business benefits would not be obtained as an outcome.

Social factors refers to *'an individual's internalisation of the reference group's subjective culture and specific interpersonal agreements that the individual has made with others, in specific social situations'* (Venkatesh et al., 2003).

An equal number of respondents (35%) agreed and disagreed; with the majority responding negatively, as 6.7% of respondents strongly disagreed. The remaining 21.7% of the respondents neither agreed nor disagreed.

Respondents disagreed that they used FPS because their co-workers were using it. They used FPS because they were mandated they do so, and due to the fact that it is an operational requirement.

Top management support has been highlighted as an area of concern. The following comments were made by respondents:

- "*Supervisors wants me to use FPS, but are not willing to find solutions to problems or issues and some supervisors aren't using FPS themselves to extract reports.*"
- "*Supervisors do not care about the tool used, as long as the job is done and the information is correct.*"
- "*Supervisor wants me to use FPS but is not willing to find solutions to problems and issues.*"
- "*The senior Management of this business has been helpful in the use of FPS only if helpful means 'I want you to use it'.*"
- "*(I) use it because I don't have a choice. Senior management could have increased the number of skilled resources in terms of technical support and FPS administration. FPS is not 'supported' but 'enforced'*!"

There was no consistent view on whether senior management supports the use of MPP. Only 33.3% of the respondents believed that MPP is supported by senior management for detailed project planning, so that "not all eggs (are) in one basket"; and in the event that FPS "goes down", then there is a back-up available in MPP. These respondents also believe that even if the use of MPP is encouraged for detailed planning, the use of FPS would still be enforced for billing.

It was found that 26.7% of the respondents believed that MPP is not supported by senior management, as they have already chosen FPS, and there is an extra cost involved in running MPP.

The remaining 40% of the respondents believed that senior management does not care which tool gets used, since they are only focused on work delivery, and they use an *"eye-ball"* view to compare FPS and MPP, without really analysing the detail.

One respondent's view was that it was not being supported as an organisational tool, as this would have translated into everyone using FPS. This view is supported by the following statement, *"IT Management (uses FPS) because they must, IT people – NO, customers – NO!"*

Based on these statistics and comments, there is a clear indication that buy-in from the target group of FPS is missing and, as a result the intended business benefits would not be realised.

Facilitating conditions are defined as *'the degree to which an individual believes that an organisational and technical infrastructure exists to support the use of the system'* (Venkatesh et al., 2003). An overwhelming majority of the respondents (59.5%) believed that there is some organisational and technical infrastructure to support the use of FPS.

A specific person or group is available for assistance with FPS difficulties, via the FPS helpdesk. A respondent stated that there was only one competent individual providing assistance, but this is one who is not interested in helping. It is believed that the view is, *"you're a hindrance to my job; it's not my job."* There is less technical support available for MPP, as there is no helpdesk for assistance with technical difficulties, but respondents felt that they could use MPP to help them in resolving their issues.

Specialised instruction concerning FPS is given in FPS training, but concerns were raised regarding the frequency of the training and the lack of resources to provide such training. A respondent also stated that there are no manuals available, and that MPP does not require specialised instruction, as the help function is useful and that this is what is missing with FPS. However, one respondent stated that FPS has tutorials stored in the tool. The fact that other respondents were not using these or did not know about them can be linked to the lack of training, awareness and communication. These key aspects will need to be improved if any benefits are to be realised.

The majority of the respondents strongly disagreed that guidance was available to them in the selection of FPS. The view is that the decision was made top-down; and that they just had to accept it and do the job. This relates to the lack of buy-in from respondents, as they do not believe that they are adequately involved or consulted when such organisational decisions are made.

Facilitating conditions is the only one of two construct in the MPCU model that obtained a positive response from the majority of the respondents. The only other positive response was received from the constructive long-term consequence which is linked to business strategy in IMBOK (Bytheway, 2004).

The three models above prove that FPS is not being utilised as intended; therefore, benefit-management needs to be assessed to determine whether benefits have been measured and whether ROI was achieved (Bytheway, 2004). [This has helped this author to amend Figure 1, to reflect the changes shown in the next figure (Figure 30)].

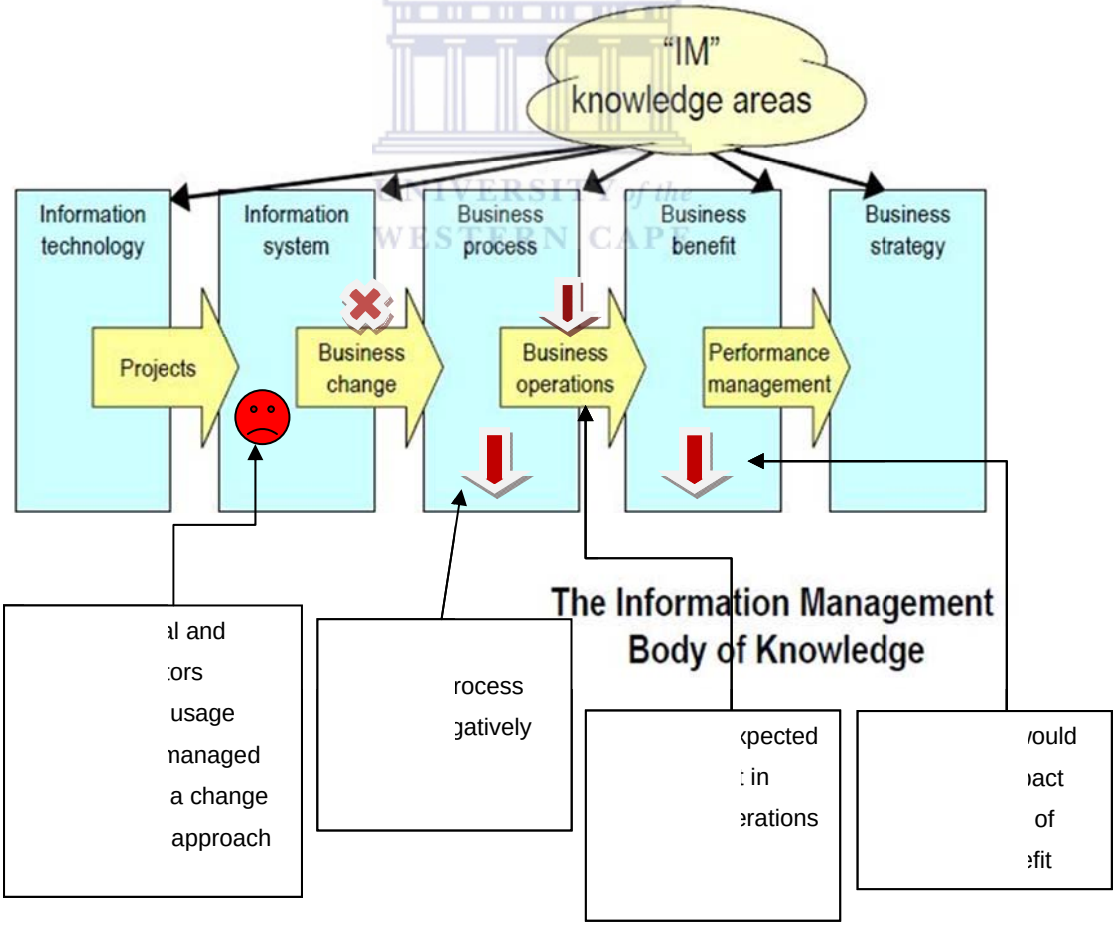


Figure 30: Impact of organisational and individual factors on benefits realisation (Source: Author based on Bytheway, 2004)

4.3.5 WHAT ARE THE IMPACTS OF USING ALTERNATIVES TO MANDATORY SOFTWARE ON EXPECTED BUSINESS BENEFITS?

In order to assess the impact of using alternatives to mandatory software on expected business benefits, it was first necessary to understand the method used to determine business benefits. However, in a discussion with the Senior IT Manager who was previously, accountable for FPS and the FPS team, they could not articulate what the expected benefit for FPS was at implementation. This was due to the fact that it was not documented. Business benefit management was not a key result area, and this required additional time and effort, which is often not available; so the focus is given to key result areas instead.

As a consequence, the logical approach to benefits management suggested by IMBOK (Bytheway, 2004) that includes identifying and structuring benefits, planning benefits realisation, executing the plan and evaluating and the reviewing thereof, was not implemented.

The reasons for not implementing the benefits management cycle is aligned to the managerial issues regarding benefits measurement, as identified by Bytheway (2004). This is clearly evident in the fact that effort is required for the benefits management regime; and in addition, management education in terms of cost/benefit analysis is required. The Senior IT manager, who was interviewed, could not confirm that this form of education was not being provided to the management of the IT department – but it is currently not being provided.

In addition, both quantitative costs, for example, cost of infrastructure, and qualitative costs, for example, sunk costs, need to be considered when determining business benefits.

Long term consequences refers to outcomes that will realise benefits in future. As many as 80% of the respondents believed that there are long term consequences for utilising two types of software to perform the same or similar tasks, as there may not be a consistent view or a ‘single source of truth’ if FPS is not synchronized with MPP.

It was found that 46.7% of respondents did not believe that there would be any impacts on the quality of Management Information System (MIS) obtained from FPS if MPP is used as well, as they are used in different ways; FPS for billing, and MPP for detailed planning. However, this view does

not take into consideration that the two activities are dependent on one another. This however, is contrary to the experience of the QA and change management teams.

Activities such as implementation dates, which should be correct in FPS, that should assist with the forward scheduling of change (used for managing the dates on which changes enter production), do not always provide accurate data; and hence, decisions made on that basis do not provide the best organisational results and, furthermore, they introduce an increased risk.

Other activities, such as the amount of time spent on peer review to ensure the quality of content in documentation, was previously extracted by the QA team, but the results proved to be unreliable, as several projects were not capturing time for projects on this detailed level, since this was usually done in MPP. As a result, there was no metric available for executive management on the level of internal quality assurance; and consequently, they could not benchmark against other organisations.

The remaining 53.3% of respondents believed that there would be an impact on MIS if MPP were used in addition to FPS, as there would be a duplication of time and effort required to synchronize data from MPP and FPS; and thus, FPS data integrity would suffer, as MPP is kept up to date.

If, additionally, contracted PMs are using both tools, the organisation is paying more than is required, due to the additional time required to update two tools instead of one.

It was found that 73.3% of respondents did not believe that there would be impacts on other teams, such as QA and change management, if MPP were used in addition to FPS. The view is that the quality assurance team is included in meetings and that access can be granted to MPP plans as well. In addition, the view was that high level milestones, that are required, are still captured in FPS. However, the quality assurance team has proven in their reporting that FPS does not always contain valid, accurate complete data on which decisions, requiring a low level of detail, can be made.

In addition, having access to individual MPP project plans does not give the QA team the required data, except with a larger amount of manual labour, to provide executive management with quality metrics and a trend analysis for the organisation.

All the respondents agreed that there are cost implications to using two information systems, such as paying for two sets of licenses and infrastructural costs. However, these costs were justified by

respondents as being necessary, due to the fact that MPP was needed for detailed planning and the belief that FPS was not perceived as being useful and did not give ease of use.

In discussions with the FPS team, it was found that MPP plans could be uploaded into FPS. When respondents were questioned about this functionality, it was stated that this functionality was difficult to use and that when they had tried it previously it did not perform as required.

Refer to Appendix 3(a) for more detailed information.

Given that an information system is introduced to improve the business process, respondents were asked whether FPS was used to support PMBOK processes. Given the responses, it is evident that FPS is not used as intended. The primary objective of respondents is to do as little as possible in FPS, despite the fact that FPS supports PMBOK and should be ideal.

Business adequacy is highlighted as an area of concern, as job fit, perceived ease of use, extrinsic and intrinsic motivation were all perceived negatively. The only areas viewed positively were due to the fact that time capture was relatively easy, and that using FPS was easier than completing project financials manually.

As a result, only a very small percentage of FPS's functionality is being utilised (opening, managing timesheet capture, approvals and financials, and closing project IDs) and PM functions are being supported by other tools, such as MPP (project planning, tracking and oversight) and spreadsheets.

Based on the findings thus far, it seems evident that ROI on the FPS investment is not being realised, with the exception of being able to produce financials and reporting; however, the accuracy of this reporting remains questionable.

Based on the IMBOK model, even if business benefits are obtained from FPS, this could not be assessed in financial or non-financial measures. This appears to be a key area of management breakdown, and will have to be addressed – not only when implementing information systems in the IT department, but when implementing information systems in YZ organisation.

4.4 IMPLICATIONS FOR MANAGEMENT

A technology acquisition process defines how new technology should be implemented in YZ organisation, especially from an architectural perspective – to ensure that technology is not duplicated, for example, by purchasing two Project Management software tools and licences. However, this process is not publicised and as a result is not accessible to all. It was discovered that the technology acquisition process had not been enforced by the architecture team since 2009, due to resource constraints. And as a result, the implementation of new software is not done in a formalised manner; consequently, duplicate software may be introduced into the organisation, such as FPS and MPP.

Management actions are currently in place to address this gap, but consideration will also need to be given to all software introduced during the time that this process was not enforced.

Resistance to change is giving rise to a pattern of resistance that has become a norm of corporate culture, and the IT department is no exception. Because individuals automatically resist change, it is necessary to mitigate the negative effects of these reactions when implementing changes in technology, processes, and workflows, as well as changes in business processes that became necessary when FPS was implemented.

Finding methods to bypass what is mandatory may be related to user resistance; and this has been identified as a prominent reason for the failure of new implementations. Consequently, a method for dealing with user resistance should have been identified in the IT department's change management approach. However, the formal approach could not be located and based to the views of respondents there is a doubt that an approach existed. Therefore, change management appears to be an area of concern that management needs to address.

In addition, the information obtained from FPS for QA reporting purposes identified several key issues:

- Projects that were implemented in production and had completed their warranty period, still showed as 'work in progress', as project review reports were not obtained and FPS IDs were not closed, thereby allowing resources to still book time against projects which had already been completed;

- FPS project schedules did not correctly indicate in which phase of the lifecycle projects were; and thus, did not assist QA with assessing which projects needed to be verified; and
- Projects were incorrectly logged in portfolios.

QA has highlighted these issues to management, but are still waiting for them to be addressed. Progress has been made by some managers to close FPS IDs for work that was completed, but there are still a large number of projects incorrectly logged with project schedules that do not correctly reflect a delivery to date.

Top-management support, was rated highly, since they measure respondents on the financial information they extract from FPS and use reports from it to track work delivery.

In addition, respondents whose financial information is not updated in FPS are penalised in performance appraisals, as there is a potential for under-recovery if clients are not correctly billed, because cost saving is a key strategic initiative. Without valid and complete information finances cannot be correctly tracked.

Top-management support is also linked to the fact that executives made the decision to purchase the information system, and because of the large amount already invested is unlikely to change even when other options, such as MPP with the MPP enterprise project management tool, became available.

Top management support has been highlighted as an area of concern.

Internal technical support is not rated very highly either, but in discussions with respondents, it was stated that there are only a limited number of resources available to provide technical support for FPS. Currently, there are two resources that provide technical support for the IT department, as well as other areas that have now been introduced to the IS. Respondents felt that internal technical support was often unwilling to assist with queries and technical difficulties. A few respondents believed that the FPS team was under-resourced, since they had lost a key resource.

They also believed that the FPS team was unwilling to support them, as questions were answered with: "*I'm busy now and don't have the time to deal with your questions!*" The FPS helpdesk team is

under pressure to deliver key reports, as well as to do an upgrade of the FPS system; and therefore, management needs to assist in meeting these priorities.

Respondents also felt that their management was not well equipped to deal with FPS technical difficulties, and that the view was to get things done, but that they were not able to provide guidance on how this could be achieved. This is closely related to the skills level of FPS.

Taking into account the responses for ***long term consequences*** and the belief that the organisation would experience long term consequences, if the IT department's strategy is to reduce costs and reduce waste, this is not supported by running two information systems that can both perform PM functions. The cost implications of licensing, infrastructure, back-up and recovery could accrue substantial savings that are going to waste.

In addition, de-risking the IT environment is not aided by having two information systems that may not be synchronised and by utilising financial reports from an information system that only contains high level plans -- when low level detailed plans are captured elsewhere, this could result in decisions being made on information that is not valid, accurate or complete.

Based on the IMBOK model, even if business benefits are obtained from FPS, this could not be assessed in financial or non-financial measures. There appears to be a key management breakdown in this area; and this issue will have to be addressed, not only when implementing information systems in the IT department, but also when implementing information systems in YZ organisation.

4.5 SUMMARY

The chapter began with a demographic analysis of the data, together with a basic statistical analysis, including thematic content analysis based on the core constructs identified in the triangulation model for user acceptance.

Brief *demographic findings* included the following:

- The response rate was 53.5% from the cross-checked list from GAL;

- The majority of respondents (67%) were males; with 73% aged between 36 and 50; and 53% were Coloureds.
- The number of months employed in the organisation ranged from 12 to 241 months, with the median being 78 months.
- The number of months employed in the current position ranged from 7 to 120 months, with the median being 34.5 months.

4.5.1 What is the level of involvement from the intended user group in the decision to implement mandatory information systems?

It was found that 66% of the sample population believed that the decision to implement was taken without consulting the target-user group.

- Workshops were held with key individuals, but not all the stakeholders were taken into consideration. It is understood that consulting all target users of the system that needs to be implemented takes time; and this could possibly result in longer implementation times; hence, participation congruence was low.
- User involvement was limited in the decision-making process and their involvement in utilising the mandatory information systems had a significant impact on the realisation of business benefits. The phases of adoption, consolidation, internalisation and performance, which ultimately lead to improved efficiency and effectiveness, can only be achieved through training and routine practice – and ultimately training -- when users learn to exploit the functionality of the system, rather than having the 'work-from-the-book' approach; however, this was not done effectively (refer to next question). Hence, benefits realisation was negatively impacted.

4.5.2 Was the implementation of FPS adequately changed managed?

The managers in the IT department at YZ organisation did not appear to take into consideration the cycle of emotions: confidence, shock, bargaining and acceptance; and therefore, they could not (or did not) provide advice to assist individuals in each cycle. Consequently, they could not reduce the amount of resistance to the change.

- If change is not successfully managed, and does not take individuals into consideration, which was the view of the sample respondents, it is likely that even the best technology strategies will be unsuccessful (relating to IMBOK). This is because of individuals resisting change, finding ways to sabotage efforts (in the case of the IT department, using software that is an alternative to FPS), or becoming angry or withdrawn (relating to cycles of change).
- Managing resistance to change should form part of the change management approach; however, the formal change management approach could not be located. Based on the views of the respondents, there is some doubt that such an approach even existed.
- Therefore, change management appears to be an area of concern that needs management involvement. Whenever change is poorly managed, the business process is negatively impacted; and hence, the expected improvement in business operations cannot be delivered. Ultimately, this would impact on the realisation of business benefits.

4.5.3 Which organisational factors influence the acceptance of mandatory software?

Respondents were asked to rate the ten factors on a scale of 1 to 10, with 1 being the most important factor and 10 being the least important. The results can be summarised as follows:

Table 18: Organisational factors rated by users (Source: Author)

Rating by users	Organisational factor
1	Organisational processes
2	Topmanagement support
3	Organisational structure
4	Organisational size
5	Culture of the organisation
6	Internal technical support
7	Technological and financial resources available
8	Training
9	Process of selecting and implementing the information system
10	Own technological capabilities

- It was found that 41.7% of the respondents believed that organisational processes were the most important factor. This is due to the fact that processes for PMBOK, in the centralised repository, require that projects be logged on FPS prior to any resource being able to bill time against project activities and tasks. This ultimately means that projects need to be assigned an FPS ID before resources can be allocated. Only then are they allowed to book time against allocated tasks in the project schedule. Such time is then frequently used for financials, which is a key results area.
- Top management support, was rated highly (number 2) due to the fact that management measures respondents on the financial information they extract from FPS and uses reports from it to track work delivery.
- Organisational structure was listed by 25% of respondents as the third most important factor. YZ organisation has many departments, with IT being one of them. The IT department has various specialist areas that focus on particular technologies.

- Own technological capabilities was rated as the least important, since the respondents felt that simply being in IT equipped them with at least a basic understanding of information systems, and how to use the functionality to deliver what was required.

It was found that 20% of the respondents declined to answer this part of the survey, as they believed that none of the organisational factors mentioned influenced their usage of FPS. Instead, the only reason they used it was because it is mandated, and an important key result area for ensuring that financial information has been completed.

4.5.4 Which factors influence the acceptance of mandatory software by individual users?

The rating for factors influencing the acceptance of mandatory software by individual users, based on the compilation model, can be summarised as follows:

Table 19: Factors influencing the acceptance of mandatory software by individual users (Source: Author)

MODEL	CONSTRUCT	RATING	COMMENT
Extended Technology Acceptance Model (TAM2)	Perceived ease of use	Agree	Respondents believed that FPS was free from effort, but this was only due to the fact that they were using it predominantly for time capture and capturing high level project plans. This contrasts with the 33.3% of respondents who disagreed and the 3.3% who strongly disagreed that FPS was free from effort, especially when having to capture detailed project plans.
	Perceived usefulness	Disagree	It was found that 37.8% of respondents disagreed that using FPS would enhance their job performance.
	Subjective norm	Disagree	The view of respondents was largely negative with 13.3% strongly disagreeing and 46.7% disagreeing. Respondents only used FPS as it was required by their job function, especially for billing and financial purposes.
Motivational Model (MM)	Extrinsic motivation	Disagree	37.8% of respondents disagreed that using FPS would enhance their job performance; extrinsic motivation to use FPS is low, and in order to

			meet KRAs in their performance contracts respondents are utilizing whatever tool is available in order to meet their objectives and not be penalized in performance reviews.
	Intrinsic motivation	Disagree	Overall the results were negative, as 17.8% strongly disagreed and 37.8% disagreed with the key constructs of intrinsic motivation.
Model of PC utilisation (MPCU)	Job fit	Disagree	The response to this category was largely negative, as 42.7% of the respondents disagreed and 4% strongly disagreed that the use of FPS would have no effect on the performance of their job.
	Complexity	Disagree	The overwhelming majority of respondents (46.7%) disagreed that FPS was difficult to understand and use; and they therefore, agreed that it was not complex..
	Affect towards use	Disagree	The majority of respondents strongly disagreed (26.7%) and disagreed (35.6%) that using FPS makes their job more interesting and fun. 53.3% agreed that FPS is OK for some jobs, but not the kind of jobs that they want.
	Social factors	Disagree	An equal number of respondents (35%) agreed and disagreed; with the majority responding negatively as 6.7% of respondents strongly disagreed. The remaining 21.7% of the respondents neither agreed nor disagreed.
	Facilitating conditions	Agree	An overwhelming majority of respondents, 59.5%, believed that there is organisational and technical infrastructure to support FPS.
	Long-term consequences	Agree	80% of the respondents believed that there are long-term consequences when utilizing two types of software to perform the same or similar tasks, as there may not be a consistent view or a 'single source of truth' if FPS is not synchronized with MPP.

In the *TAM 2 model* the following results were obtained:

- Perceived ease of use was largely positive, but this was only because FPS allows timesheets to be captured quickly and easily;

- Perceived usefulness was largely negative, as respondents found the PM functions in FPS cumbersome compared with MPP;
- Subjective norm was largely negative, as the respondents only used FPS because they had to – and as little as possible.

In the *MM model* the following results were obtained:

- Extrinsic and intrinsic motivation were both rated negatively, as respondents only utilised FPS because it was mandated. In the *MPCU model* only the facilitating conditions and long term consequences received positive responses.

4.5.5 What are the impacts of using alternatives to mandatory software on expected business benefits?

The senior IT manager previously accountable for FPS and the FPS team could not articulate what the expected benefit for FPS was at implementation. This was because it was not documented.

As a result, the logical approach to benefits management suggested by IMBOK (Bytheway, 2004) -- including identifying and structuring the benefits, planned benefits realisation, executing the plan and evaluating, as well as reviewing thereof, was not implemented.

All the respondents agreed that there are cost implications to using two information systems, such as paying for two sets of licences and infrastructure costs. However, this cost was justified by respondents as being necessary, due to the fact that MPP was needed for detailed planning and the belief that FPS was not perceived to be useful, and did not give ease of use.

The next chapter provides a final, concluding overview of this research.

CHAPTER 5

5 CONCLUSIONS AND RECOMMENDATIONS

5.1 INTRODUCTION

The researcher initially stated the research problem, which will be recapped in the following section, as well as the research objectives. This chapter will assess whether the research objectives have been met by examining the literature review; the research design, as well as the methodology, the processing, the analysis and the interpretation of the data. The chapter will then bring conclusions and provide some recommendations.

5.2 THE RESEARCH PROBLEM

PMs need to perform the mandated processes, as defined in the centralised repository; and they also need to use the tool specified to perform specific project management activities, such as for example, using FPS to log projects, capture time and extract financial reporting.

It was discovered that some PMs in this organisation interchangeably use FPS and MPP software to perform the activities, such as to capture project schedules; and as a consequence, PMs are potentially duplicating effort and wasting time, as project schedules would need to be updated in both FPS and MPP when changes occur. As time utilised needs to be billed to clients and affects the overall project costs, using FPS and MPP is not aligned to the IT department and YZ organisational objective of lowering IT costs.

Therefore, from this discovery, it was not clear whether the intended benefit of implementing this mandatory software (FPS) is being realised, as implementing software that is not being utilised fully will not deliver any intended benefit to the IT department.

As a result, the following research question was formulated:
Does the implementation and use of mandatory software derive the intended business benefit for the IT department? If not, what would be the optimal way to derive benefits from the use of the mandatory software?

This question was answered by answering the following sub-questions:

- Which factors were considered to successfully implement the mandatory software into a department in order to derive the intended business benefits?
    - What is the level of involvement from the intended user-group in the decision to implement mandatory software?
    - Was the implementation of FPS adequately changed managed?
- Which factors influence the usage of mandatory software by individuals?
    - Which organisational factors influence the acceptance of mandatory software?
    - Which factors influence the acceptance of mandatory software by individual users?
- What are the impacts of using alternatives to mandatory software on expected business benefits?

5.3 RESEARCH OBJECTIVES

The objectives of this research are summarised as follows:

- To explore and determine the factors considered necessary to ensure the successful implementation of mandatory software into a department – in order to derive the intended business benefit:
    - To explore and determine the level of involvement from the intended user group in the implementation of mandatory software;
    - To explore and determine whether the implementation of FPS was adequately change- managed;
- To understand and determine the factors influencing the individual usage of mandatory software:
    - To describe which organisational factors influence the acceptance of mandatory software;
    - To explore and determine the factors that influence the acceptance of mandatory software by individual users;
- To understand the IT department's approach to measuring business benefits related to the use of mandatory software and the impact when alternatives to FPS are being utilised; and

- To suggest possible solutions that are required to optimize factors that lead to business benefit realisation when utilising mandatory software, i.e. to suggest a possible way to effectively use a mandatory PM software application.

5.3.1 To explore and determine the factors considered to facilitate successful implementation of mandatory software into a department in order to derive the intended business benefit

This objective was met by examining literature focusing on user-involvement and change management specifically, as these two reasons were identified as causes for implementation failure. Based on the literature, there are two areas for user-involvement when an organisation decides to implement mandatory software, namely: Firstly, defining the mandatory software's requirements; and secondly, participation when the software is actually implemented.

Literature also states that the right employees with the right skill set should be chosen, but user-involvement is not only limited to the decision-making process; and furthermore, user-involvement in utilising the mandatory software, as expected, has a significant impact on the realisation of business benefits. Users need time to adapt to new working practices associated with the new software, and due to the nature of change it could be several months before the full range of benefits can be expected – as users need to adopt, consolidate, internalises – and only then can performance improvements be expected.

However, at that time, MPP did not exist and FPS was the forerunner. Nevertheless, senior executive Management saw FPS presented at a conference and a decision was made to purchase it before the requirements of YZ's IT department were properly considered. It was found that 7% of the respondents explained that IT projects would not be implemented without a proper requirements analysis being done. Yet, this decision was imposed on them; and furthermore, it was implemented badly as well (relating to the fact that a proper change management approach could not be obtained).

Based on the views of the respondents, it is evident that all the users were not involved in defining the mandatory software's requirements (Zang et al., 2002); hence, participation congruence was low, and this impacted areas such as motivation, since the users did not feel

that their views had been taken into consideration via a proper change management approach; and hence, user resistance was increased.

As a result, IS (of which FPS is a component), was not being used to fully support the PMBOK processes which have, in consequence, not brought any business operational improvements. In addition, business change was not managed adequately; and as a result, business benefit realisation, if it was measured, would have been negatively affected.

This area was strongly supported by the findings of the following sections.

5.3.2 To understand and determine the factors influencing individual usage of mandatory software

The second objective was met by identifying organisational factors, namely: ***top management support***; ***organisational structure***; ***organisational processes***; ***organisational size***; ***the culture of the organisation***; ***the process of selecting and implementing the information system*** (e.g. FPS and associated processes); ***internal technical support; top management support of FPS***; ***training of FPS*** and the ***technological and financial resources*** available to support the use of FPS.

Respondents were asked to rate the factors from most to least important; and the top three factors identified were: **1)** ***Organisational processes* –** as they had to adhere to PMBOK processes; **2)** ***Top management support* –** due to the fact that they measure respondents on the financial information they extract from FPS and use reports from it to track work delivery; and **3)** ***Organisational structure* –** due to the size and the complexity of the YZ organisation.

In order to identify factors that influenced the acceptance of the mandatory software by individual users, a combination of three models, namely: TAM2, MM and MPCU was used. All constructs in the TAM 2 model (***perceived ease of use***, ***perceived usefulness*** and ***subjective norm***) and the MM model (***extrinsic*** and ***intrinsic motivation***) were rated negatively. Only ***facilitating conditions*** and ***long term consequences***, in the MPCU model, received any positive responses.

The three models above proved that FPS is not being utilised as intended, as organisational and individual factors affected the use of the software. This coupled to poorly managed business change did not deliver improvements in PMs adherance to the PMBOK stipulations, which negatively impacted any potential business benefits. This could not be confirmed by this research, as the IT department does not actively manage the realisation of benefits.

However, based on the information in the following sections, one could assume that if they had been managing business benefits, that these would have been negatively impacted.

5.3.3 To understand the IT department's approach to measuring business benefit related to the use of mandatory software and the impact if alternatives to FPS are being utilised

The research confirmed that PMs are utilising alternatives to FPS, including – but not limited to -- MPP. In order to assess the impact of using alternatives to mandatory software on expected business benefits, the method used to determine business benefits was assessed. In a discussion with the Senior IT Manager (who was previously, accountable for FPS and the FPS team), the anticipated benefits for FPS, at implementation, could not be articulated; and this was due to the fact that it was not properly documented.

Business benefit management was not a KRA, and required additional time and effort, which is often not available. So, the focus was given to other KRAs instead, as this was linked to areas such as bonuses.

The logical approach to benefits management, as suggested by IMBOK (Bytheway, 2004) – that included ***identifying and structuring benefits***, ***planned benefits realisation***, ***execution of the plan*** and ***evaluation and review*** -- was not adequately implemented.

Long term consequences refer to outcomes that could realise benefits in the future; and 80% of the respondents believed that there are long term consequences for utilising two types of software to perform the same or similar tasks, as there may not be a consistent view or a 'single source of truth' – if FPS is not synchronized with MPP.

Other activities, such as the amount of time spent on peer review to ensure the quality of content in documentation, was previously extracted by the QA team, and the results proved to be unreliable, as several projects were not capturing time for projects on this detailed level, as this was done in MPP. As a result, there was no metric available for executive management on the level of internal quality assurance; and therefore, they could not benchmark the benefits against those of other organisations.

This does not give the IT department the ability to get competitive advantages, as they cannot determine whether they are the best – or what is needed in order to become the leader.

More than half of the respondents believed that there would be an impact on Management Information Systems (MIS) if MPP is used in addition to FPS, as there is a duplication of time and effort (which increases costs due to lost productivity) required to synchronize data from MPP and FPS; and consequently, FPS data integrity suffers, as MPP is kept up to date. In addition, if PMs who are paid an hourly rate, are using both tools, the organisation is paying more than is required because of the additional time required to update two tools instead of just one; and this is not aligned to the strategic objective of cost-saving.

All respondents agreed that there are cost implications to using two types of similar software, such as paying for two sets of licences and double infrastructural costs. However, this cost was justified by respondents as necessary, since MPP was needed for detailed planning, and the belief that FPS was not perceived useful, and did not give ease of use (aligning to previous objectives).

Based on the findings thus far, it seems evident that ROI on the FPS investment is not being realised, with the exception of being able to produce financial reporting; however, the accuracy of this reporting is decidedly questionable.

5.4 RECOMMENDATIONS

This section explains the attainment of the last objective: "*To suggest solutions to optimise factors that lead to business benefit realisation when utilising mandatory software*".

In this research, it was found that top management support of FPS (second most important organisational factor influencing use) was lacking, despite literature that states that senior management involvement in changing technology is crucial for organisational commitment (Zeffane, 1994) and successful system implementation (The Standish Group, 2001).

In order to alleviate user resistance in implementation, management first needs to be aware of the effects of the change and to attempt to reduce resistance to change by enhancing colleagues' favourable opinions towards new IS-related change and increasing users' self-confidence in tackling change. This can be done by publicizing the necessity of the new IS and to persuade key users (especially opinion leaders) to accept the change first (Massey et al., 2001).

By obtaining buy-in from opinion leaders first, these leaders can then serve as champions of the change, and then persuade their colleagues to adopt the change as well. This should be in addition to management providing training to employees to enhance their skills and confidence (i.e., self-efficacy for change) (Massey et al., 2001).

Another area of improvement, involves management's intention to increase the perceived value of change and organisational support for change in order to reduce user resistance. To increase the perceived value, the advantage of the new IS should be emphasised, from the viewpoint of the user. The importance, therefore, of improving benefits, needs to be communicated clearly to users before the new system is implemented (Massey et al., 2001).

Management can further attempt to increase switching benefits by enhancing colleagues' favourable opinions towards the new IS-related change. To enhance organisational support for change, management should provide users with training, guidance and time, as the phases of adoption, consolidation, internalisation and performance, which ultimately lead to improved efficiency and effectiveness, can only be achieved through training, routine practice and ultimately proper training (Bytheway, 2004).

In addition, emphasis should be given to selecting employees with the right skills and understanding of other software in the industry, as well as analysing requirements before any particular software is purchased or developed. This engagement should increase participation congruence, which was low and address three areas of concern, namely: user involvement,

change management and top management support. In addition, this change management approach should be documented and made available to all key stakeholders, as it was not done in the IT department (Zang et al., 2002).

Organisational processes were viewed as the most important factor influencing mandatory software usage; however, the technology acquisition process, which ensures that software with similar performance abilities are not purchased, was not enforced by the architecture department since 2009, due to resource constraints; and as a result, the implementation of new software was not done in a formalised manner. This lack of enforcement could result in the organisation not having an updated and accurate list of all software in its environment, thereby making the management of IT activities, such as licensing, upgrades and costs even more difficult to manage.

Benefits management is not an area that is currently receiving attention in the IT department; hence, a benefits management approach, as suggested by Bytheway (2004), should be considered. However, several managerial issues regarding benefits measurement have been identified – including the additional effort required, the appropriateness of qualitative and quantitative benefits – when justifying investment and risk identification. In addition, benefits management is not a KRA in the IT department, and it will therefore not be given attention – unless it is specifically included in the performance contracts.

Expecting benefits management to be adopted will require a change management approach, as management would have to change the way in which they work and take on additional responsibilities. Bytheway (2004) highlighted the fact that changes to management information and reporting, as well as the procedures for reporting maybe be required to show the achievement of benefits. However, in this research, the software that is not being utilised is responsible for producing financial management information and financial reporting.

It has been shown that the data captured in FPS were not always accurate, and the time logged in FPS was not captured at a granular level. In order to improve this and the accuracy of data in FPS, the following items should be addressed by senior management:

- Using data available from the Project Office and the QA team, the number of errors found (such as projects recorded without an end date), should be highlighted in a report and placed in a centralised repository;

- Projects should be tracked until all errors have been rectified;
- FPS data integrity should be identified as a KRA; and
- A structure to show the level of detail that should be captured and provided to PMs to ensure that data capture is done at the required level.

In order to initiate the benefits management approach, the IT department should calculate the cost of IT investments, since cost is a significant input when calculating benefits. These costs include acquisition costs, control costs and operational costs. Such costs are currently being recorded in the Business Requirements Specification (BRS) in the IT department -- for projects currently being implemented by them; but this was not done when FPS was first implemented. In addition, intangible costs such as sunk and transition costs should also be considered. The impact of risks, such as firm-specific risks could also impact costs significantly and should be considered as well.

Based on the findings, it is evident that the 'Western framing' employed by the IT department is not delivering tangible business benefits; and as a result, the Japanese framing of utilising strategic intent, performance improvement, appropriate technology, organisational bonding and human design as opposed to strategic alignment, value for money, technology solutions, IS user relationships and system design, could be considered. 'Japanese framing' has shown results; however, this framing has not been tested in the South African context (Bensaou & Earl, 1998).

5.5 LIMITATIONS OF THIS STUDY

The research was geographically confined to a single financial services organisation in the Western Cape, with a head office in Cape Town. It was limited to the use of a particular software due to the resource and time constraints existing in this research. Although this study incorporates the latest findings from the pertinent literature (the selected period for the literature study is that prior to the first quarter of 2010, with the oldest reference being 1989, correlating to the year that the Technology Acceptance Model (TAM) was introduced), the empirical exploration of only one organisation inevitably restricts any generalisation of this study's findings onto other populations.

5.6 RECOMMENDATIONS FOR FURTHER STUDY

This study has found that utilising 'Western framing' was not allowing the IT department of a South African financial services organisation to deliver tangible business benefits. One difference highlighted, between the West and Japanese framing, is the concept of strategic alignment. This arose in the West because many organisations were discovering that their software development (or in the case of this research, the purchase of software) did not support their business imperatives (Bensaou & Earl, 1998).

In Japan, where the way the organisation functions drives IT investments; and hence, seeing business benefits is much clearer, it would be advantageous to explore this approach in South Africa to ascertain whether it would provide the same or similar results.

In addition, the effect of culture on the acceptance of mandatory software was not covered in detail in this research, and exploring this area in the South African context could add value to organisations.

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CHAPTER 7

7 APPENDICES

APPENDIX 1: SOFTWARE FEATURES

A) FPS PRODUCT FEATURES

Project Portfolio Management

Effectively manage projects and resources across the enterprise

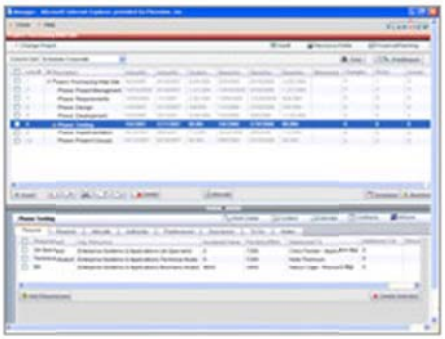
FPS Enterprise delivers visibility into and control of project portfolios, enabling you to efficiently prioritize work and make better decisions around request Management, planning, and resource capacity. This PPM functionality is included in the base FPS Enterprise offering **Enterprise Portfolio Management**, which also provides the capacity to perform strategic planning and investment analysis, all within an integrated framework.

Optimize Resources Enterprise-Wide

Proper resource prioritization requires a disciplined process, an understanding of business goals, and the ability to balance demand from multiple sources.

FPS Enterprise project portfolio Management helps you balance portfolios to ensure that the most appropriate people will be assigned to do the right work. By managing work with portfolios, you can deliver the highest business value to projects across your enterprise.

Forecast, Baseline, and Manage Project Financials



Project budgets must be forecast, base-lined, and managed throughout the project lifecycle. With FPS Enterprise, financial managers, the PMO, and project managers can collaborate to better forecast costs and monitor spending through actual resource assignments and reported time. In addition, you can integrate with existing financial and account systems.

Mitigate Risks and Manage Changes

With FPS Enterprise, you have the tools to identify project requirements and manage the scope of work. Risks are known, and changes are minimized. The result: more visibility into how your project can stay on track and deliver real business value. You get functionality that includes:

- **FPS Open Suite for MPP** -- Ensure seamless data transfer between FPS Enterprise and MPP through fully-supported, two-way integration
- **Request Management** -- Provide a single, centralised location where users can request work, check status, delegate requests and review lifecycles
- **Project Management** -- Scope, schedule, execute work, and manage projects more effectively. Project Management features address time reporting and billing, risk and issue Management, work slippage, and resource capacity issues.
- **Resource Management** -- Assign work efficiently, develop a skills pipeline, develop staff areas of interest and keep staff productive
- **Portfolio Intelligence** -- Track and display performance and trend analysis information on work, resources and key performance indicators
- **Time and Expenses** -- Better understand actual cost and value by tracking time and expenses against specific applications or projects. Quickly report time on multiple work items.
- **Changes, Risks, and Issues** -- Track and manage issues to discover the possible impact on schedule and cost, and generate an approval cycle for any necessary changes
- **Baselines** -- Leverage planned effort data to perform variances reporting as part of an earned value estimate

- **Best Practices** -- Support PMBOK standards with FPS PRISMS best practices

a) MPP PRODUCT FEATURES

MPP Product Features

MPP allows you to plan, manage, and communicate project information quickly and more effectively. The tables below introduce you to the new features of MPP. They also show features, initially included in previous Project Standard versions, which have been improved.

Set up projects quickly

Present project data in the appropriate format and print custom reports

Easily follow task and resource interdependencies

Quickly access the information you need and effectively track and analyze projects

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Set up projects quickly

KEY:

○= Feature Included ◔= Improved in MPP Standard 2007 ✔= New in MPP Standard 2007

Features	MPP 98	MPP 2000	MPP Project Standard 2003	MPP Project Standard 2007
Import Outlook Tasks dialog box Easily import task data from Outlook To-Do Bar to create a Project plan.		○	○	○
Excel Import Wizard Easily import and use data from Excel to start a Project plan.			○	○
Resource information import Import resource information from the Active Directory directory service or your Exchange Server address book.			○	○
Smart Tags Get automatic, contextual suggestions alerting you to scheduling options.			○	○

Built-in online help Use MPP Office Online to get training, templates, and more.			○	○
Additional Project templates Jump-start common projects and promote consistency.			○	◐
Interactive, step-by-step planning aid Set up and manage projects effectively with the Project Guide.			○	○
Calendar wizard Simplify the setup process for project calendars and changing working time.			○	◐
Manage non-working time Named vacations and the option of setting up alternative work weeks enable users to control and understand when resources can work.				✓
Change Highlighting When changes are made to a project, all affected task and resource fields are highlighted. Easily see how your change affects the dates of successor tasks, summary costs, and more.				✓
Multiple Level Undo Reverse the most recent series of changes; that is, undo and redo changes to views, data and options. This functionality also enables you to undo actions or sets of actions from macros or third-party applications.				✓

Present project data in the appropriate format and print custom reports

KEY:

○= Feature Included ◐= Improved in MPP Standard 2007 ✓= New in MPP Standard 2007

Features	Project 98	Project 2000	Project Standard 2003	Office Project Standard 2007
Presentation Wizard Smoothly transfers Project data to MPP Office			○	○

PowerPoint, MPP Office Word, or MPP Office Visio.

Printing Wizard Easily formats and prints concise custom Project reports.	○	○
Visual Reports for Excel Use Excel to produce charts and graphs based on Office Project 2007 data. Analyze different dimensions of your project with PivotTable views and charts.		✓
Visual Reports for Visio Professional Build work breakdown structure (WBS) or resource diagrams in Office Visio Professional. With data-driven diagrams, users can show progress bars, flag important tasks, color-code on cost, or create custom diagrams to match their project needs.		✓
Report templates MPP 2007 offers report templates for Office Visio and Office Excel to help a user to analyze resource availability, understand project progress and costs, and perform other tasks. Users can customize these reports or create their own templates in Office Visio and Office Excel to share with other Office Project users.		✓
Desktop OLAP cube Create customer reports or archive Project values with data exported from MPP Project 2007 into a Office Access database and Online Analytical Processing (OLAP) cubes. Six cubes are generated: task time-phased, task non-time-phased, resource time-phased, resource non-time-phased, assignment time-phased, and assignment non-time-phased.		✓
Background Cell Highlighting Highlight important dates, costs, or tasks by changing the background color of cells in the table portion of the view.		✓
Hijri Calendar The lunar calendar that is used in Islamic regions.		✓

Easily follow task and resource interdependencies

KEY:

○= Feature Included ◔= Improved in MPP Standard 2007 ✓= New in MPP Standard 2007

Features	Project 98	Project 2000	Project Standard 2003	Office Project Standard 2007
Gantt charts, calendars, and task sheets Present Project data in versatile views.	○	○	○	◐
Network Diagram view Group tasks and display graphical indicators in the Network Diagram view.	○	○	○	○
Cross-project critical path Calculate the critical path across all inserted projects to see a single critical path for the overall master project.		○	○	○
Task Driver pane Shows prerequisites and resource constraints that drive the start date of the selected task. The user can click these drivers to link to the relevant information.				✓

Quickly access the information you need and effectively track and analyze projects

KEY:

○= Feature Included ◐= Improved in MPP Standard 2007 ✓= New in MPP Standard 2007

Features	Project 98	Project 2000	Project Standard 2003	Office Project Standard 2007
Reschedule uncompleted work Maintain constraints when uncompleted work is rescheduled, and select any reschedule date.	○	○	○	○
Assign a deadline to a task Keep track of when a task finishes without constraining the project plan.		○	○	○
Formulas and graphical indicators Assign formulas, pick lists, and apply graphical indicators to custom fields to keep track of projects.		○	○	○
Grouping Consolidate and report project information in a variety of		○	○	○

ways by using predefined groups or creating custom groups. Group on assignment fields in addition to tasks and resources, and roll up time-phased data totals to group summary rows in Usage views.			
Material resources Specify consumable resources such as lumber or concrete and assign them to tasks. Allocate these resources in units that make sense, such as tons.	○	○	○
Resource availability graphs Evaluate resource workload and availability using the Graphs button in the Assign Resources dialog box to identify the best resource available for the task.		○	○
Add-in for comparing Project files Compare two versions of the same project and report results.		○	○
Baseline rollup Control how baseline data is rolled up to summary tasks to help ensure up-to-date tracking of projects.		○	○
Cost Resources Helps enable users to define multiple named time-phased fixed costs on a task. These costs can be grouped and reported as part of a cost type. Supports integration of Office Project 2007 with accounting systems.			☑
Budget Tracking Define a budget at a high level (program or project) so the project manager can allocate funds and track costs, work, and materials against the budget.			☑

APPENDIX 2: BENEFIT REALISATION MODELS

Code*	Practice	Description	Output	Literature	Incidence
BP1	Identify strategic drivers	'Top down' activity to clarify the strategic / business drivers for the project and its contribution to the achievement of business strategy.	Strategic drivers analysis	Ward & Elvin, 1999 Ward & Daniel, 2006	**Moderate** - Many projects used the language of driver analysis – but often at a high level and with a technical focus.
BP2	Analyse stakeholder expectations	Conduct a structured, 'bottom up' analysis of the stakeholders stake-holders' requirements, in terms of delivered benefits.	Analysis of expectations by stakeholder	Edwards & Peppard, 1997 Neely et al., 2002	**None –** Users were sometimes involved with projects, but there was no evidence that this activity had a benefits' focus.
BP3	Identify and define benefits	Review of strategic drivers and the stakeholder requirements, to identify / agree the target benefits.	Benefits analysis including: agreed measures, targets and benefit owners	Peppard & Ward, 2005 Peppard et al., 2007	**Moderate.** Most organizations articulated the expected benefits, but often in very vague, or technically oriented, terms. Few projects established measurable targets, and in no cases were benefit owners established.
BP4	Establish benefit / process interactions	Relate the benefits to business processes to identify where changes will take place and help identify relevant measures. Assess the variability and uncertainty in the process and consider the implications for benefits realization.	Process / benefit map	Peppard et al, 2007 Bohn, 1994 Brooke, 2000 Ward & Daniel, 2006 Bashein et al., 1994	**Very low.** Some projects gave limited consideration to localised processes.
BP5	Establish benefit / stakeholder interactions	Identify stakeholder groups affected by the technology, and changes required to realize the benefits. Identify business change issues and actions required including communication and engagement with the stakeholders, and the redesign of job specifications.	Stakeholder impact assessment	Eason, 1988 Joshi, 1991 Benjamin & Levinson, 1993 Doolin, 2004	**Low.** Several projects identified different stakeholders and particularly different groups of users. The analysis was not followed through to addressing business change issues related to each stakeholder (group) or to ensure the participation of the groups.
BP6	Establish organization/ benefits interactions	Explore the interaction between the benefits and a full range of perspectives on the organization.	Organizational impact assessment	Doherty & King, 2001 Peppard et al, 2007	**Very low**. Not tackled in a structured way.
BP7	Establish technology/ benefits interactions	Establish a design for an IS solution that takes account of the capabilities of the technology.	Conceptual architecture overview	Eason, 1988 Peppard et al., 2007	**Very low**. But many projects took advantage of the technology capabilities – this was typically requirement rather than benefit driven.
BP8	Plan benefits realization	Develop an overall plan to show the business case (*what* the benefits are) and *how* they are going to be realized. The plan relates to the type of project and ensures the delivery of benefits is phased as relevant and that there is appropriate consideration of organizational factors.	Benefits realization plan: defines the benefits and the actions required to realize them	Ward et al., 1996 Clegg et al., 1997	**Very low.** However, one project to set up a new business operation involved a solution based on establishing a range of business competences. In this scenario the plan was equivalent to a benefits realization plan.

Code*	Practice	Description	Output	Literature	Incidence
BP9	Design a framework for business change governance	Design a governance framework addressing the business change project, including the enabling IS/IT activities. Agree how to bring together the sponsor, benefits owners, project manager and other stakeholders through appropriate meetings, workshops and other forms of communication.	Governance framework	Clegg et al., 1997 Avgerou, 2001	**Very low**. Projects had a business sponsor but this was not an active role and there was limited involvement of other project stakeholders in project governance. As a result the actual focus was largely on technical change.
BP10	Benefits driven risk assessment	Take a pro-active approach to risk that focuses on business change and benefits realization.	Risk assessment and action plan	Gibson, 2003 Also found in PRINCE2	**Low**. Generally focused on solution delivery.
BD1	Establish an adaptive project lifecycle	Establish a project lifecycle enabling change during the project in response to learning / uncertainty - based on iterative, incremental delivery and a small number of major phases controlled by phase end milestone reviews. The adaptive lifecycle continues into benefits ramp up and evolution deployment.	Project approach – including definition of phases, deliverables and milestones	Eason (1988 page 48) Boehm & Turner, 2004	**Very low**. Many projects took this approach but the focus seen was on solution delivery.
BD2	Actively lead the business change	Design, build and lead the project team and governance framework with a focus on realizing benefits. In particular, address responsibility for benefits for the organization / sponsor, benefits for the end user and the effectiveness of the team.	Role descriptions	Ward & Daniel, 2006 Markus, 2004 Serafeimidis & Smithson, 2000	**Low.** Several examples involving the development of new products / services for consumers had active leadership from Marketing (a Product Manager).
BD3	Ensure continuing active involvement of stakeholders	Ensure there is communication and involvement with all stakeholders (based on the stakeholder analysis) to gain insight, ownership and support for changes.	Participation and communication plan	Eason, 1988 Clegg et al, 1997 Benjamin & Levinson, 1993	**None**

Code*	Practice	Description	Output	Literature	Incidence
BD4	Specify changes to work and organizational design	The project focuses on the design and delivery of a business solution. This will typically require consideration of: business processes, working practices, structures, roles, management framework, performance measures, and culture.	Business solution design	Eason, 1988 Clegg et al, 1997	**None**
BD5	Make benefits driven trade-offs	Trade-off decisions (features, cost, and schedule) are driven from a benefits perspective.	Change log / decision log	Boehm & Turner, 2004	**Very low**. All the projects adopted a clear strategy for trade-off decisions but with no explicit focus on benefits impossible for most projects. A small number did identify the need for a benefits focus.
BD6	Ensure benefits driven risk management	Take a pro-active approach to risk that focuses on business change and benefits realization.	Updated risk assessment and action plan	Ward & Elvin, 1999	As above
BD7	Implement organizational changes	Implement new and revised business processes, working practices, structures, roles, management framework, and performance measures. Take action as required to encourage cultural changes.	Changed organization – this activity needs to be monitored to ensure that planned changes are actioned	Eason, 1988 Clegg et al, 1997	**Very low**
BD8	Benefits driven training and education	Ensure education and training are focused on the realization of benefits.		Eason, 1988 Clegg et al., 1997 Marchand et al., 2000 Davenport et al., 2001	**None**

APPENDIX 3: BASIC STATISTICS

A) EXTENDED TECHNOLOGY ACCEPTANCE MODEL

Perceived ease of use

Table 20: TAM2 detailed statistical results (Source: Author)

Using FPS in my job is easy					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	1	6.7	6.7	6.7
	Disagree	6	40.0	40.0	46.7
	Neither agree/disagree	2	13.3	13.3	60.0
	Agree	6	40.0	40.0	100.0
	Total	15	100.0	100.0	
My interaction with FPS is clear and understandable					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	4	26.7	26.7	26.7
	Neither agree/disagree	4	26.7	26.7	53.3
	Agree	7	46.7	46.7	100.0
	Total	15	100.0	100.0	
It is easy for me to become skillful using FPS					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	6	40.0	40.0	40.0
	Neither agree/disagree	3	20.0	20.0	60.0
	Agree	6	40.0	40.0	100.0
	Total	15	100.0	100.0	

Learning to use FPS is easy for me					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	1	6.7	6.7	6.7
	Disagree	4	26.7	26.7	33.3
	Neither agree/disagree	3	20.0	20.0	53.3
	Agree	7	46.7	46.7	100.0
	Total	15	100.0	100.0	

Perceived usefulness

Using FPS in my job enables me to accomplish tasks more easily					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	2	13.3	13.3	13.3
	Disagree	6	40.0	40.0	53.3
	Neither agree/disagree	3	20.0	20.0	73.3
	Agree	4	26.7	26.7	100.0
	Total	15	100.0	100.0	
Using FPS improves my job performance					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	2	13.3	13.3	13.3
	Disagree	7	46.7	46.7	60.0
	Neither agree/disagree	2	13.3	13.3	73.3
	Agree	4	26.7	26.7	100.0
	Total	15	100.0	100.0	
Using FPS in my job increase my productivity					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	2	13.3	13.3	13.3
	Disagree	7	46.7	46.7	60.0
	Neither agree/disagree	2	13.3	13.3	73.3
	Agree	4	26.7	26.7	100.0
	Total	15	100.0	100.0	

Using FPS in my job would enhance my effectiveness on the job					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	2	13.3	13.3	13.3
	Disagree	7	46.7	46.7	60.0
	Neither agree/disagree	1	6.7	6.7	66.7
	Agree	5	33.3	33.3	100.0
	Total	15	100.0	100.0	
Using FPS makes it easier to do my job					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	2	13.3	13.3	13.3
	Disagree	5	33.3	33.3	46.7
	Neither agree/disagree	3	20.0	20.0	66.7
	Agree	5	33.3	33.3	100.0
	Total	15	100.0	100.0	
I find FPS useful in my job					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	2	13.3	13.3	13.3
	Disagree	2	13.3	13.3	26.7
	Neither agree/disagree	2	13.3	13.3	40.0
	Agree	9	60.0	60.0	100.0
	Total	15	100.0	100.0	

Subjective norm

People who are important to me believe that I should use FPS					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	2	13.3	13.3	13.3
	Disagree	7	46.7	46.7	60.0
	Neither agree/disagree	3	20.0	20.0	80.0
	Agree	3	20.0	20.0	100.0
	Total	15	100.0	100.0	

b) MOTIVATIONAL MODEL

External motivation

Table 21: Motivational Model detailed statistical results (Source: Author)

Using FPS in my job enables me to accomplish tasks more easily					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	2	13.3	13.3	13.3
	Disagree	6	40.0	40.0	53.3
	Neither agree/disagree	3	20.0	20.0	73.3
	Agree	4	26.7	26.7	100.0
	Total	15	100.0	100.0	
Using FPS improves my job performance					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	2	13.3	13.3	13.3
	Disagree	7	46.7	46.7	60.0
	Neither agree/disagree	2	13.3	13.3	73.3
	Agree	4	26.7	26.7	100.0
	Total	15	100.0	100.0	
Using FPS in my job increase my productivity					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	2	13.3	13.3	13.3
	Disagree	7	46.7	46.7	60.0
	Neither agree/disagree	2	13.3	13.3	73.3
	Agree	4	26.7	26.7	100.0
	Total	15	100.0	100.0	
Using FPS in my job would enhance my effectiveness on the job					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	2	13.3	13.3	13.3
	Disagree	7	46.7	46.7	60.0

	Neither agree/disagree	1	6.7	6.7	66.7
	Agree	5	33.3	33.3	100.0
	Total	15	100.0	100.0	

Using FPS makes it easier to do my job

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	2	13.3	13.3	13.3
	Disagree	5	33.3	33.3	46.7
	Neither agree/disagree	3	20.0	20.0	66.7
	Agree	5	33.3	33.3	100.0
	Total	15	100.0	100.0	

I find FPS useful in my job

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	2	13.3	13.3	13.3
	Disagree	2	13.3	13.3	26.7
	Neither agree/disagree	2	13.3	13.3	40.0
	Agree	9	60.0	60.0	100.0
	Total	15	100.0	100.0	

Internal motivation

I like working with FPS

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	2	13.3	13.3	13.3
	Disagree	6	40.0	40.0	53.3
	Neither agree/disagree	1	6.7	6.7	60.0
	Agree	6	40.0	40.0	100.0
	Total	15	100.0	100.0	

Using FPS for supporting my role as a PM is unpleasant

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	5	33.3	33.3	33.3

	Neither agree/disagree	6	40.0	40.0	73.3
	Agree	3	20.0	20.0	93.3
	Strongly agree	1	6.7	6.7	100.0
	Total	15	100.0	100.0	

Working with FPS is fun

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	6	40.0	40.0	40.0
	Disagree	6	40.0	40.0	80.0
	Neither agree/disagree	3	20.0	20.0	100.0
	Total	15	100.0	100.0	

c) MPCU

Job fit

Table 22: MPCU detailed statistical results (Source: Author)

Use of FPS will have no effect on the performance of my job

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	8	53.3	53.3	53.3
	Neither agree/disagree	3	20.0	20.0	73.3
	Agree	3	20.0	20.0	93.3
	Strongly agree	1	6.7	6.7	100.0
	Total	15	100.0	100.0	

Use of FPS can decrease the time needed for my important job responsibilities

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	6	40.0	40.0	40.0
	Neither agree/disagree	6	40.0	40.0	80.0
	Agree	3	20.0	20.0	100.0
	Total	15	100.0	100.0	

Use of FPS can significantly increase the quality of output on my job					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	8	53.3	53.3	53.3
	Neither agree/disagree	3	20.0	20.0	73.3
	Agree	4	26.7	26.7	100.0
	Total	15	100.0	100.0	
Use of FPS can increase the effectiveness of performing job tasks					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	1	6.7	6.7	6.7
	Disagree	5	33.3	33.3	40.0
	Neither agree/disagree	2	13.3	13.3	53.3
	Agree	7	46.7	46.7	100.0
	Total	15	100.0	100.0	
Use of FPS can increase the quantity of output for the same amount of effort					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	2	13.3	13.3	13.3
	Disagree	5	33.3	33.3	46.7
	Neither agree/disagree	3	20.0	20.0	66.7
	Agree	5	33.3	33.3	100.0
	Total	15	100.0	100.0	

Complexity

Using FPS takes too much time from my normal duties					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	6	40.0	40.0	40.0
	Neither agree/disagree	5	33.3	33.3	73.3
	Agree	3	20.0	20.0	93.3
	Strongly agree	1	6.7	6.7	100.0
	Total	15	100.0	100.0	

Working with FPS is so complicated, it is difficult to understand what is going on					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	7	46.7	46.7	46.7
	Neither agree/disagree	3	20.0	20.0	66.7
	Agree	5	33.3	33.3	100.0
	Total	15	100.0	100.0	

Using FPS involves too much time doing mechanical operations					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	8	53.3	53.3	53.3
	Neither agree/disagree	4	26.7	26.7	80.0
	Agree	3	20.0	20.0	100.0
	Total	15	100.0	100.0	

It takes too long to learn how to use FPS to make it worth the effort					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	7	46.7	46.7	46.7
	Neither agree/disagree	2	13.3	13.3	60.0
	Agree	6	40.0	40.0	100.0
	Total	15	100.0	100.0	

Affect towards use

FPS makes work more interesting					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	5	33.3	33.3	33.3
	Disagree	8	53.3	53.3	86.7
	Neither agree/disagree	2	13.3	13.3	100.0
	Total	15	100.0	100.0	
Working with FPS is fun					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	6	40.0	40.0	40.0
	Disagree	6	40.0	40.0	80.0
	Neither agree/disagree	3	20.0	20.0	100.0
	Total	15	100.0	100.0	
FPS is ok for some jobs, but not the kind of job I want					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	1	6.7	6.7	6.7
	Disagree	2	13.3	13.3	20.0
	Neither agree/disagree	2	13.3	13.3	33.3
	Agree	8	53.3	53.3	86.7
	Strongly agree	2	13.3	13.3	100.0
	Total	15	100.0	100.0	

Social factors

I use FPS because of the proportion of coworkers who use the system					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	2	13.3	13.3	13.3
	Disagree	7	46.7	46.7	60.0

	Neither agree/disagree	3	20.0	20.0	80.0
	Agree	3	20.0	20.0	100.0
	Total	15	100.0	100.0	

The senior Management of this business has been helpful in the use of FPS

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	2	13.3	13.3	13.3
	Disagree	9	60.0	60.0	73.3
	Neither agree/disagree	2	13.3	13.3	86.7
	Agree	2	13.3	13.3	100.0
	Total	15	100.0	100.0	

My supervisor is very supportive of the use of FPS for my job

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	3	20.0	20.0	20.0
	Neither agree/disagree	4	26.7	26.7	46.7
	Agree	8	53.3	53.3	100.0
	Total	15	100.0	100.0	

In general, the organisation has supported the use of FPS

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	2	13.3	13.3	13.3
	Neither agree/disagree	4	26.7	26.7	40.0
	Agree	8	53.3	53.3	93.3
	Strongly agree	1	6.7	6.7	100.0
	Total	15	100.0	100.0	

Facilitating conditions

Guidance was available to me in the selection of FPS

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	N/A	1	6.7	6.7	6.7
	Strongly disagree	3	20.0	20.0	26.7

	Disagree	8	53.3	53.3	80.0
	Neither agree/disagree	1	6.7	6.7	86.7
	Agree	2	13.3	13.3	100.0
	Total	15	100.0	100.0	
Specialized instruction concerning FPS was available to me					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	N/A	1	6.7	6.7	6.7
	Strongly disagree	2	13.3	13.3	20.0
	Disagree	1	6.7	6.7	26.7
	Agree	11	73.3	73.3	100.0
	Total	15	100.0	100.0	
A specific person (or group) is available for assistance FPS difficulties					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	N/A	1	6.7	6.7	6.7
	Neither agree/disagree	1	6.7	6.7	13.3
	Agree	12	80.0	80.0	93.3
	Strongly agree	1	6.7	6.7	100.0
	Total	15	100.0	100.0	

Long term consequences

There are long term consequences to using 2 information systems to do the same/similar tasks					
		Frequency	Percent	Valid Percent	Cumulative Percent
Long term consequences	Disagree	2	13.3	13.3	13.3
	Neither agree/disagree	1	6.7	6.7	20.0
	Agree	12	80.0	80.0	100.0
	Total	15	100.0	100.0	

APPENDIX 4: LANGUAGE QUALITY CERTIFICATE

APPENDIX 5: SURVEY

	Yes	No
Do you use FPS?		
If no, why not?		
Do you use MPP?		
Do you use any other alternatives to FPS & MPP?		
If yes, what do you use and why?		

Organisational factors influencing usage

How are mandated information systems, such as FPS introduced into the organisation?	
What is the level of involvement from the intended user group in the decision-making process?	
What level of training is provided and is this adequate?	

	What are the organisational factors influencing your usage of FPS? - Please rate each statement below on a scale of 1 - 10, with 1 being the most important factor and 10 being the least important. - Each scale can only be used once e.g. you can only have one factor listed as 1, another factor at 2 etc. All numbers from 1 - 10 must be used	Rating
1	Organisational structure	
2	Organisational processes	
3	Organisational size	
4	The culture of the organisation	
5	The process of selecting and implementing the information system e.g. FPS	
6	Internal technical support	
7	Top Management support of FPS	

8	Training of FPS		
9	The technological and financial resources available to support the use of FPS		
10	My technological capabilities		

Are there any other organisational factors, not listed above that influence your usage of FPS?	

Perceived Ease of use		**Strongly Disagree**	**Disagree**	**Neither agree/nor disagree**	**Agree**	**Strongly Agree**
	1a. Using FPS in my job is easy					
	2a. My interaction with FPS is clear and understandable					
	3a. It is easy for me to become skilful using FPS					
	4a. Learning to use FPS is easy for me					

If you use MPP how does it compare to FPS in terms of your perceived ease of use? E.g. does MPP make your job easier? Is it easier to learn to use MPP than FPS?	

Perceived usefulness		**Strongly Disagree**	**Disagree**	**Neither agree/nor disagree**	**Agree**	**Strongly Agree**
	1a. Using FPS in my job enables me to accomplish tasks more easily					
	2a. Using FPS improves my job performance					
	3a. Using FPS in my job increase my productivity					
	4a. Using FPS in my job would enhance my effectiveness on the job					
	5a. Using FPS makes it easier to do my job					
	6a. I find FPS useful in my job					

If you use MPP how does it compare to FPS in terms of your perceived usefulness? E.g. does MPP make enable you to accomplish tasks more easily and improve your job performance etc?	

Attitude		**Strongly Disagree**	**Disagree**	**Neither agree/nor disagree**	**Agree**	**Strongly Agree**
	1a. Using FPS software is a good idea					
	2a. FPS makes my life less complicated					
	2a. MPP makes my life less complicated					
	3a. I like working with FPS					
	4a. Using FPS for supporting my role as a PM is unpleasant					
If you use MPP how does your attitude to FPS compare to MPP? E.g. does MPP make your life less complicated? Do you prefer working with MPP? etc.						

Intention to use		**Strongly Disagree**	**Disagree**	**Neither agree/nor disagree**	**Agree**	**Strongly Agree**
	1a. I intend to use FPS in fulfilling my role as a PM					
	2a. I intend to use FPS as often as needed					
	3a. I intend to find alternatives to FPS for use in my daily job					
If you use MPP how does your intention to use to FPS compare to MPP? E.g. do you use MPP as often as needed and/or do you use MPP in fulfilling your role						

as a PM? etc.	

Job-fit		**Strongly Disagree**	**Disagree**	**Neither agree/nor disagree**	**Agree**	**Strongly Agree**
	1a. Use of FPS will have no effect on the performance of my job					
	2a. Use of FPS can decrease the time needed for my important job responsibilities					
	3a. Use of FPS can significantly increase the quality of output on my job					
	4a. Use of FPS can increase the effectiveness of performing job tasks					
	5a. Use of FPS can increase the quantity of output for the same amount of effort					
If you use MPP how does your job-fit to FPS compare to MPP? E.g. does MPP decrease the time needed for your important job responsibilities? Does using MPP increase the effectiveness of performing job tasks? etc.						

Complexity		**Strongly Disagree**	**Disagree**	**Neither agree/nor disagree**	**Agree**	**Strongly Agree**
	1a. Using FPS takes too much time from my normal duties					
	2a. Working with FPS is so complicated, it is difficult to understand what is going on					
	3a. Using FPS involves too much time doing mechanical operations (e.g. data input)					

	4a. It takes too long to learn how to use FPS to make it worth the effort					
If you use MPP how does the complexity of FPS compare with MPP? e.g. does using MPP take less time from your normal duties and less mechanical operation? etc.						

Affect towards use		**Strongly Disagree**	**Disagree**	**Neither agree/nor disagree**	**Agree**	**Strongly Agree**
	1a. FPS makes work more interesting					
	2a. Working with FPS is fun					
	3a. FPS is OK for some jobs, but not the kind of job I want to do					
If you use MPP how does your affect towards use of FPS compare to MPP? E.g. does using MPP make work more interesting and fun? etc.						

Social Factors		**Strongly Disagree**	**Disagree**	**Neither agree/nor disagree**	**Agree**	**Strongly Agree**
	1a. I use FPS because of the proportion of co-workers who use the system					
	2a. The senior management of this business has been helpful in the use of FPS					
	3a. My supervisor is very supportive of the use of FPS for my job					
	4a. In general, the organisation has supported the use of FPS					

If you use MPP how do social factors e.g. your senior management's support of MPP compare with FPS? Does your supervisor prefer you using MPP? etc.	

Facilitating Conditions		**Strongly Disagree**	**Disagree**	**Neither agree/nor disagree**	**Agree**	**Strongly Agree**
	1a.Guidance was available to me in the selection of FPS					
	2a. Specialized instruction concerning FPS was available to me					
	3a. A specific person (or group) is available for assistance FPS difficulties					
If you use MPP how does facilitating conditions of FPS compare to MPP? E.g. is there more specialized instruction available? Is there more assistance available? etc.						

Long-term consequences	**Strongly Disagree**	**Strongly Disagree**	**Disagree**	**Neither agree/nor disagree**	**Agree**	**Strongly Agree**
	There are long term consequences to using 2 information systems to do the same/similar tasks?					
	Do you believe that there are impacts on the quality of MIS obtained from FPS, if MPP is used as well?					
	Why?					
	Do you believe that there are impacts on other teams, e.g. QAG, if MPP is used in					

addition to FPS?	
Why?	
Do you believe that there are financial implications on the organisation utilising 2 tools e.g. licensing costs?	

Demographical Information

	Male	Female		
Gender				
	20 - 25	26 - 35	36 - 50	50+
Age				
Job Description				
Number of months in current position				
Number of months in the organisation				
Number of months using FPS				
Number of months using MPP				
	Beginner	Intermedi-ate	Advanced	
Skills level using FPS				
Skills level using MPP				
No of hours using FPS/week				

Gaps

What do we need to do differently?

APPENDIX 6: SURVEY RESULTS

The respondents' overall results were categorised as "positive", "neutral" and "negative", based on the total number of negative responses (strongly disagree and disagree), total number of positive responses (strongly agree and agree) and total number of neutral responses (neither agree/disagree). The results can be summarised as follows:

Table 23: Categorisation of respondents (Source: Author)

Respondent	strongly disagree	disagree	neither agree/ disagree	agree	strongly agree	total negative	total mode-rate	total positive
1	8	21	5	15	1	29	5	16
2	19	11	14	3	3	30	14	6
3	6	16	6	20	1	22	6	21
4	1	17	1	29	0	18	1	29
5	0	20	16	14	0	20	16	14
6	0	11	6	31	0	11	6	31
7	0	12	8	27	1	12	8	28
8	0	11	12	26	0	11	12	26
9	0	22	9	17	0	22	9	17
10	1	23	2	21	1	24	2	22
11	1	7	34	6	0	8	34	6
12	8	21	5	17	0	29	5	17
13	4	20	13	10	2	24	13	12
14	18	17	2	8	4	35	2	12
15	0	32	9	5	0	32	9	5
Total						**10**	**1**	**4**
Percentage						**67%**	**7%**	**27%**